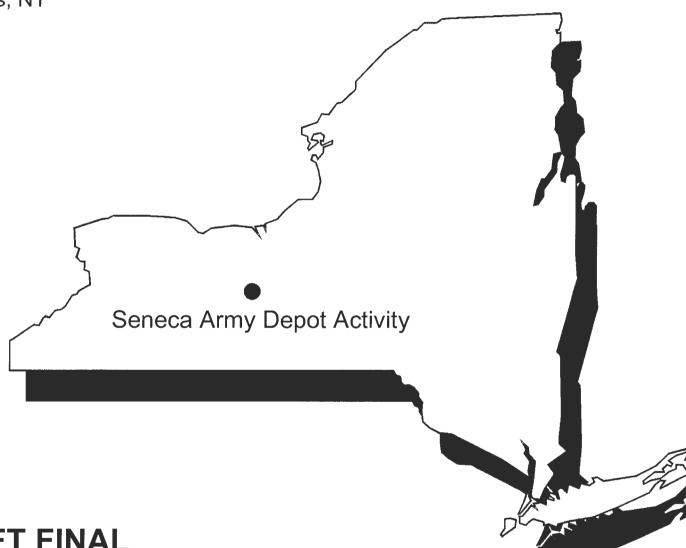
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US Army, Engineering & Support Center Huntsville, AL







DRAFT FINAL REMEDIAL INVESTIGATION REPORT

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

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

**JULY 2005** 

#### DRAFT FINAL

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

Prepared For:

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Contract No. DACA87-95-D-0031 Delivery Order No. 30 USEPA Site ID: NY0213820830; NY Site ID: 8-50-006; 741175

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#### ACRONYMS AND ABBREVIATIONS

AQCR Air Quality Control Region

ARAR applicable or relevant and appropriate requirements

ASP Analytical Services Protocol

ASTM American Society for Testing and Materials

AT Averaging Time

AWQS Ambient Water Quality Standard

BAF bioaccumulation factor

bgs below grade surface or below ground surface

BRA Baseline Risk Assessment
BRAC Base Realignment and Closure

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

BW Bodyweight

CDI Chronic Daily Intake over 70 years

CEC cation exchange capacity

CERCLA Comprehensive Environmental Responsibility, Compensation, and Liability Act

CERFA Community Environmental Response Facilitation Act

CF conversion factor

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

COPC chemicals of potential concern

cPAH carcinogenic polycyclic aromatic hydrocarbon

CSM Conceptual Site Model

CT central tendency

DA Absorbed dose

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

DRMO Defense Reutilization and Marketing Office

dup or DU duplicate sample designator

e.g., for example

EB equipment blank sample designator
EBS Environmental Baseline Survey

ED Exposure duration EF Exposure frequency

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

ERAGS Ecological Risk Assessment Guidance for Superfund

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

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

ft. Feet

GI gastrointestinal

gm gram

gpm gallon per minute or gallons per minute

GPS Global Position System

H Henry's law constant

H Herbicides

HEA Health Effect Assessment

HERD Human and Ecological Risk Division

HHRA human health risk assessment

HI hazard index
HQ Hazard Quotient
hr hour or hours

HWR Hazardous Waste Remediation

I Intake or Absorbed Dose

I.D. inside diameter

i.e., that is

IAG Interagency Agreement
IC institutional controls

ICP Inductively Coupled Plasma

IEUBK Integrated Exposure Uptake Biokinetic Model for Lead in Children

IR Inhalation rate

IRIS Integrated Risk Information System

Kg/hectare kilogram or kilograms per hectare

lb pound

LC50 median lethal concentration LCS laboratory control sample

LCSD laboratory control sample duplicate

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

LOAEL lowest observed adverse effect level LRA Local Redevelopment Authority

m meter(s)

MCL Maximum Contaminant Level

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

mm Hg millimeters of mercury

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

m/s meter(s)/second

MS matrix spike sample designation

MSD matrix spike duplicate sample designation

MSL mean sea level

MSDS material safety data sheet MV millivolt or millivolts

NCEA National Center for Environmental Assessment

NEPA National Environmental Policy Act NGVD National Geodetic Vertical Datum

nm nanometer

NOAEL no observed adverse effect level

NPDES National Pollutant Discharge Elimination System

NPL National Priority List

NTU Nephelometric turbidity units

NYCRR New York State Codes, Rules and Regulations

NYS New York State

NYSDEC New York State Department of Environmental Conservation

OB Open Burn

OCP Organochlorine Pesticides
OPP Organophosphorous Pesticides
ORP oxidation-reduction potential

OSWER Office of Solid Waste and Emergency Response

PAH polycyclic aromatic hydrocarbon

PbB blood lead

PCB Polychlorinated biphenyl

PID Planned Industrial/Office Development

PM particulate matter

POTW Publicly-Owned Treatment Works

ppm part or parts per million

PPRTV Provisional Peer Reviewed Toxicity Value

PR percent recovery

PRG preliminary remediation goal

PVC polyvinyl chloride

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

%R percent recovery

RCRA Resource Conservation and Recovery Act

RfC reference concentration

RfD reference dose

RFI RCRA Facility Investigation
RI Remedial Investigation

RI/FS Remedial Investigation/Feasibility Study

RL reporting limit

RPD relative percent difference RME reasonable maximum exposure

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

SD Sediment sample designation

SEC Secondary Drinking Water Guidance Value

SEDA Seneca Army Depot Activity SEV screening ecotoxicity value

SF Slope Factor
SI Site Investigation

SLERA screening level ecological risk assessment SMDP scientific management decision point

SOP standard operating procedure

SPDES State Pollutant Discharge Elimination System

SSHP Site-specific Safety and Health Plan

STSC Superfund Health Risk Technical Support Center

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

TAGM Technical and Administrative Guidance Memorandum

TAL Target Analyte List

TOGS Technical Operating Guidance TB trip blank sample designator

TBC to be considered

TCE trichloroethylene or trichloroethene

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

TRPH Total Recoverable Petroleum Hydrocarbons

TSCA Toxic Substances Control Act

UCL upper confidence limit

USACE United States Army Corps of Engineers

USC United States Code

USCS Unified Soil Classification System

USEPA United States Environmental Protection Agency

USGS United States Geological Survey

VC Vinyl chloride

VOC Volatile organic compound

W weight

Zn chemical symbol for Zinc

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

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#### EXECUTIVE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

#### E.1.3 Screening-Level Ecological Risk Assessment

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

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

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

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

#### E.2 RUMORED COSMOLINE OIL DISPOSAL AREA (SEAD-121I)

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

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

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

Metals including iron, manganese, arsenic, chromium, thallium, and zinc were found at levels greater than the NYS guidance values in soils at SEAD-121I, focused specifically in the areas surrounding the two ferrous-manganese ore piles. The ore piles are strategic stockpile materials that are being stored at the Depot, and are not considered a waste. The analytical results indicate that elevated levels of the other metals (arsenic, chromium, thallium, and zinc) identified in the soils at SEAD-121I are collocated with the elevated iron and manganese concentrations.

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

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

### E.2.2 Baseline Human Health Risk Assessment

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

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

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

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

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At SEAD-121I, lead was a COPC in surface water. A quantitative evaluation of dermal exposure to lead in surface water was not conducted as a reliable model is not available at this time. The exposure to surface water is expected to be infrequent and therefore potential risks are expected to be minor.

# E.2.3 Screening-Level Ecological Risk Assessment

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

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

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

### 1.0 INTRODUCTION

### 1.1 PURPOSE OF REPORT

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

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

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

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

### 1.2 GENERAL DESCRIPTION OF SEDA

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

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

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

### 1.3 SITE BACKGROUND

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

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

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

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

# 1.3.2 The Rumored Cosmoline Oil Disposal Area – SEAD-1211

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

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

# 1.4 ENVIRONMENTAL SETTING

# 1.4.1 Geology

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

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

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

### 1.4.2 Hydrogeology

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

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

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

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

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

# 1.4.3 Regional/Local Land Use

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

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

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

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

# 1.4.4 Regional Topography

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

# 1.4.5 Regional Climate

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

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

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

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

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

### 1.5 OFF-SITE WELL INVENTORY

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

### 1.6 REPORT ORGANIZATION

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

Climatological Data for Seneca Army Depot Activity SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity TABLE 1-1

	Temperature (1), °F		Mean Precip-	Mean Relative	Percent	Me	Mean Number of Days (4)	(4)
 Maximum	Minimum	Mean	itation (1), in.	Humidity (%)	Sunshine	Clear	Partly Cloudy	Clc
30.9	14.0	22.5	1.88	70	35	3	7	( 4
32.4	14.1	23.3	2.16	70	50	3	9	_
40.6	23.4	32.0	2.45	70	50	4	7	. 4
54.9	34.7	44.8	2.86	70	50	9	7	
 66.1	42.9	54.5	3.17	70	50	9	10	
 76.1	53.1	64.6	3.70	70	60)	8	10	
80.7	57.2	0.69	3.46	70	09	8	13	
78.8	55.2	67.0	3.18	70	09	8	Ξ	
72.1	49.1	60.7	2.95	70	09	7	11	
61.2	39.5	50.3	2.80	70	50	7	&	
47.1	31.4	39.3	3.15	70	30	2	9	
35.1	20.4	27.8	2.57	70	30	2	5	
56.3	36.3	46.3	34.33	70	50	64	101	C 2

Period	Mixing	Wind
	Height <sup>(2)</sup> , m	Speed (2), 111/s
inter)	006	8
ring)	700	9
ınmer)	200	5
ntumn)	009	5
nnual)	650	9
Winter)	006	8
Spring)	0091	8
Summer)	1.800	7
Autunn)	1300	7
Annual)	1400	7

Mean Annual Lake Evaporation (3), inches: 28 Mean Annual Pan Evaporation (3), inches:

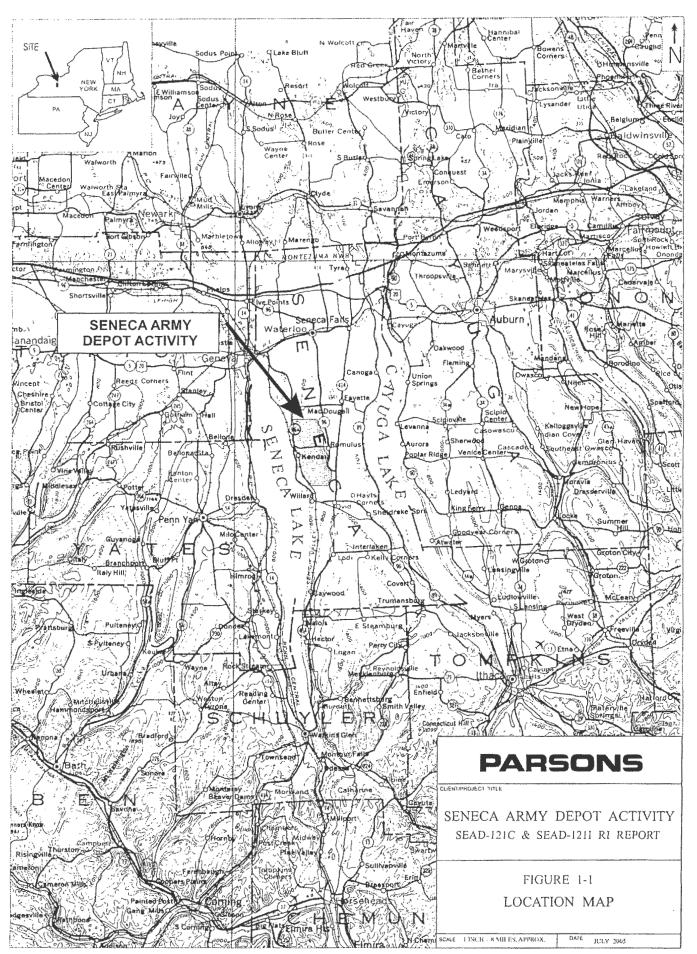
Number of episodes lasting more than 2 days (2), (No. of episode-days): (0)Mixing Height < 500 m, wind speed < 2 m/s:

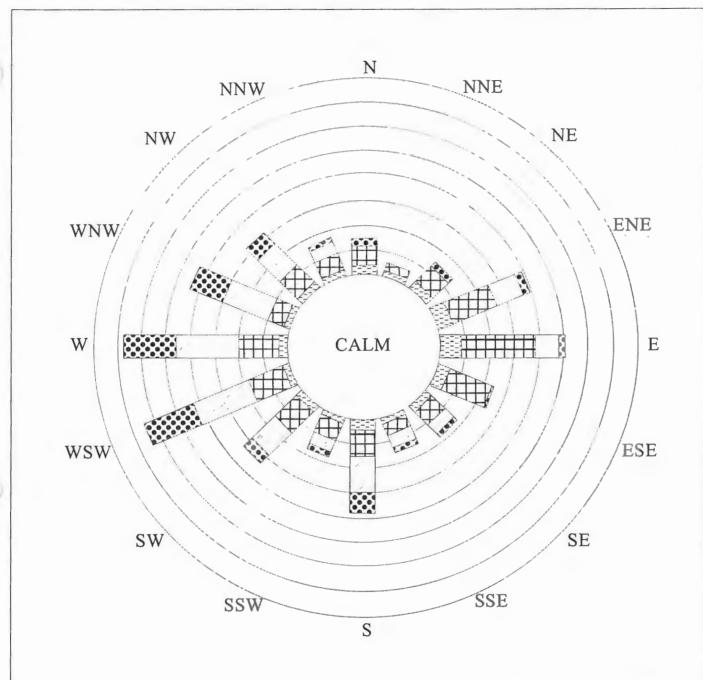
Mixing Height < 1000 m, wind speed < 2 m/s : 0 (0)

Number of episodes lasting more than 5 days (2), (No. of episode-days) : Mixing Height < 500 m, wind speed < 4 m/s : 0 (0)

of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Ithaca Cornell University, NY. leights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States. George C. Holzworth, Jan. 1972. Atlas of the United States. U.S. Department of Commerce, 1983.

of New York Climatography of the United States No. 60. National Oceanic and Atmospheric Administration, June 1982. Data for Syracuse, NY.







NOTE: EACH DIVISION IS 2% OF TOTAL TIME

INSTALLATION: SENECA ARMY DEPOT LOCATION OF DATA: SYRACUSE, NEW YORK

SOURCE: MODIFIED FROM: US ARMY ENVIRONMENTAL HYGIENE AGENCY





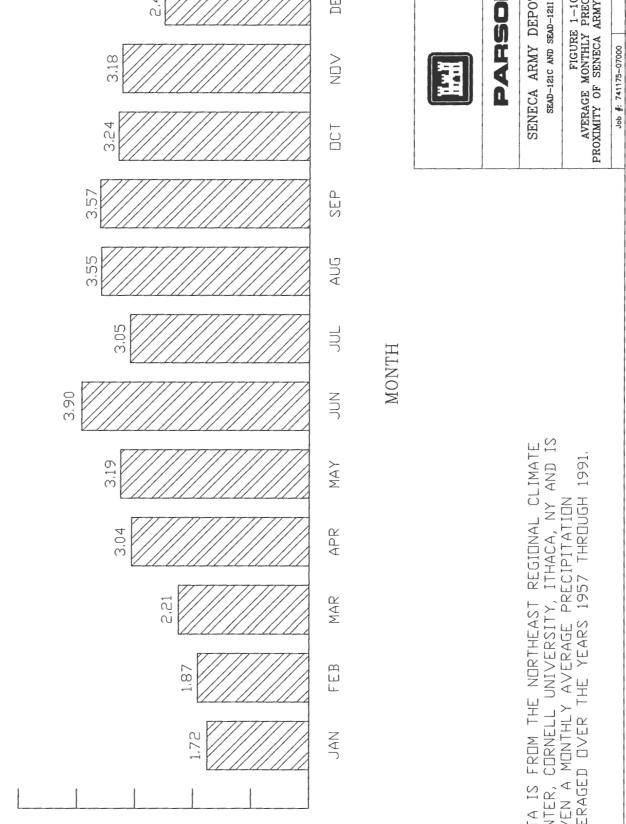
# **PARSONS**

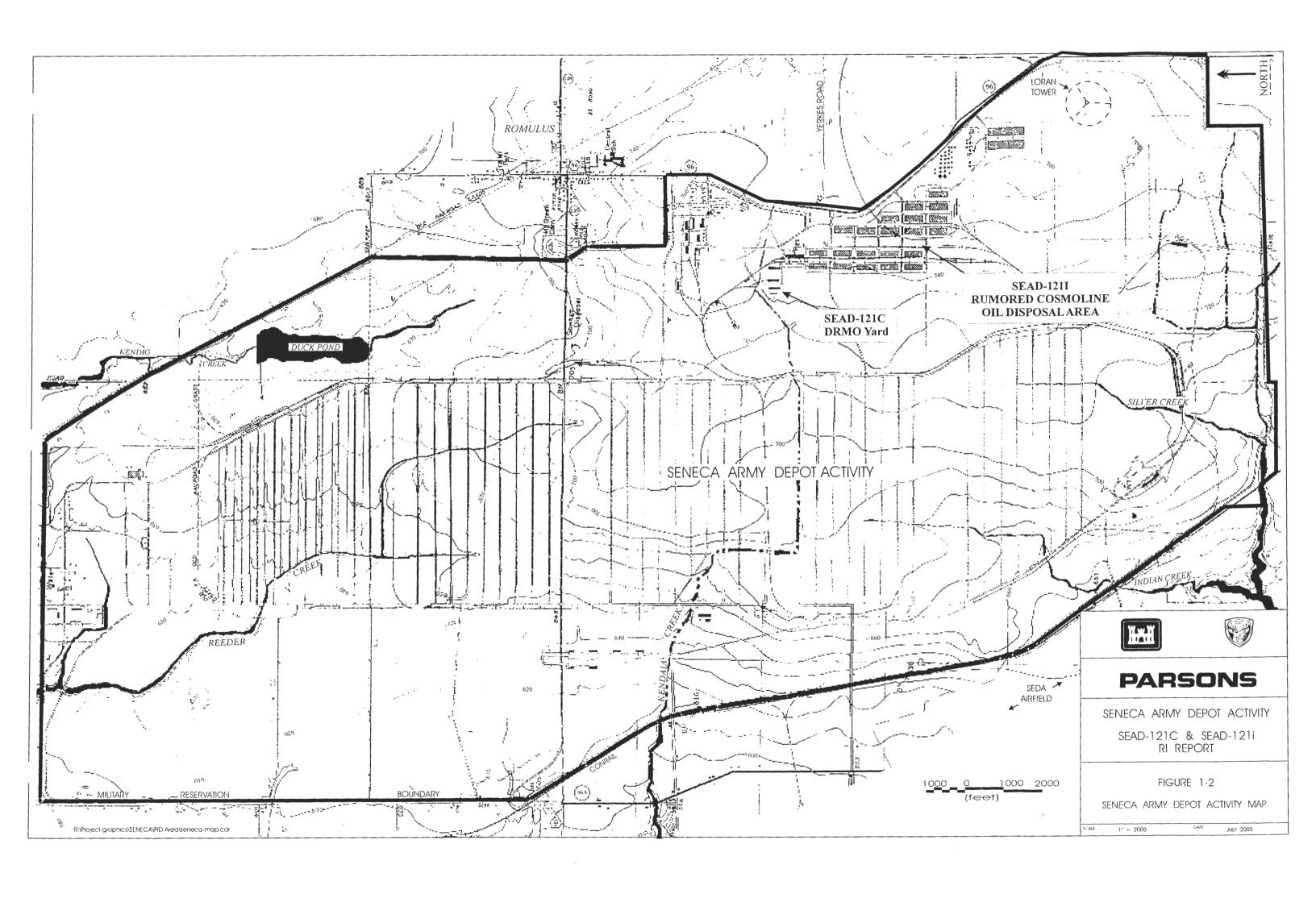
SENECA ARMY DEPOT ACTIVITY SEAD-121C & SEAD-121I RI REPORT

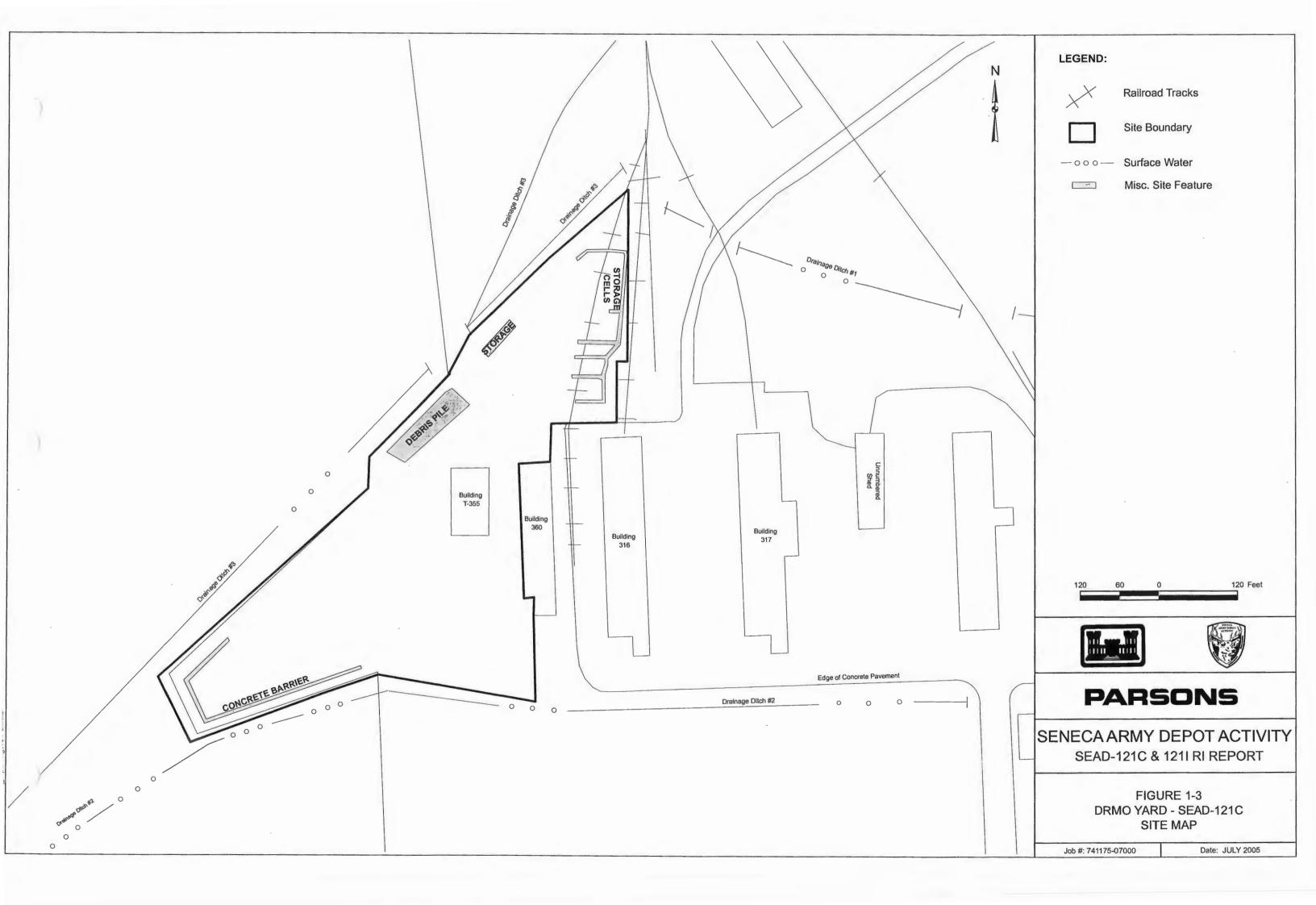
FIGURE 1-9

WIND ROSE, SYRACUSE, NEW YORK

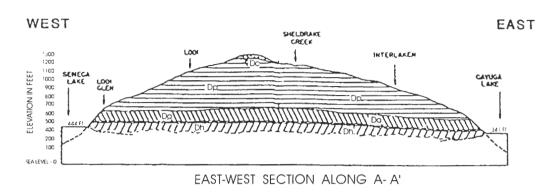
SCALE NA DATE JULY 2005

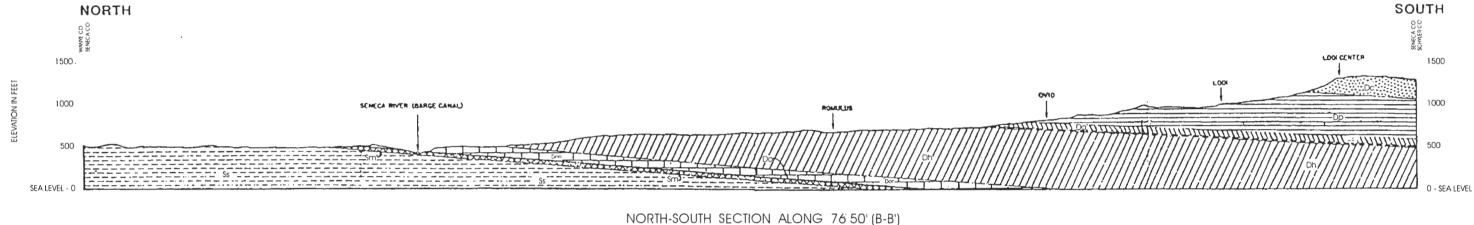


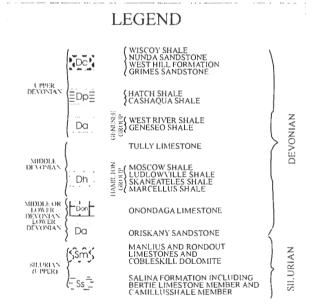




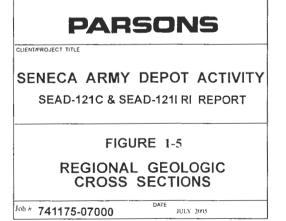






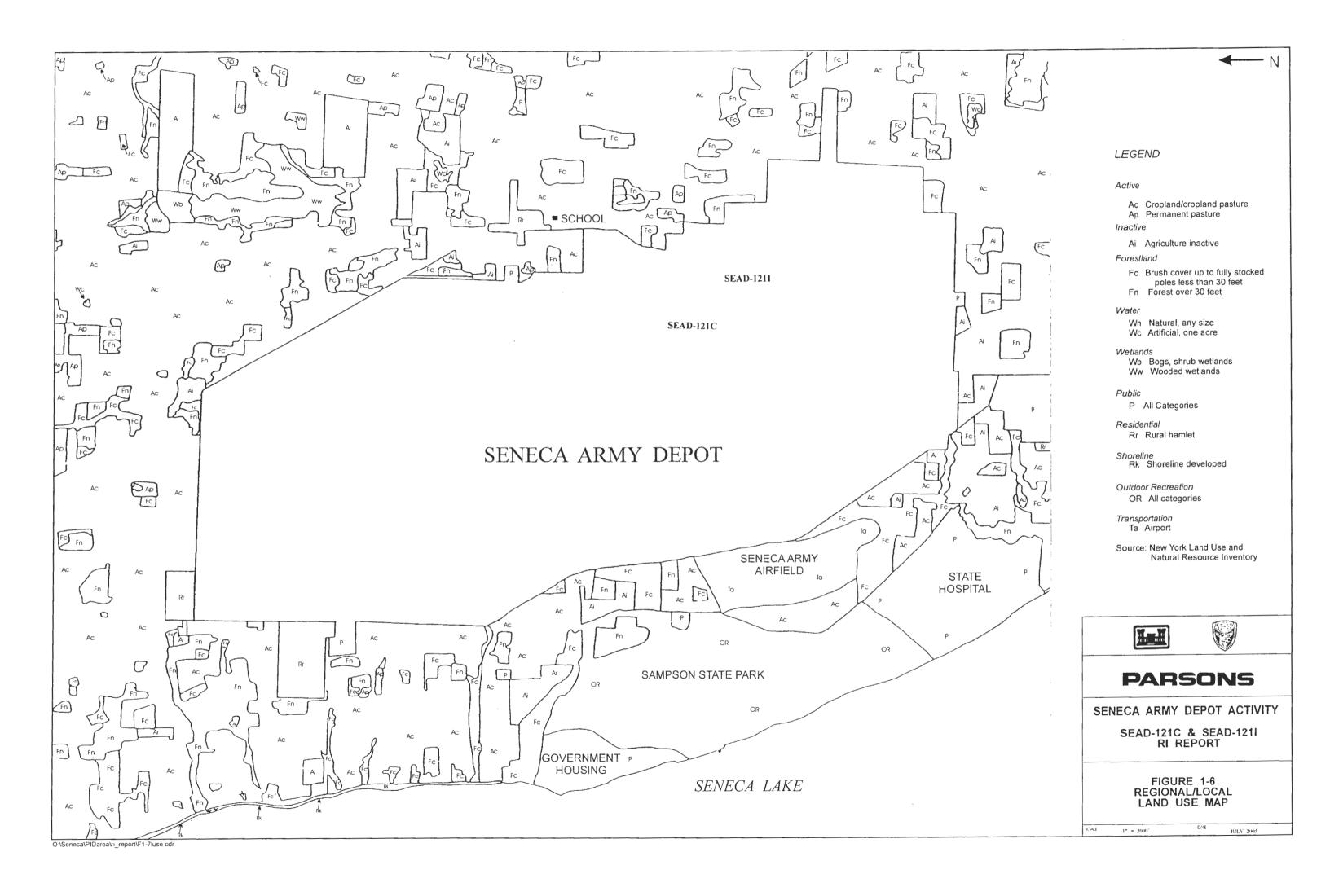


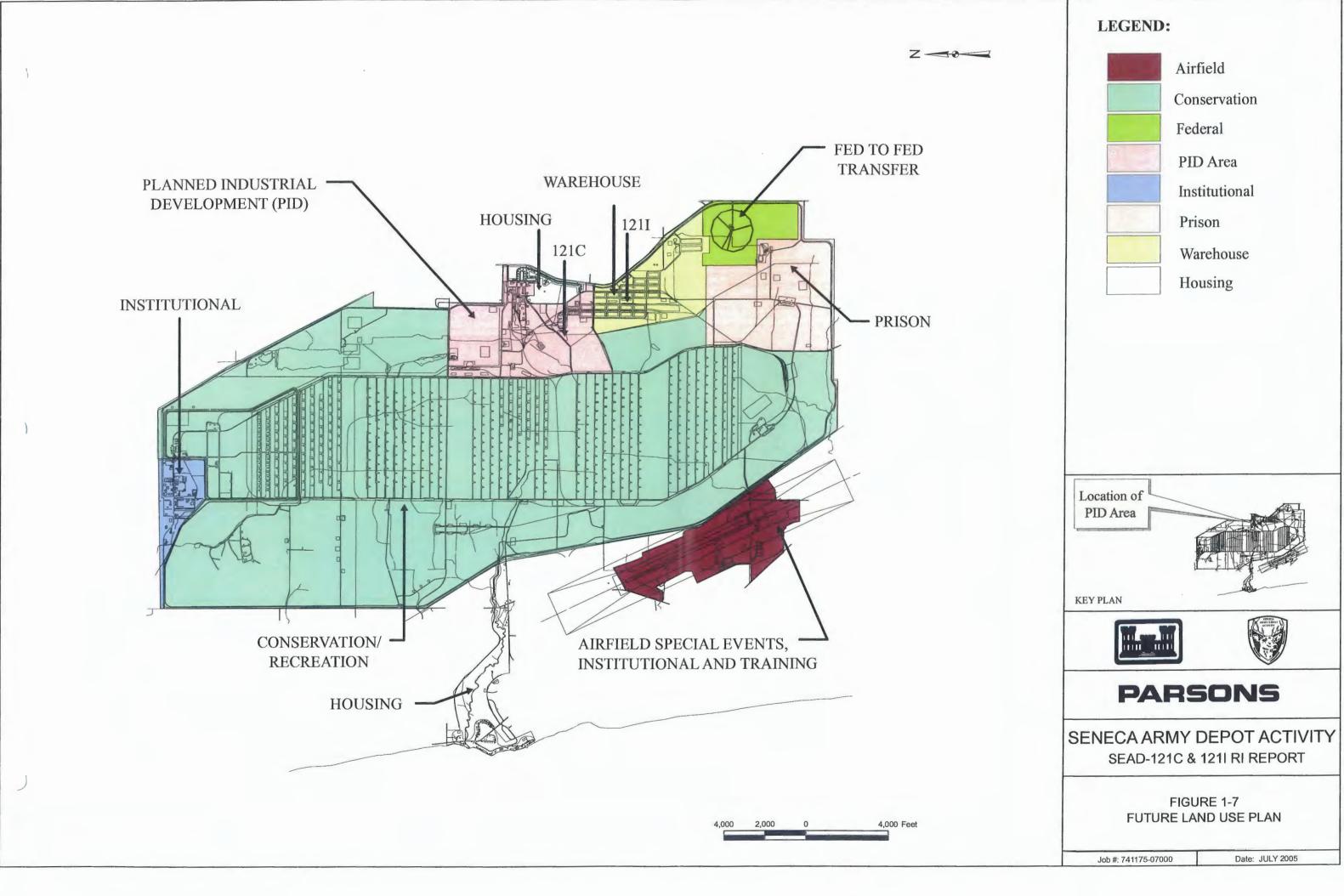
SCALE 1 0



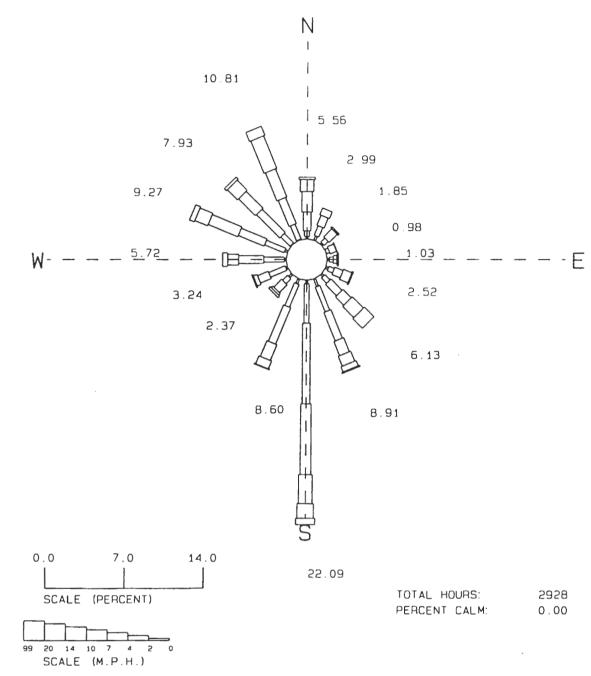
Job # 741175-07000

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

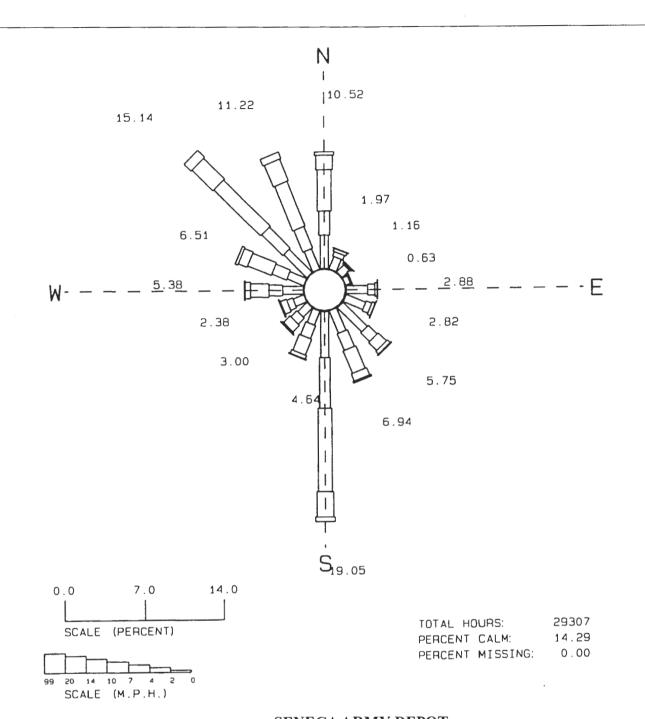




Jarea/ri\_report/igure1-/.mxd



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



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

# **PARSONS**

CLIENT/PROJECT TITLE

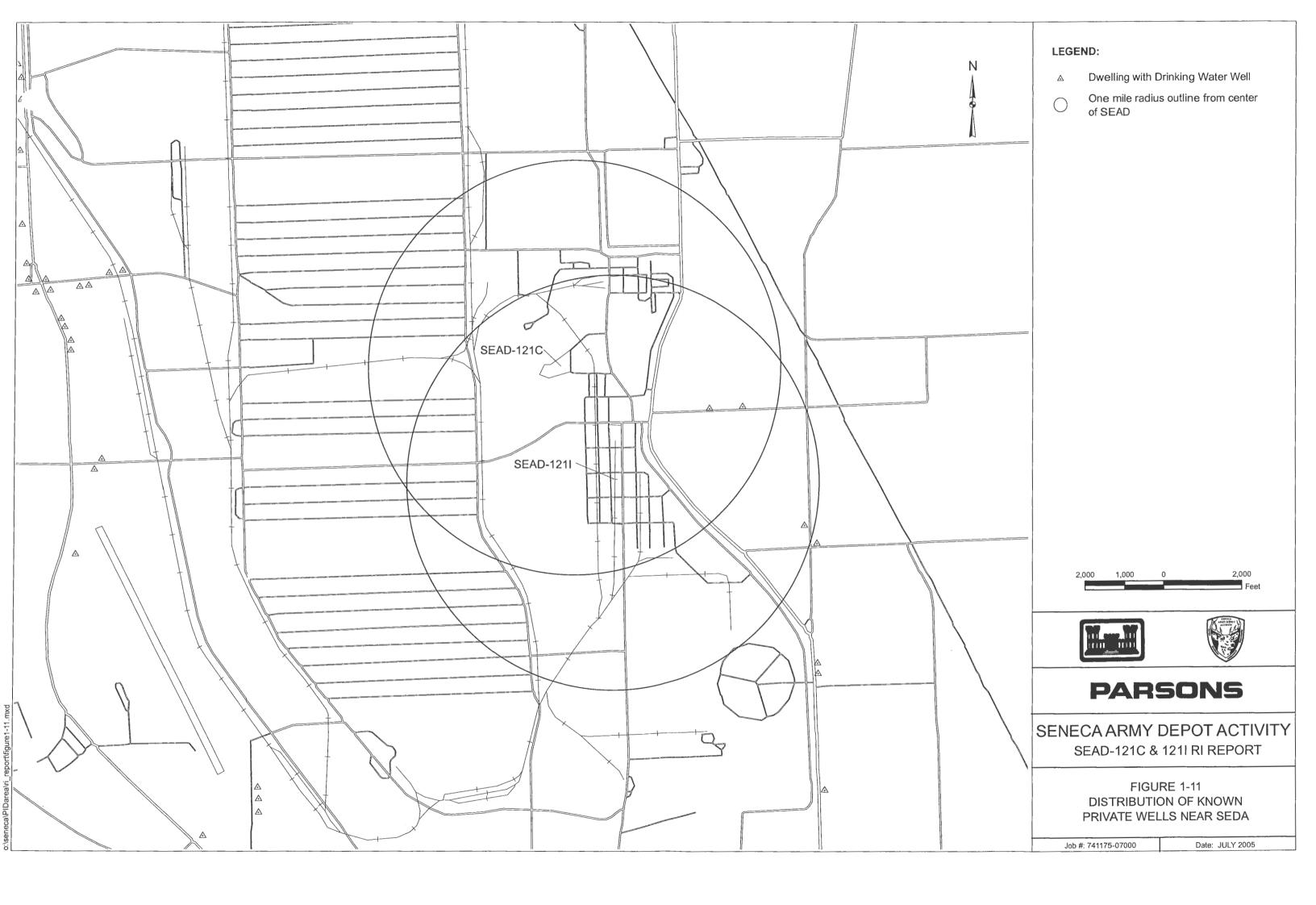
SENECA ARMY DEPOT ACTIVITY

SEAD-121C & SEAD-121I RI REPORT

> FIGURE 1-8 WIND ROSES

SCALE NA DATE JULY 2005

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#### 2.0 STUDY AREA INVESTIGATION

#### 2.1 INTRODUCTION

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

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

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

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

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

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

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

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

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

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

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

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

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

#### 2.2 METHODS AND MATERIALS

#### 2.2.1 Site Survey Program

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

During the RI sampling event, after completion of the field tasks, the coordinates of the soil, ditch soil, and surface water sample locations were obtained using a Global Position System (GPS). A licensed surveyor surveyed the permanent monitoring wells installed at the DRMO Yard during the RI program in order to acquire the elevation data. This survey procedure was not employed during the EBS sampling program because the wells installed during this investigation were temporary. The location, identification, coordinates, and elevations of all control points and all of the environmental sampling points were plotted on the site base maps to show their location with respect to surface features within the project area. A site plan for SEAD-121C and the vicinity is presented as Figure 1-3 while a comparable map for SEAD-121I and vicinity is presented as Figure 1-4.

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# 2.2.2 Soil Investigation

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

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

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

# 2.2.2.1 Soil Borings (Surface and Subsurface)

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

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

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

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

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

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

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

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

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

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

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

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

### 2.2.2.2 Ditch Soils

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

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

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

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

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

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

# 2.2.3 Surface Water Investigations

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

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

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

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

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

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

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

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

# 2.2.4 Groundwater Investigation

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

# 2.2.4.1 Monitoring Well Installation

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

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

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

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

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

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

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

## 2.2.4.2 Monitoring Well Development

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

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

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

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

# 2.2.4.3 Groundwater Sampling

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

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

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

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

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

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

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

# 2.2.5 Sample Analyses

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

# 2.2.5.1 Soil Samples

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

### 2.2.5.2 Surface Water Samples

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

## 2.2.5.3 Ditch Soil Samples

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

# 2.2.5.4 Groundwater Samples

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

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### TABLE 2-1 SUMMARY OF WELL DEVELOPMENT CRITERIA SEAD-121C AND SEAD-121I RI REPORT

### Seneca Army Depot Activity

Water Quality Indicator Parameter	SEAD-121C
	Development Criteria
Water Volume Removed	At least three well volumes*
Dissolved Oxygen	Not Applicable
PH	± 10 %
Specific Conductance	± 10 %
Temperature	± 10%
Turbidity	Preferably < 50 NTUs
* unless well pumped dry and low recharge.	

### TABLE 2-2 SUMMARY OF SOIL SAMPLE ANALYSES SEAD-121C AND SEAD-121I RI REPORT

### Seneca Army Depot Activity

Sample Analysis	SEAD-121C EBS	SEAD-121C RI	SEAD-1211 EBS	SEAD-1211 RI
TCL* volatile organic compounds by Method 8260B	•	•	•	•
TCL* semivolatile organic compounds by Method 8270C	•	•	•	•
TCL* pesticides by Method 8081 and PCBs by Method 8082	•	•	•	•
TAL* metals by EPA Method 6010	•	•	•	•
Cyanide by EPA SW846 Method 9012		•		•
Total Petroleum Hydrocarbon by EPA Method 418.1		•		•
Total Organic Carbon by Lloyd Kahn Method		•		•

<sup>\*</sup> TCL = Target Compound List

TAL = Target Analyte List

EBS = Environmental Baseline Survey

RI = Remedial Investigation

### TABLE 2-3 SUMMARY OF SURFACE WATER SAMPLE ANALYSES SEAD-121C AND SEAD-1211 RI REPORT

### Seneca Army Depot Activity

Analysis	SEAD	SEAD
	121C	1211
Volatile organic compounds by Method 524.2	•	•
TCL* semivolatile organic compounds by NYSDEC	•	•
CLP		
TCL* pesticides/PCBs according the NYSDEC CLP	•	•
SOW		
TAL* metals and cyanide by NYSDEC CLP	•	•
Cyanide (total and amenable) by SW846 9012	•	•
Total Petroleum Hydrocarbon by EPA Method	•	•
418.1		
* TCL = Target Compound List		1 stor
TAL = Target Analyte List		

### TABLE 2-4 SUMMARY OF DITCH SOIL SAMPLE ANALYSES

### SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity – Romulus, New York

Analysis	SEAD	SEAD
	121C	1211
TCL* volatile organic compounds by NYSDEC	•	•
CLP		
TCL* semivolatile organic compounds by NYSDEC	•	•
CLP		
TCL* pesticides/PCBs according the NYSDEC CLP	•	•
SOW		
TAL* metals and cyanide by NYSDEC CLP	•	•
Cyanide (total and amenable) by SW846 9012	•	•
Total Petroleum Hydrocarbon by EPA Method	•	•
418.1		
Total Organic Carbon by Lloyd Kahn	•	•
* TCL = Target Compound List		
TAL = Target Analyte List		

### TABLE 2-5 SUMMARY OF GROUNDWATER SAMPLE ANALYSES SEAD-121C AND SEAD-121I RI REPORT

### Seneca Army Depot Activity

Analysis	5	SEAD-121C	
	EBS	R1	R2
TCL* volatile organic compounds by NYSDEC ASP	•		
Volatile organic compounds by EPA Method SW846 8260B			
Volatile organic compounds by EPA Method 524.2			•
TCL* semivolatile organic compounds by EPA SW846 Method 8270C		•	•
TCL* pesticides/PCBs according the NYSDEC CLP SOW	•	•	•
TAL* metals by EPA Method 6010B	•	•	•
Total Petroleum Hydrocarbon by EPA Method 418.1		•	•
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TCL = Target Compound List

TAL = Target Analyte List

EBS = Environmental Baseline Survey

R1 = Round 1 of Remedial Investigation

R2 = Round 2 of Remedial Investigation

### 3.0 DETAILED SITE INVESTIGATION

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

### 3.1.1 Previous Investigations

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

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

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

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

### 3.1.3 Site Survey

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

### 3.1.4 Soil Investigation

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

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

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

### 3.1.4.1 Soil Borings

### **EBS Program**

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

### RI Program

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

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

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

### 3.1.4.2 Surface Soils

### **EBS** Program

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

### RI Program

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

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

### 3.1.5 Ditch Soil

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

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

### **EBS Program**

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

### RI Program

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

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

### 3.1.6 Surface Water

### **EBS Program**

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

### RI Program

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

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

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

### 3.1.7 Groundwater Investigation

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

### 3.1.7.1 Monitoring Well Installation

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

### **EBS Program**

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

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

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

### RI Program

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

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

### 3.1.7.2 Monitoring Well Development

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

### 3.1.7.3 Groundwater Sampling

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

### 3.1.8 Aguifer Testing

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

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

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

### 3.2.1 Results of Previous Investigations

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

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

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

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

### 3.2.3 Site Survey

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

### 3.2.4 Soil Investigation

### 3.2.4.1 Introduction

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

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### 3.2.4.2 Subsurface Soils

### RI Program

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

### 3.2.4.3 **Surface Soils**

### **EBS Program**

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

### RI Program

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

Surface soil samples (collected 0 to 2 inches bgs) were collected at all 30 sample locations (SS1211-5 to SS121I-34), as presented in Table 3-13. Sampling was conducted in accordance with the procedure outlined in Section 2.2.2.1.

### 3.2.4.4 **Ditch Soils**

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

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

### **EBS Program**

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

### RI Program

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

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

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

### 3.2.5 Surface Water

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

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

### **EBS Program**

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

### RI Program

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

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

### 3.2.6 Groundwater Investigation

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

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

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

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

Table 3-1 Summary of Survey Data: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

			Ground Surface		
Location	Northing	Easting	Elevation	PVC Flevation	Top of Protective Casing
Identification	(NAD 83 - ft)	(NAD 83 - ft)	(NAVD 88 - ft)		Elevation (NAVD 88 - ft)
Identification	(NAD 83 - 11)	(NAD 83 - II)	(NAVD 88 - II)	(NAVD 66 - 11)	Elevation (NAVD 65 - II)
Surface Soil Location	nne				
SSDRMO-10	996979.99	749845.55	729.787		
SSDRMO-11	996973.27	749677.57	731.542		
SSDRMO-12	997083.39	749644.32	733.004		
SSDRMO-13	996890.19	749719.71	730.811		
SSDRMO-14	996863.35	749438.48	730.492		
SSDRMO-15	996781.68	749440.86	721.836		
SSDRMO-16	996836.69	749605.78	722.562		
SSDRMO-17	997030.18	749381.86	727.098		
SSDRMO-18	997378.1	749795.19	728.871		
SSDRMO-19	997551.16	749950.74	728.419		
SSDRMO-20	996839.49	750051.42	730.837		
SSDRMO-21	997631.71	750195.56	731.43		
SSDRMO-22	997437.44	750143.35	733.244		
SSDRMO-23	996766.4	749792.29	723.86		
SSDRMO-24	997409.47	749923.52	730.505		
SSDRMO-5	997220.91	749915.22	730.849		
SSDRMO-6	997044.64	749908.68	730.113		
SSDRMO-7	996847.89	750221.31	734.765		
SSDRMO-8	996870,74	749882.54	728.736		
SSDRMO-9	997121.1	749788.9	731.807		
Soil Borings Location				l	
SBDRMO-10	996990.44	749577.77	732.214		
SBDRMO-11	997052.79	749709.09	732.515		
SBDRMO-12	996871.54	749767.39	730.348		
SBDRMO-13	996936.58	749456.42	731.156		
SBDRMO-14	996875.84	749671.6	730.688		
SBDRMO-15	996827.45	749547.31	728.93		
SBDRMO-16	996838.91	750135.15	731.232		
SBDRMO-17	996840.35	749947.1	728.546		
SBDRMO-18	997435.34	750008.24	733.033		
SBDRMO-19	997231.46	749728.31	731.946		
SBDRMO-20	996834.74	749456.43	729.377		
SBDRMO-21	997705.32	750165.5	731.05		
SBDRMO-22	997454.92	750291.57	736		
SBDRMO-23	997655.65	749996.35	727.832		
SBDRMO-24	997288.85	750056.52	732.531		
SBDRMO-5	997322.07	749936.83	730.879		
SBDRMO-6	996918.05	749882.82	729.161		
SBDRMO-7	997254.23	749819.49	729.519		
SBDRMO-8	996982.28	749778.83	731.39		
SBDRMO-9	996875.42	749831.47	730.43		

Table 3-1 Summary of Survey Data: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

			Ground Surface		
Location	Northing	Easting	Elevation	PVC Elevation	Top of Protective Casing
Identification	(NAD 83 - ft)	(NAD 83 - ft)	(NAVD 88 - ft)	(NAVD 88 - ft)	Elevation (NAVD 88 - ft)
Monitoring Well Lo	cations				
MW121C-3	997507.91	749999.17	733.328	733.41	733.7
MW121C-4	996866.95	749922.29	729.859	731.24	731.4
MW121C-5	996896.87	749448.53	731.62	732.3	732.5
MW121C-6	997040.99	749613.64	733.041	734.08	734.3
Surface Water and	Ditch Soil Locat	ions			
SW/SDDRMO-1	997783.54	750020.78	722.758		
SW/SDDRMO-10	997567.58	750188.66	726.577		
SW/SDDRMO-2	996827.47	750120.08	728.57		
SW/SDDRMO-3	996851.59	749726.49	720.916		
SW/SDDRMO-4	997327.43	749775.48	721.405		
SW/SDDRMO-5	996770.81	749452.27	719.279		
SW/SDDRMO-6	996864.4	749334.6	717.145		
SW/SDDRMO-7	996572.01	749161.74	715.185		
SW/SDDRMO-8	996634.58	749081.28	716.346		
SW/SDDRMO-9	997370.53	749955.47	730.482		

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TABLE 3-2
SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-121C
SEAD-121C AND SEAD-1211 RI REPORT
Seneca Army Depot Activity - Romulus, New York

		_	_				_		r		-	_	_		_					Υ						
Sample Depth (ft.)		0 - 0.2	0-0.2	0-0.2	0 - 0.2	0-0.2	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	0-2	0-2	0-2	0 - 2	0-2
Cyanide by EPA SW-846 Method 9012								×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCL Pesticides by EPA SW-846 Method 8081A								×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCL PCBs by EPA SW-	1							×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
- nodas Carbon - Index Kahn								×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Total Petroleum Hydrocarbon - EPA 418.1	1							×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCL Pesticides/PCBs by EPA SW-846 Method 8081 A/8082A		×	×	×	×	×	×																			
7AL Metals by SW-846	1	×	×	×	×	×	×	×	X	×	×	×	×	X	×	X	X	×	×	×	×	×	×	×	X	×
TCL SVOCs EPA SW-	1	×	×	×	×	×	×	X	X	X	X	×	×	X	×	X	×	X	X	×	×	×	×	×	×	×
Method 8260B LCL VOCs EPA SW-846		×	×	×	×	×	×	X	X	X	×	×	X	X	X	X	X	X	X	×	X	X	X	X	×	×
Sample Date		9-Mar-98	9-Mar-98	9-Mar-98	9-Mar-98	9-Mar-98	9-Mar-98	25-Oct-02	26-Oct-02	25-Oct-02	26-Oct-02	25-Oct-02	26-Oct-02	27-Oct-02	27-Oct-02	28-Oct-02	27-Oct-02	27-Oct-02	26-Oct-02	27-Oct-02	27-Oct-02	28-Oct-02	28-Oct-02	27-Oct-02	25-Oct-02	25-Oct-02
QC Code		DO	SA	SA	SA	DO	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Sample 1D	1	EB014	EB231	EB226	EB233	EB020	EB229	DRMO-1056	DRMO-1059	DRMO-1062	DRMO-1065	DRMO-1068	DRMO-1071	DRMO-16   DRMO-1074	DRMO-16 DRMO-1080	DRMO-1077	DRMO-1081	DRMO-1084	DRMO-1087	DRMO-1090	DRMO-1091	DRMO-1095	DRMO-1098	DRMO-1040	DRMO-1043	DRMO-1050
Ol notissod	RFACE SOIL	121C-1	121C-1	121C-2	121C-3	121C-4	121C-4	DRMO-10	DRMO-11	DRMO-12	DRMO-13	DRMO-14	<b>DRMO-15</b>	DRMO-16	DRMO-16	DRMO-17	DRMO-18	<b>DRMO-19</b>	DRMO-20	DRMO-21	DRMO-22	DRMO-23	DRMO-24	DRMO-5	DRMO-6	DRMO-6

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TABLE 3-2
SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-121C
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity - Romulus, New York

	Τ	Г			1					Г														_	T			
Sample Depth (ft.)	0-2	0-2	0-2	0-0.2	0 - 0.2	0-0.2	0 - 0.2	0-0.2	0-0.2	0 - 0.2	0-0.2	0-0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0-0.2	0-0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2
Cyanide by EPA SW-846 Method 9012		×	×					×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCL Pesticides by EPA SW-846 Method 8081A		×	×					×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	X	×
846 Method 8081A LCL PCBs by EPA SW-		×	×					×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Total Organic Carbon - Lloyd Kahn		×	×					×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Total Petroleum Hydrocarbon - EPA 418.1		×	X					×	×	X	X	X	X	×	X	X	X	X	X	X	×	×	×	×	×	×	×	×
TCL Pesticides/PCBs by EPA SW-846 Method 8081A/8082A				×	X	X	×																					
TAL Metals by SW-846		×	×	×	×	×	×	×	×	×	×	×	×	×	X	X	×	X	×	×	X	X	×	×	×	×	×	×
ICL SVOCs EPA SW-		×	×	×	×	×	X	X	×	×	×	X	X	×	×	X	×	×	×	×	X	×	×	×	X	×	×	×
LCL VOCs EPA SW-846	LX.	×	X	×	Χ	X	X	×	X	X	×	X	×	×	×	×	×	×	×	×	X	×	X	X	X	×	×	×
Sample Date	27-Oct-02	25-Oct-02	25-Oct-02	9-Mar-98	9-Mar-98	9-Mar-98	10-Mar-98	23-Oct-02	23-Oct-02	23-Oct-02	23-Oct-02	23-Oct-02	30-Oct-02	30-Oct-02	30-Oct-02	30-Oct-02	30-Oct-02	24-Oct-02	24-Oct-02	24-Oct-02	30-Oct-02	23-Oct-02	23-Oct-02	24-Oct-02	24-Oct-02	24-Oct-02	23-Oct-02	23-Oct-02
Spo S S S	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
GI əlqms2	DRMO-1046	DRMO-1049	DRMO-1053	EB235	EB236	EB237	EB241	DRMO-1006	DRMO-1007	DRMO-1008	DRMO-1009	DRMO-1010	DRMO-1011	DRMO-1012	DRMO-1013	DRMO-1014	DRMO-1015	DRMO-1016	DRMO-1017	DRMO-1018	DRMO-1019	DRMO-1020	DRMO-1000	DRMO-1001	DRMO-1002	DRMO-1003	DRMO-1004	DRMO-1005
U noitisoo J	DRMO-7	DRMO-8	DRMO-9	121C-1	121C-2	121C-3	121C-4	DRMO-10	DRMO-11	DRMO-12	DRMO-13	DRMO-14	DRMO-15	<b>DRMO-16</b>	DRMO-17	<b>DRMO-18</b>	DRMO-19	DRMO-20	DRMO-21	DRMO-22	DRMO-23	DRMO-24	DRMO-5	DRMO-6	DRMO-7	DRMO-7	DRMO-8	DRMO-9

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TABLE 3-2
SUMMARY OF SOIL SAMPLE ANALYSES: SEAD-121C
SEAD-121C AND SEAD-1211 RI REPORT
Seneca Army Depot Activity - Romulus, New York

											,										
Sample Depth (ft.)		2.5 - 3	2 - 2.5	2.5 - 3	2.5 - 3	2 - 6	2 - 6	2-6	2 - 6	2 - 6	2 - 6	2 - 6	2 - 6	2-6	2-6	2-6	2-6	2-6	2 - 6	2 - 6	2-6
Cyanide by EPA SW-846 Method 9012						X	X	×	×	×	X	×	×	X	X	X	×	×	×	×	×
TCL Pesticides by EPA SW-846 Method 8081A						X	X	X	X	X	X	X	X	×	X	×	×	X	×	×	×
TCL PCBs by EPA SW-						X	X	×	X	X	X	X	X	×	×	×	×	X	×	×	×
Total Organic Carbon - Lloyd Kahn						×	×	×	X	X	X	X	X	X	Х	X	X	X	X	X	×
Total Petroleum Hydrocarbon - EPA 418.1						X	×	×	×	X	×	X	X	×	X	X	×	X	×	X	×
TCL Pesticides/PCBs by EPA SW-846 Method 8081 A/8082A		×	×	X	X																
ATL Metals by SW-846 44/0100		X	X	X	X	X	X	X	X	Χ	X	X	Χ	X	X	X	X	X	X	Χ	X
TCL SVOCs EPA SW-	l	×	×	×	×	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	×
Method 8260B TCL VOCs EPA SW-846	ı	X	×	×	X	X	×	X	X	×	X	X	X	X	X	X	X	X	X	X	×
Sample Date		9-Mar-98	9-Mar-98	9-Mar-98	9-Mar-98	25-Oct-02	26-Oct-02	25-Oct-02	26-Oct-02	25-Oct-02	27-Oct-02	28-Oct-02	27-Oct-02	26-Oct-02	27-Oct-02	28-Oct-02	28-Oct-02	27-Oct-02	25-Oct-02	27-Oct-02	25-Oct-02
9C Code		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Gl əfqms2	E SOIL	EB232	EB228	EB234	EB230	DRMO-1057	DRMO-1060	DRMO-1063	DRMO-1066	DRMO-14   DRMO-1069	DRMO-1075	DRMO-17   DRMO-1078	DRMO-1082	DRMO-1088	DRMO-1102	DRMO-1096	DRMO-1099	DRMO-1041	DRMO-1044	DRMO-1047	DRMO-1054
Освайот П	JBSURFACE SOII	3121C-1	3121C-2	3121C-3	3121C-4	3DRMO-10	3DRMO-11	3DRMO-12	3DRMO-13	3DRM0-14	3DRMO-16	3DRM0-17	3DRM0-18	3DRMO-20	3DRMO-21	3DRMO-23	3DRMO-24	3DRMO-5	3DRMO-6	3DRMO-7	3DRMO-9

TABLE 3-3 SUMMARY OF DITCH SOIL SAMPLE ANALYSES; SEAD-121C

					_		,	·		·	
Sample Depth (ft.)	0 - 2	0 - 2	0 - 2	0-2	0-2	0 - 2	0 - 2	0-2	0 - 2	0-2	0-2
Cyanide by EPA SW- 846 Method 9012	×	X	X	X	X	X	×	X	X	×	X
TCL PCBs by EPA SW-	×	X	X	X	×	X	×	×	X	×	X
ATCL Pesticides by EPA SW-846 Method 8081A	×	×	X	X	×	X	×	×	×	×	X
Total Organic Carbon - Lloyd Kahn	×	X	X	×	X	X	×	×	×	×	×
Total Petroleum Hydrocarbon - EPA 418.1	×	×	×	×	×	×	×	×	×	×	×
TAL Metals by SW-846	×	×	X	X	×	X	×	×	×	×	×
846 Method 8270B	×	X	X	X	X	X	×	×	×	×	×
846 Method 8260B	X	X	X	X	X	X	×	×	X	×	×
Sample Date	5-Nov-02										
QC Code	SA										
Sample ID	DRMO-4000	DRMO-4001	DRMO-4002	DRMO-4003	DRMO-4004	DRMO-4006	DRMO-4007	DRMO-4005	DRMO-4008	DRMO-4009	DRMO-4010
AI noits20.J	DDRMO-1	DDRMO-2	DDRMO-3	DDRMO-4	DDRMO-5	DDRMO-6	DDRMO-7	DDRMO-8	DDRMO-8	DDRMO-9	DDRMO-10

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# TABLE 3-4 Summary of Ditch Soil Sample Characteristics: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Classification USCS MLCL OL Light gray clay, trace organic Light gray silt and fine clay, Dark black organic matter, Field Description some organic matter anerobic odor material Sample Depth 0-2" 0-2" 0-2" 0-2" 0-2" 0-5" 0-7, 0-2" (in) 0-2" 5-Nov-02 5-Nov-02 5-Nov-02 5-Nov-02 5-Nov-02 5-Nov-02 5-Nov-02 5-Nov-02 5-Nov-02 Sampled 5-Nov-02 Date DRMO-4002 DRMO-4003 DRMO-4004 DRMO-4006 DRMO-4007 SDDRMO-10 DRMO-4010 **DRMO-4009 DRMO-4005 DRMO-4000 DRMO-4001** Ditch Soil Sample Location SDDRMO-1 SDDRMO-5 SDDRMO-6 SDDRMO-9 Ditch Soil Sampling SDDRMO-8 SDDRMO-2 SDDRMO-3 SDDRMO-4 SDDRMO-7

# TABLE 3-5 SUMMARY OF SURFACE WATER SAMPLE ANALYSES: SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

•	w York
	New
TWO ISM IN TIFY AWAS AND SIFI AWAS	y - Romulus, Nev
יים שישני מ	Activity -
	Depot /
171 77	
ACT C	Seneca Arm

Cyanide by EPA SW- 846 Method 9012	×	×	×	×	×	×	×	×	×	×	X
Total Petroleum Hydrocarbon - EPA 418.1	×	X	X	X	×	X	×	×	×	×	×
TCL Pesticides by EPA SW-846 Method 8081A	×	X	X	X	×	Х	×	×	×	×	×
846 Method 8082A LCL PCBs by EPA SW-	X	X	X	X	×	×	×	×	×	×	×
7AL Metals by SW-846 6010/7###	X	X	X	X	X	X	X	×	X	X	×
846 Method 8270B TCL SVOCs EPA SW-	×	X	X	X	X	X	X	X	X	×	×
TCL VOCs EPA SW-	X	X	X	X	X	X	X	X	X	X	X
Sample Date	5-Nov-02										
9bo Code	SA										
Sample ID	DRMO-3000	DRMO-3001	DRMO-3002	DRMO-3003	DRMO-3004	DRMO-3006	DRMO-3007	DRMO-3005	DRMO-3008	DRMO-3009	DRMO-3010
Ul noits20A	SWDRMO-1	SWDRMO-2	SWDRMO-3	SWDRMO-4	SWDRMO-5	SWDRMO-6	SWDRMO-7	SWDRMO-8	SWDRMO-8	SWDRMO-9	SWDRMO-10 DE

SEAD-121C - Summary of Temporary Well Installations and Water Level Elevations SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity Table 3-6

Location Depth of Identification Boring (ft bgs)	Depth of Boring (ft bgs)	Depth of Point of Bedrock Well (ft bgs) (ft bgs)	Point of Well (ft bgs)	Top of Well Screen (ft bgs)	Top of Well Casing (ft bgs1)	Depth to Water (ft TOC)	Depth to Water (bgs) (ft bgs)	Sampling Date
MW121C-1	6.6	2.9	6.7	2.1	-1.9	4.6	2.7	3/11/1998
MW121C-2	9	4	5.9	1.6	-2.1	4.74	2.64	3/11/1998

ft bgs = Feet Below Grade Surface ft TOC = Measurement relative to Top of Casing in feet.

(1) Negative ft bgs value indicates that the referenced surface is above than grade surface.

Table 3-7 SEAD-121C - Monitoring Well Construction Details

## SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity - Romulus, New York

Nell	Point of Well Point of Well Diameter Diameter	Point of Well	Diameter	Diameter	Well Screened Interval	Scree	ned I	nterval	Well	Ground	Elevation of	Well Ground Elevation of Elevation of Height of	Height of	Well
ype		Relative to	Jo	Jo	Screen	Re	lativ	Relative to	Screen	Surface	Surface   Top of PVC	Top of	PVC Well Casing	Casing
	Ground Surface   Top of PVC	Top of PVC	Boring	Well	Length		TOC (ft)	(£)	Slot Size	Elevation	Slot Size Elevation Well (MSL)	Casing	Stickup (ft) Material	Material
	(ft)	(ft)	(in)	(in)	(ff)				(in)					
SM/	724.20	725.61	9	2	5	2.80 to 7.80	to	7.80	0.010	732.00	733.41	733.70	1.41	PVC
SM/	720.29	721.63	9	2	5	4.61 to	t	19.6	0.010	729.90	731.24	731.40	1.34	PVC
SM/	720.84	722.54	9	2	5	4.76 to		9.76	0.010	730.60	732.30	732.50	1.70	PVC
SM/	725.50	726.88	9	2	5	2.20 to	to	7.20	0.010	732.70	734.08	734.30	1.38	PVC
tes: WS = T	ıcs: WS = Till Weathered Shale Aqufier	ıfier												

Table 3-8
SEAD-121C - Monitoring Well Development Information

## SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

		14-11-4-6-			Field-Measured Parameters *	eters *		Duran Wat
^	Date Purged	Date	Development Method	Temperature	Femperature Specific Conductivity		Turbidity	Removed (m
				(°C)	(mS)	bΗ	(NTU)	
3	1/17/2003	10/29/2002	Teflon Bailer & Peristaltic Pump	4.8	0.88	7.28	69.0	3750
4-	1/17/2003	10/29/2002	Teflon Bailer & Peristaltic Pump	7.1	2.09	6.94	18.9	3700
3-5	1/17/2003	10/29/2002	Well was Dry	Par es	1	1	Ψ-	-
9-2	1/17/2003	10/29/2002	Teflon Bailer & Peristaltic Pump	5.5	2.63	7.06	0.37	3750

ments taken at end of purging event.

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TABLE 3-9
SUMMARY OF GROUNDWATER SAMPLE ANALYSES: SEAD-121C
SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity - Romulus, New York

Cyanide by EPA SW- 846 Method 9012				X	X	X	×	×	×	×
TCL PCBs by EPA SW-				×	×	×	×	×	×	×
TCL Pesticides by EPA SW-846 Method 8081A				×	×	×	×	×	×	×
TCL Pesticides/PCBs by RPA SW-846 Method		×	×							
Total Petroleum Hydrocarbon - APA 1,811				×	×	×	×	×	×	×
TAL Metals by SW-846	X	×	X	×	×	×	×	×	×	×
TCL SVOCs EPA SW-	×	×	×	×	×	×	×	×	×	×
TCL VOCs EPA Method 524.2								×	×	×
TCL VOCs EPA SW-	X	×	X	×	×	×	×			
Sample Date	17-Mar-98	17-Mar-98	17-Mar-98	3-Feb-03	3-Feb-03	4-Feb-03	3-Feb-03	7-May-03	7-May-03	7-May-03
QC Code	SA	na	SA							
Sample ID	EB153	EB023	EB154	121C-2000	121C-2002	121C-2004	121C-2003	121C-2009	121C-2010	121C-2012
al noitesol	MW121C-1	MW121C-1	MW121C-2	MW121C-3	MW121C-4	MW121C-4	MW121C-6	MW121C-3	MW121C-4	MW121C-6

Table 3-10 Monitoring Well Field Sampling Information: SEAD-121C

## SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Sample	Date		Field-	Field-Measured Parameters	Parameters			Gallons of
Sa	Sampled	Temperature	Specific	Hd	ORP	Dissolved Oxygen	Turbidity	Purge Water
		(°C)	Conductivity (umhos)		(mv)	(mg/L)	(UTV)	Removed (L)
3-	Feb-03	6.20	0.576	7.12	89	1.02	36.4	1.1
3-	3-Feb-03	4.08	2.12	7.08	165	6.28	15.6	0.80
3-	Feb-03	7.09	2.61	06.90	181	2.46	5.90	1.4

=	Sample	Date		Field	Measured F	Field-Measured Parameters			Gallons of
				DIA! Y	The state of the s	al milion			
0	Q)	Sampled	Temperature	Specific	Hd	ORP	Dissolved Oxygen	Turbidity	Purge Water
			(°C)	Conductivity (umhos)		(mv)	(mg/L)	(NTU)	Removed (L)
21C-3	121C-2009	7-May-03	8.6	0.57	7.08	19	8.0	318	0.45
21C-4	121C-2010	7-May-03	11.84	2.11	7.12	147	4.15	127.00	1.7
210-6	121C-2012	7-May-03	10.73	2.52	6 84	148	09 0	189 00	0.92

Table 3-11 Summary of Groundwater Elevation Data: SEAD-121C

### SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

	Elevation	Prior to Development	- 1	During Develop	(Oct 29, 2002) During Development (Jan 17, 2003)	Round 1	Round 1 (Feb 3, 2003)	Round 2 (	Round 2 (May 7, 2003
Įd	Top of PVC	Depth to	Groundwater	Depth to Water	Groundwater	Depth to	Groundwater	Depth to	Groundwa
	Well	Water (ft)	Elevation	(tt)	Elevation	Water (ft)	Elevation	Water (ft)	Elevatio
1	734.21		Not Develo	Not Developed in 2003		5.44	728.77	6.25	727.96
.2	733.88		Not Develo	Not Developed in 2003		5.13	728.75	5.90	727.98
C-3	733.41	7.55	725.86	8.47	724.94	7.75	725.66	7.80	725.61
C-4	731.24	4.41	726.83	6.84	724.40	4.49	726.75	4.70	726.54
C-5	732.30		Well was Dry -	Well was Dry - Not Developed		Well	Well was Dry	Well	Well was Dry
9-D	734.08	4.39	729.69	6.78	727.30	06.9	727.18	7.20	726.88

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Table 3-12 Summary of Survey Data: SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

	Т		Ground Surface
Location	Northing	Easting	Elevation
Identification	(NAD 83 - ft)	(NAD 83 - ft)	(NAVD 88 - ft)
Identification	(IAD 65-II)	(NAD 03 - II)	(1477 00 - 11)
Surface Soil			
SB121I-1	995134.62	751429.66	744.116
SB121I-2	994774.98	751398.61	741.195
SB121I-3	993858.04	751444.5	744.773
SB121I-4	993263.9	751385.07	742.38
SB121I-5	993462.77	751485.25	747.191
SS121I-1	995206.36	751476.69	
SS121I-10	994219.65	751465.5	742.601
SS121I-11	994257.88	751344.83	745.435
SS121I-12	993711.38	751512.5	745.597
SS121I-13	993688.28	751370.81	745.102
SS121I-14	993615.84	751506.74	746.386
SS121I-15	993596.98	751348.01	744.781
SS121I-16	993118.94	751551.07	749.245
SS121I-17	993055.23	751346.07	741.685
SS121I-18	995535.8	751184.74	744.894
SS121I-19	995046.39	751204.71	745.475
SS121I-2	994638.65	751531.37	
SS121I-20	994642.37	751208.02	744.269
SS121I-21	993951.98	751220.2	742.826
SS121I-22	993349.34	751238.63	741.906
SS121I-23	995265.53	751555.95	748.836
SS121I-24	994691.52	751572.55	746.111
SS121I-25	993935.49	751600.17	747.41
SS121I-26	993495.76	751618.19	748.096
SS121I-27	993363.28	751398.21	742.978
SS121I-28	994014.1	751400.37	744.774
SS121I-29	994628.57	751294.95	738.675
SS121I-3	994130.84	751494.92	
SS121I-30	995656.23	751535.71	747.866
SS121I-31	995554.62	751436.22	744.826
SS121I-32	995496.91	751254.6	745.813
SS121I-33	995248.38	751373.26	747.41
SS121I-34	995006.57	751470.02	743.415
SS121I-4	993378.24	751513.14	
SS121I-5	994982.32	751311.35	740.961
SS121I-6	994891.02	751472.32	744.032
SS121I-7	994898.23	751317.98	741.223
SS121I-8	994361.1	751494.58	743.692
SS121I-9	994351.89	751311.25	744.254

Table 3-12 Summary of Survey Data: SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Location Identification	Northing (NAD 83 - ft)	Easting (NAD 83 - ft)	Ground Surface Elevation (NAVD 88 - ft)
Surface Water and		(NAD 03 - II)	(IVA V D GO - IL)
SW/SD121I-1	992962.25	750592.66	743.255
SW/SD121I-10	995433.74	751244.74	744.035
SW/SD121I-2	994312.37	750577.55	737.467
SW/SD121I-3	995542.76	750540.98	736.6
SD121I-4	993037.94	751345.28	738.742
SW/SD121I-5	993045.44	751647.88	756.11
SW/SD121I-6	993715.11	751318.73	743.046
SW/SD121I-7	995572.01	751554.66	745.644
SD121I-8	994337.91	751299.84	741.506
SD121I-9	994342.44	751590.26	744.008
SD121I-1EBS	993741.65	751334.46	
SD121I-2EBS	995081.23	751286.55	

TABLE 3-13
SUMMARY OF SURFACE SOIL SAMPLE ANALYSES: SEAD-1211
SEAD-121C AND SEAD-1211 RI REPORT
Seneca Army Depot Activity - Romulus, New York

Sample Depth (ft.)		0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0-2	0-2	0-2	0-2	0 - 2	0-2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2
Cyanide by EPA SW- 846 Method 9012						X	X	X	X	×	×	Χ	X	×	X	×	×	X	×	×	×	X	×	×	×	Х	×	×	×	×
TCL PCBs by EPA SW-						X	X	X	X	X	×	×	X	X	X	X	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCL Pesticides by EPA SW-846 Method 8081A						×	×	X	X	X	X	X	X	X	X	X	X	X	×	×	×	×	×	×	×	×	×	×	×	×
Total Organic Carbon - Lloyd Kahn						×	X	×	X	X	×	×	×	×	X	X	×	X	X	×	×	×	×	×	×	X	X	X	X	×
Total Petroleum Hydrocarbon - EPA 418.1						×	X	X	X	×	×	×	×	X	×	X	×	×	×	×	×	×	×	×	×	×	×	×	X	×
TAL Metals by SW-846 6010/7###						×	X	×	×	×	×	×	×	X	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Rte Method 8270B TCL SVOCs EPA SW-	1	×	×	X	X	×	X	×	×	×	×	×	×	×	×	×	×	X	×	×	×	×	×	×	×	×	×	×	X	×
Rethod 8260B	1					×	X	Х	X	X	X	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Sample Date		10-Mar-98	10-Mar-98	10-Mar-98	10-Mar-98	24-Oct-02	24-Oct-02	24-Oct-02	24-Oct-02	24-Oct-02	24-Oct-02	22-Oct-02	22-Oct-02	22-Oct-02	22-Oct-02	22-Oct-02	23-Oct-02	23-Oct-02	23-Oct-02	23-Oct-02	22-Oct-02	22-Oct-02	22-Oct-02	22-Oct-02	23-Oct-02	22-Oct-02	22-Oct-02	22-Oct-02	23-Oct-02	23-Oct-02
QC Code		SA																												
Sample ID		EB147	EB150	EB149	EB148	1211-1040	1211-1043	1211-1044	1211-1047	121I-1050	1211-1053	1211-1006	1211-1031	1211-1007	1211-1008	1211-1009	1211-1010	121I-1011	1211-1012	1211-1013	1211-1014	1211-1015	1211-1016	121I-1017	1211-1018	121I-1019	1211-1020	1211-1021	1211-1022	1211-1023
Il noite20J	SURFACE SOIL	SS1211-1	SS1211-2	SS1211-3	SS1211-4	SB1211-1	SB1211-2	SB121I-2	SB1211-3	SB1211-4	SB1211-5	SS1211-10	SS1211-10	SS121I-11	SS121I-12	SS1211-13	SS1211-14	SS1211-15	SS1211-16	SS1211-17	SS121I-18	SS1211-19	SS1211-20	SS121I-21	SS121I-22	SS1211-23	SS121I-24	SS1211-25	SS1211-26	SS1211-27

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# SUMMARY OF SURFACE SOIL SAMPLE ANALYSES: SEAD-1211 SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity - Romulus, New York

Sample Depth (ft.)	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2	0 - 0.2
Cyanide by EPA SW- 846 Method 9012	×	X	X	×	×	×	×	×	×	X	X	×	×
TCL PCBs by EPA SW-	×	×	×	×	×	X	×	X	X	X	X	X	×
TCL Pesticides by EPA SW-846 Method 8081A	Х	X	X	×	X	X	X	×	X	X	Х	X	X
Total Organic Carbon - Lloyd Kahn	×	×	×	×	×	×	X	×	X	X	X	X	×
Total Petroleum Hydrocarbon - EPA 418.1		X	X	×	X	X	X	X	X	X	X	X	×
TAL Metals by SW-846	X	X	X	X	X	X	X	X	X	X	X	X	X
TCL SVOCs EPA SW-	×	×	×	X	X	×	X	X	X	X	X	X	X
846 Method 8260B	X	X	X	X	X	X	X	X	X	X	X	X	X
Sample Date	22-Oct-02	23-Oct-02	23-Oct-02	22-Oct-02									
QC Code	SA												
Затр)с ID	1211-1024	121I-1025	1211-1030	1211-1026	1211-1027	121I-1028	1211-1029	1211-1032	1211-1000	121I-1001	1211-1002	1211-1004	1211-1005
U noitsool	SS1211-28	SS1211-29	SS1211-29	SS1211-30	SS1211-31	SS1211-32	SS1211-33	SS1211-34	SS1211-5	SS1211-6	SS1211-7	SS1211-8	SS121I-9

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SUMMARY OF DITCH SOIL SAMPLE ANALYSES: SEAD-1211
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity - Romulus, New York

Sample Depth (ft.)	0 - 0.2	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
Cyanide by EPA SW- 846 Method 9012			X	X	X	×	×	×	×	×	×	×	×
TCL PCBs by EPA SW			X	×	×	X	×	×	×	X	X	X	×
TCL Pesticides by EPA SW-846 Method 8081A			X	X	X	X	×	X	X	X	X	X	×
Total Organic Carbon - Lloyd Kahn			X	×	×	X	X	X	X	X	X	X	×
Total Petroleum Hydrocarbon - EPA 418.1			×	×	×	X	X	X	×	X	×	×	×
7.AL Metals by SW-846			×	×	×	×	X	X	×	×	×	X	×
TCL SVOCs EPA SW-	×	×	×	×	×	×	×	X	×	×	×	X	×
846 Method 8260B LCL VOCs EPA SW-	1		×	×	×	×	×	X	×	×	×	X	X
Sample Date	10-Mar-98	10-Mar-98	6-Nov-02	6-Nov-02	6-Nov-02	6-Nov-02	6-Nov-02	6-Nov-02	26-Oct-02	26-Oct-02	6-Nov-02	6-Nov-02	6-Nov-02
9bo D D D	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
Sample ID	EB151	EB152	1211-4000	1211-4001	1211-4002	1211-4003	1211-4004	1211-4006	1211-4007	1211-4005	1211-4008	1211-4009	1211-4010
U notaison	3D1211-1EBS	SD1211-2EBS	3D1211-1	3D121I-2	3D121I-3	3D1211-4	3D1211-5	3D121I-6	3D1211-7	3D1211-7	3D121I-8	3D121I-9	3D121I-10

TABLE 3-15
Summary of Ditch Soil Sample Characteristics: SEAD-1211
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity

Ditch Soil	Ditch Soil	Date	Sample		
Sampling	Sample	Sampled	Depth	Field Description	OSCS.
Location	8		(in)		Classification
				Light gray to brown, silt and	
SD1211-1	1211-4000	6-Nov-02	0-5"	clay, shale fragments	ML
SD1211-2	1211-4001	6-Nov-02	0-7"	Silt and clay, shale fragments	ML
				Dark black organic matter,	
SD1211-3	1211-4002	6-Nov-02	0-2"	anerobic odor	OL

SUMMARY OF SURFACE WATER SAMPLE ANALYSES: SEAD-1211 SEAD-121C AND SEAD-121I RI REPORT **TABLE 3-16** 

Seneca Army Depot Activity - Romulus, New York

Cyanide by EPA SW- 846 Method 9012	X	X	X	X	X	X	X	×
Total Petroleum Hydrocarbon - EPA 418.1	×	X	X	X	X	Х	X	×
TCL Pesticides by EPA S46 Method 8081A	×	×	×	×	×	X	×	×
ACL PCBs by EPA SW-	×	×	×	×	×	×	×	×
TAL Metals by SW-846 6010/7###	×	×	×	×	×	×	×	×
TCL SVOCs EPA SW-	×	×	×	×	X	X	X	×
TCL VOC <sub>5</sub> EPA SW-	X	X	×	X	X	X	X	×
Sample Date	6-Nov-02	6-Nov-02	6-Nov-02	6-Nov-02	6-Nov-02	26-Oct-02	26-Oct-02	6-Nov-02
QC Code	SA							
Gample ID	1211-3000	1211-3001	1211-3002	1211-3004	1211-3006	1211-3007	1211-3005	1211-3010
(I) noite201	SW1211-1	SW121I-2	SW1211-3	SW1211-5	SW121I-6	SW1211-7	SW121I-7	SW1211-10



#### 4.0 NATURE AND EXTENT OF IMPACTS

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

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

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

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

#### 4.1 INTRODUCTION

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

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

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

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

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

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

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

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

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

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

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

#### 4.2 QUALITY CONTROL

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

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

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

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

#### 4.2.1 Discussion of RPD Results

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

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

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

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

#### 4.2.2 Summary of RPD Results by Site and Media

## 4.2.2.1 SEAD-121C

## Surface Soil

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

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

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

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

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

# Ditch Soil

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

## Groundwater

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

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

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

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

## Surface Water

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

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

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

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

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

#### 4.2.2.2 SEAD-1211

## Surface Soil

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

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

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

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

## Ditch Soil

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

#### Surface Water

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

# 4.3 DRMO YARD (SEAD-121C)

#### 4.3.1 Surface Soils

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

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

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

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

# 4.3.1.1 Volatile Organic Compounds

## Surface Soils

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

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

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

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

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

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

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

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

#### Ditch Soil

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

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

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

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

# 4.3.1.2 Semivolatile Organic Compounds

# Surface Soils

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

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

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

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

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

A higher multiplier represents a greater carcinogenic health risk.

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

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

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

#### Ditch Soil

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

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

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

#### 4.3.1.3 Pesticides and PCBs

#### **Surface Soil**

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

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

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

# **Ditch Soil**

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

## 4.3.1.4 Metals

#### Surface Soils

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## Ditch Soil

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

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

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

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

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

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

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

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

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

#### 4.3.1.5 Other Constituents

## Total Petroleum Hydrocarbons

#### **Surface Soils**

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

#### Ditch Soil

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

#### 4.3.2 Subsurface Soil

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

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

#### 4.2.2.1 Volatile Organic Compounds

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

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

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

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

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

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

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

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

## 4.3.2.2 Semivolatile Organic Compounds

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

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

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

# 4.3.2.3 Pesticides and PCBs

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

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

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

#### 4.3.2.4 Metals

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

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

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

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

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

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

#### 4.3.2.5 Other Constituents

#### **Total Petroleum Hydrocarbons**

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

#### 4.3.3 Groundwater

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

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

# 4.3.3.1 Volatile Organic Compounds

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

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

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

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

# 4.3.3.2 Semivolatile Organic Compounds

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

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

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

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

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

#### 4.3.3.3 Pesticides and PCBs

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

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

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

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

# 4.3.3.4 Metals

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

Tier 1	Tier 2	Tier 3
Chromium	Arsenic	Aluminum
Copper	Beryllium	Barium
Zinc	Cadmium	Calcium
	Vanadium	Cobalt
		Iron
		Magnesium
		Manganese
		Nickel
		Potassium
		Selenium
		Sodium

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

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

Tier 2	<u>Tier 3</u>
Antimony	Aluminum
Beryllium	Barium
Cadmium	Calcium
Mercury	Cobalt
	Iron
	Magnesium
	Manganese
	Nickel
	Potassium
	Selenium
	Sodium
	Beryllium Cadmium

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

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

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

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

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

#### 4.3.3.5 Other Constituents

## Total Petroleum Hydrocarbon

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

# 4.3.3.6 Building 360 (SEAD-27)

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

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

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

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

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

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

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

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

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

## 4.3.4 Surface Water

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

# 4.3.4.1 Volatile Organic Compounds

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

## 4.3.4.2 Semivolatile Organic Compounds

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

## 4.3.4.3 Pesticides/PCBs

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

#### 4.3.4.4 Metals

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

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

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

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

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

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

#### 4.3.4.5 Other Constituents

# Total Petroleum Hydrocarbons

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

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

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

#### 4.4.1 Surface Soil and Ditch Soil

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

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

#### 4.4.1.1 Volatile Organic Compounds

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

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

Eight VOCs (listed above) were detected in the soils. Acetone was detected in 36 samples. The two highest concentrations of acetone detected (150 μg/Kg and 110 μg/Kg) were found inside SEAD-121I at SD12II-8 and SS12II-15, respectively. The other detections of acetone were lower than 100 μg/Kg. Acetone is considered to be a common laboratory contaminant. In addition, the soil samples collected for VOC analyses were preserved with sodium bisulfate, and acetone is known to form in samples that are preserved with sodium bisulfate (Hewitt, 1999). Each of the remaining seven VOCs

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

### 4.4.1.2 Semivolatile Organic Compounds

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

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

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

graph also shows that the BTE values at the other sample locations are well below the 10 mg/Kg guidance value.

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

### 4.4.1.3 Pesticides/PCBS

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

Pesticides/P	CBs Detected in SEAI	0-121I Surface and Ditch Soil
4,4'-DDE	Dieldrin	Heptachlor epoxide
4,4'-DDT	Endosulfan I	Aroclor-1254
Aldrin	Endrin	Aroclor-1260

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

 $\mu$ g/Kg, and Aroclor-1260 was detected in three samples, with a maximum concentration of 46 J  $\mu$ g/Kg.

### 4.4.1.4 Metals

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

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

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

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

near the sampling locations. The data confirms the presence of the ferrous-manganese ore, which concurs with conclusions based on the visual inspection. The three ditch soil samples collected along Avenue A reported lower levels of iron and manganese compared to samples collected in the vicinity of the ore piles.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

### 4.4.1.5 Other Constituents

### Total Petroleum Hydrocarbons

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

### 4.4.2 Surface Water

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

### 4.4.2.1 Volatile Organic Compounds

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

### 4.4.2.2 Semivolatile Organic Compounds

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

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### 4.4.2.3 Pesticides and PCBs

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

### 4.4.2.4 Metals

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

Tier 1	Tier 2	Tier 3
Chromium	Beryllium	Aluminum
Copper	Cadmium	Barium
Lead	Vanadium	Calcium
Zinc		Cobalt
		Iron
		Magnesium
		Manganese
		Nickel
		Potassium
		Selenium
		Sodium

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

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

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

### 4.4.2.5 Other Constituents

### Total Petroleum Hydrocarbons

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

Page

Table 4
RPD Greater than 50%
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

Parameter		0.00	4.6.	2.0.	0.00	*****	101 40140	1011
	SEAD-121C	SEAD-121C	SEAD-121C				SEAD-1211	SEAD-1211
Media	Surface Soil	Ditch Soil	Groundwater	Surface Water	Groundwater Bld 360	Surface Soil	Ditch Soil	Surface Water
Vumber of Samp-Dup Pairs	5		2	-1	2	3		-
Volatile Organic Compounds								
Acetone	26%	110%				180%, 69%	%98	
Senzene						81%		
Chloroform	93%							
Ethyle Benzene	121%					55%, 73%	distribution of the state of th	
M/P Xylenes						%92		
Methyl Ethyl Ketone						68%, 182%		
Methylene chloride	28%							
Ortho Xylenes						58%, 83%		
Toluene	86%					82%		
Semivolatile Organic Compounds	ds							
,2,4-Trichlorobenzene		51%						
1,2-Dichlorobenzene		51%						
,3-Dichlorobenzene		51%						
1,4-Dichlorobenzene		51%						
2,4,6-Trichlorophenol		51%						
2,4-Dichlorophenol		51%						
2,4-Dimethylphenol		51%						
2,4-Dinitrotoluene		51%	The state of the s	Spinished Soul Spinished County (1997) 1974 (and additional spinished)				
2,6-Dinitrotoluene		51%			114 (114 ) 114   11			
2-Chloronaphthalene		21%						
2-Chlorophenol		51%						The state of the s
2-Methylnaphthalene	179%	51%					105%	
2-Methylphenol		51%			***************************************			
2-Nitrophenol		51%		1000				
3 or 4-Methylphenol	300 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	51%		***************************************				
3,3'-Dichlorobenzídine		51%			and the state of t			
4-Bromophenyl phenyl ether		51%						
4-Chloro-3-methylphenol		51%						
4-Chloroaniline		51%						
4-Chlorophenyl phenyl ether		51%					-	THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN THE PERSON NAMED IN THE PERSON NAMED I
Accnaphthene	168%	51%				į	124%	
Acenaphthylene		51%			AND		143%	
Anthracene	135%, 61%	51%			2.5.1	150%	128%	
Senzo(a)anthracene	57%, 62%, 53%	51%				92%	78%	
Зеп20(а)ругепе	26%	51%					71%	

Page 2

# Table 4-1A RPD Greater than 50% SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

Parameter	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-1211	SEAD-1211	SEAD-1211
Media	Surface Soil	Ditch Soil	Groundwater	Surface Water	Groundwater Bld 360	Surface Soil	Ditch Soil	Surface Water
Jumber of Samp-Dup Pairs	5	,	2	1	2	3	-	1
3enzo(b)fluoranthene	138%, 56%, 150%	51%					77%	
3enzo(ghi)perylene	60%, 79%, 63%	51%					78%	
3enzo(k)fluoranthene	55%	21%					%59	
3is(2-Chloroethoxy)methane		51%						
3is(2-Chloroethyl)ether		51%						
3is(2-Chloroisopropyl)ether		51%						
3is(2-Ethylhexyl)phthalate	140%, 69%	51%				133%, 156%		
3utylbenzylphthalate		51%						
Carbazole	128%	51%				148%	118%	
Chrysene	%09	51%					77%	
Dibenz(a,h)anthracene	115%, 86%	51%					92%	
Dibenzofuran	175%, 69%	51%					160%	
Di-n-butylphthalate	180%, 136%	51%						
Di-n-octyfplıthalate	152%	51%						
Diethyl phthalate	171%	51%				161%		
Dimethylphthalate		51%						
Tuoranthene	79%, 52%	51%	m, dish disessa sa			134%	%66	
Juorene	163%, 56%	21%					141%	
fexachlorobenzene	THE REST OF THE PARTY OF THE PA	51%						
- fexachlorobutadiene		51%			***************************************			
Texachlorocyclopentadiene		51%						
lexachloroethane		51%						
ndeno(1,2,3-cd)pyrene	62%, 79%, 141%	51%					106%	
sophorone		\$1%		Andrew Commission of the state				
V-Nitrosodiphenylamine	***************************************	%15	the same and same and					
N-Nitrosodipropylanime	1,000 ptg 100	51%						
Vaphthalene		51%						
Vitrobenzene		51%						
Phenanthrene	52%	51%				122%	120%	
henol		51%						
Syrene	74%, 51%, 77%, 53%	21%				28%	%68	
Pesticides/PCBs								
1,4'-DDD	108%		156%					
4,4'-DDE	153%		%86				146%	
4,4'-DDT	%091							
Aldrin	63%							

Table. A
RPD Greater than 50%
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

Surface Soil   Ditch Soil   Groundwater   Surface Water   Groundwater   Bid 360   Surface Soil   Ditch Soil     5	arameter	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-1211	SEAD-1211	SEAD-1211
Fig.	Aedia	Surface Soil	Ditch Soil	Groundwater	Surface Water			Ditch Soil	Surface Water
HeC   11%   11%   11%   164%	Jumber of Samp-Dup Pairs	5		2	-		3	1	1
17.06   17.06   18.0	3eta-BHC			141%					
Internal   R 12%   67%   164	Jelta-BHC	71%		84%					
Internal   S   S   S   S   S   S   S   S   S	Yeldrin		A 100	72%					
Internation   S19%	indosulfan I					67%	164%		Military constants of the second seco
If in sulfate	Indosulfan II			87%					
100%   100%	endosulfan sulfate			67%				THE PARTY OF THE P	
138%   1996   198%   1996   1996   1996   1996   1996   1996   1996   1996   1996   1996   1996   1996   1996   1996   1998	indrin aldehyde			100%					
11996   1199	Jamma-Chlordane			138%					
yeychlor         164%         164%         164%         164%         170%         150%         137%         52%         170%	Ieptachlor			%611				ment of the place of the Annual Annua	
r. folio         52%         150%, 130%         137%         52%           num         178%, 71%, 78%         55%         131%         52%           num         184%, 55%         51%         131%         131%           num         170%         122%, 67%         68%         68%           num         170%         70%         55%         70%         55%           ref. Total         199%         61%         77%         52%         17%           ref. Total         199%         61%         77%         54%         111%           num         60%         61%         77%         54%         111%           num         175%         51%         77%         54%         111%           num         176%         89%, 118%         178%         178%         178%           num         176%         89%, 118%         151%         151%         151%           num         176%         89%, 118%         188%         178%         178%	dethoxychlor			164%					The state of the s
r& Cyanide         150%, 139%         137%         52%           num         178%, 71%, 78%         95%         131%         52%           num         184%, 55%         51%         64%         68%           num         190%         122%, 67%         64%         64%           num         190%         70%         52%         72%           reful         199%         122%, 67%         57%         44%         64%           reful         199%         122%, 67%         70%         74%         74%           num         199%         65%         70%         74%         74%           num         65%         51%         77%         75%         70%           num         175%         51%         88%         111%         70%           num         176%         89%, 118%         188%         188%           num         176%         89%, 122%         188%         188%	Aroclor-1016		52%						
num         150%, 139%         137%         52%           num         1184%, 53%         51%         131%         133%           n         184%, 53%         51%         122%, 67%         64%           n         190%         70%         64%         70%           ium         199%         70%         57%         52%           re. Total         199%         61%         77%         54%           sium         69%         61%         77%         54%           inm         176%         51%         84%         111%           inm         176%         89%, 118%         184%         70%           nrase         176%         89%, 118%         184%         119%           nrase         76%, 122%         89%, 118%         184%         119%	Metals & Cyanide								
only         178%, 718%, 78%         95%         131%         131%           c         184%, 55%         51%         68%         68%           um         190%         64%         64%         64%           m         170%         122%, 67%         64%         75%           r         199%         70%         77%         74%           r. Total         199%         61%         77%         75%           um         69%         51%         75%         111%           m         175%         51%         75%         111%           m         176%         89%, 118%         75%         118%           organic Carbon         88%         148%         148%	Aluminum			150%, 139%		137%	52%		
turn 184%, 55% 51% 51% 68% 68% 68% 68% 68% 68% 68% 68% 68% 68	Antimony	178%, 71%, 78%					131%		
1 184%, 55%         51%         Proposition         P	Arsenic		95%				%89		
unn         190%         170%	Sarium	184%, 55%	51%					Photograph of the Atlanta and Atlanta	
m         170%         m         170%         m         64%         64%         m           r <td< td=""><td>Sadmium</td><td>190%</td><td></td><td></td><td></td><td>To a series of the series of t</td><td></td><td></td><td></td></td<>	Sadmium	190%				To a series of the series of t			
ium         56%         77%         64%           r         199%         70%         52%         52%           le, Total         199%         192%, 122%         57%         74%           sium         69%         61%         77%         57%           inn         52%         51%         77%         54%           in         125%         51%         77%         75%           in         125%         51%         75%         75%           in         176%         88%         70%         75%           ot obstitute Carbon         88%         89%, 118%         148%         148%	Calcium	170%							
r         199%         70%         70%           le, Total         199%         192%, 122%         57%         74%           sium         69%         61%         77%         75%           nn         52%         84%         111%         75%           n         125%         51%         75%         75%           n         176%         89%, 118%         70%         75%           nim         176%         89%, 118%         148%         148%           Organic Carbon         88%         148%         148%         148%	Thromium			122%, 67%			64%		
r         199%         199%         74%         74%           le, Total         199%         57%         57%         77%           sium         69%         61%         77%         75%           nn         52%         84%         111%         54%           nn         125%         51%         75%         75%           nn         nn         176%         89%, 118%         70%           Organic Carbon         88%         89%, 118%         148%           Petroleum Hydrocarbons         76%, 122%         148%         148%	Cobalt		26%	%02			52%		
le, Total         199%         199%         57%         75%           sium         69%         61%         77%         54%           nnese         61%         77%         54%         111%           nn         52%         84%         111%         75%           nn         125%         51%         75%         75%           nn         nn         75%         70%         75%           nm         176%         89%, 118%         70%         188%           Organic Carbon         88%         89%, 118%         148%         148%	Copper	%661							THE PERSON NAMED AND PERSON NAMED IN
sium         199%         57%         57%           sium         69%         61%         77%         75%           incse         61%         77%         54%         111%           in         125%         51%         75%         75%           in         in         125%         51%         75%           inim         in         176%         89%, 118%         70%           Organic Carbon         88%         89%, 118%         448%         448%	Syanide, Total						74%		
sium         69%         61%         77%         75%         75%           nncse         61%         77%         84%         111%         75%           nn         125%         51%         75%         75%           nn         1176%         89%, 118%         131%         70%           Organic Carbon         88%         89%, 118%         148%         148%	ron			192%, 122%	21%				
sium         69%         61%         77%         75%           nnese         61%         77%         54%           nn         52%         84%         111%           nn         125%         51%         75%           nn         176%         89%, 118%         70%           nim         176%         89%, 118%         70%           Organic Carbon         88%         148%	ead	199%						de en amendade effective and the effective and effective descriptions.	
nnese         61%         77%         54%           am         52%         84%         111%           n         125%         51%         75%           n         131%         70%           nm         176%         89%, 118%         70%           Organic Carbon         88%         89%, 118%         148%	Magnesium	%69			111111111111111111111111111111111111111		75%		
am         52%         84%         111%           n         75%         75%           n         75%         75%           n         75%         70%           im         131%         70%           n         176%         89%, 118%         70%           Organic Carbon         88%         148%           Petroleum Hydrocarbons         76%, 122%         148%	Manganese		%19		77%		54%		55%
am         52%         84%         111%           n         125%         51%         75%           im         131%         70%           iim         176%         89%, 118%         70%           Organic Carbon         88%         148%           Petroleum Hydrocarbons         76%, 122%         148%	Vicke]	1				The state of the s			
In 125% 51% 75% 75% 131% 131% 131% 131% 131% 131% 148% 122% 148% 148%	Selenium		52%			84%	111%		53%
n 125% 51% 131% 131% 131% 131% 131% 131% 131	Silver						75%		
im         131%           tum         176%         89%, 118%           Organic Carbon         88%         148%	Sodiun	125%	51%						
num         176%         89%, 118%           Organic Carbon         88%         88%           etroleum Hydrocarbons         76%, 122%	Fhallium						131%	%02	**************************************
Drganic Carbon         88%           etroleum Hydrocarbons         76%, 122%	Vanadium								
Organic Carbon 88% etroleum Hydrocarbons 76%, 122%	Zinc	176%		89%, 118%					
88% 76%, 122%	Other								
76%, 122%	Fotal Organic Carbon	88%							
	Fotal Petroleum Hydrocarbons	76%, 122%	The state of the s				148%		

Note: All parameters shown had RPD greater than 50%.

Table 4-1.

Quality Control of Field Duplicates - RPDs Greater than 50%
Surface Soil at SEAD-121C
SEAD-121C and SEAD-121I RI Report
Senexa Army Depot Activity

		S	SB121C-1		S	SB121C-4		SB	SBDRMO-16	-	SBI	SBDRMO-6		ISS	SSDRMO-7	
Parameter	Units	EB231	EB014	*RPD	EB020	EB229	*RPD	*RPD DRMO-1074 DRMO-1080	DRMO-1080	RPD	DRMO-1043 DRMO-1050 *RPD	DRMO-1050	*RPD	DRMO-1002 DRMO-1003	DRMO-1003	*RPD
Volatile Organic Compounds																
Acetone	UG/KG	12 U	12.1	-	10.1	U 11	10%	2.6 UJ	2.8 UJ	2%	2.6 UJ	4.6:U	56%	3.1.03	2.9 R	٨A
Chloroform	UG/KG	12 U	12:17		III III	4.)	93%	2.6:U	2.8 U	1%	2.6 W	2.7 U	4%	3.1.00	2.9 U	79%
Ethyl benzene	UG/KG	12 U	12,0	I	10 01	II:U	-	7.6,17	2.8 U	7%	0.66 J	2.7 U	121%	3.1.01	2.9 · U	7%
Methylene chloride	UG/KG	12 U	12 U	1	III UII	UU	1	2.6 U	2.8 U	7%	2.6 UJ	2.7.U	4%	3.1.03	1.7:0	28%
Toluene	UG/KG	2.1	5.3	. 86%	12 3	10.1	18%	2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 'UJ	2.9:U	7%
Senivolatile Organic Compounds	nds															
2-Methylnaphthalene	UGKG	78 U	4.3 3	179%	72 U	71:0	1%1	200 J	210 J	5%	340 U	350 U	3%	140 1	110 1	24%
Acenaphthene	UG/KG	78 U	6.8 J	168%	72 U	J 17	1%1	160.1	170 J	%9	340 U	350 U	3%	310.3	1901	48%
Anthracene	UG/KG	78 U	151	135%	72 U	71 0	1%	1100	950	15%	340 U	350 U	3%	1600	850	%19
Benzoka)anthracene	LIG/KG	78 U	76	3%	39.1	7.7	57%	5500 1	2900 J	62%	340 U	350 [U]	3%	f .0029	3900 3	53%
Benzolamyrene	1/G/KG	78.11	57.1	31.5%	72.11	71.0	%	4800 1	2700 J	%95	340 Us	350 UJ	3%	7600 J	5000 J	41%
Benzoch)fluoranthene	IIG/KG	78.13	56	204,	13.1	21 13	138%	1 0099	\$700.1	7,95	1.05	350 111	150%	1 1000 1	f 0099	50%
Benzol ghi berylene	1)G/KG	0187	42.1	%09	72.13	71 13	16,0	1700.1	740 J	7,66	1013	5713	63%	3800 J	2500 J	41%
Benzock)fluoranthene	DG/KG	78 U	67.1	15%	72.11	711.0	16	30001	1700.1	55%	340 UJ	350 111	30%	4900 J	3100 3	45%
Bis/2-Ethylbexylphihalate	11G/KG	13:3	73 11	140%	03.1	[3]	33%	97.1	74.1	27%	340 [3]	350 111	3%	200.1	97.5	60%
Carbazole	1)G/KG	78 13	17.1	178%	72:11	71 17	1%	1701	130 J	27%	340 []	150 11	35	910	550	19%
Chrystale	11G/KG	78.11	00	4%	8	17.1	318	1 0005	1,002,0	%U9	340 131	150 111	30%	6800.1	4300 1	45%
Di-n-hutchphthalate	11C/KG	78:11	73,11	76%	72.11	17.1	1800%	160 11	11 092		340 [1]	15071	30%	380:11	73.11	136%
Di-n-cetylphthalare	1 SKG	100	73 [1]	1530%	72 11	71 11	761	11,091	360 131		340 111	150 111	34%	380 111	380 111	
Diberry's blanthyacene	LIC/KG	78:11	2111	1150	77 61	71.11	%	750.1	1001	769X	140 131	150 111	70%	570.1	1201	73.6%
Dhenzofiran	Da'ko	78.11	115	175%	2 2 2	11.17	2	1,07,1	1001	7611	340 11	150 11	367	330 [	160:1	7407
Note: Jahren 1915	2000		72.12	1746	3		200	1100	1076		200	2007		11.000	11000	
Dienyi phunalare	OC/RC	2.6.3	0)5/	0/1/	8.1.5		24.7%	3000	2000		240.0	0 000		0.000	28010	
Fluoranthene	S KC	78.0	180	*	7.4 3	10.	50%	8200 1	5100.3	4/%	23.1	38.3	33%	15000	2800	\$/7C
Fluorene	UCKG	78.0	8.3	163%	72 U		1.70	650	069	%9	340 U	350 U	3%	0001	260	26%
Indeno(1,2,3-cd/pyrene	UG/KG	78 U	41 J	62%	72 U	71.0	%	760	330.1	19%	60 J	350 UJ	141%	100	840:1	27%
Phenauthrene	UG/KG	78 U	96	21%	8.8 1	7.6 J	15%	4400 J	4000 7	10%	340 U	350 U	3%	13000	7600	52%
Рутене	UG/KG	78 U	170	74%	8.311	14.)	51%	12000 1	5300 J	77%	130 3	78 J	20%	24090 J	14000 1	53%
Pesticides/PCBs																
4,4'-DDD	UG/KG	3.9 U	3.7 U	2%	3.6 U	3.5 U	3%	1.8 UJ	6:9	%801	1.8 R	1.8.13	Y.	2 03	1.9 UJ	200
4,4'-DDE	UG/KG	3.9 U	56	153%	3.8	4.5	17%	1.8 UI	41 R	NA	6.1.3	6.3.1	3%	2:03	1.9 UJ	2%
4,4'-DDT	UG/KG	3.9 U	35	160%	1.9 J	2.3 J	16%	19.1	21 1	10%	1.8 UJ	1.8 UJ	*****	2,03	1.9 UJ	5%
Aldrin	UG/KG	2 0	1.8 U	11%	1.8 U	1.8 U	1	9.9 J	IN 61	63%	1.8 UJ	1.8(U)	****	2 U	1.9 U	2%
Delta-BHC	UG/KG	2 0	0.95	71%	1.8 U	1.8 U	1	1.8:UJ	1.8 113	-	1.8 UJ	L.8 UJ		2 (1)	U.9 UJ	5%
Metals																
Antimony	MG/KG	1.1	19.3 J	178%	1.7 3	0.81	71%	0.98 U	66'0	1%	1.5	0.96 U	44%	3.2 J	1.4.)	78%
Barium	MG/KG	64.9	1600	184%	86.6	9.69	22%	42	45.6	%8	37.9.1	66.7 3	55%	80.9:1	84.5 J	4%
Cadmium	MG/KG	0.07 U	2.7	190%	0.07:U	0.05 U	33%	0.56	0.49 J	13%	0.2 J	0.13 U	42%	0.57	0.44	26%
Compet	MG/KG	1,7.61	0692	1999%	39.1.3	33.J	17%	28.8	34.3	%41	34.6 J	39.6	13%	39.3:1	32.8 J	19%
Magnesium	MG/KG	4590	6820	39%	0869	5630	21%	17900	13000	32%	5080	6940	31%	12700	:0819	%69
Sodium	MG/KG	139.U	909	125%	132'U	110	18%	276	232	17%	223	277	22%	191	194	2%
Zinc	MG/KG	80.3	1280	176%	153	1961	25%	130 J	135 3	4%	123	196	46%	f 201	96.8.3	10%
Other																
Total Organic Carbon	MG/KG		_					5200	5300	2%	3300	8500	88%	5800	0009	3%

NOTES:
\*Formula for Relative Percent Difference (RPD)
Source; p. 921 of http://www.epa.gov/region02/desa/hsw/elp.pdf

SR = Surmie Recult of a particular analyte. SDR = Sample Duplicate Result of a particular analyte. Sliading indicates RPD > 50% RPD = <u>| SR - SDR ( X 100</u> (1/2) (SR + SDR)

U" not detected to the limit indicated

NJ = reported value is estimated and tenatively identified hased on Mass Spec

J = reported value is estimated

La not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

--- = No difference between results or both results were non-detect

A:PID Area'Report Draft Final Risk Assessment'data'S121C-Surface soit x1s x1s'121C ss SADU RPD > 50

### Table 4-1C

### Quality Control of Field Duplicates - RPDs Greater than 50% Ditch Soil at SEAD-121C

### SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

		SI	DDRMO-8	
Parameter	Units	DRMO-4005	DRMO-4008	*RPD
Volatile Organic Compounds				
Acetone	UG/KG	21 J	72 J	110%
Semivolatile Organic Compound				
1,2,4-Trichlorobenzene	UG/KG	650 UJ	1100 UJ	51%
1,2-Dichlorobenzene	UG/KG	650 UJ	1100 UJ	51%
1,3-Dichlorobenzene	UG/KG	650 UJ	1100 UJ	51%
1,4-Dichlorobenzene	UG/KG	650 UJ	1100 UJ	51%
2,4,6-Trichlorophenol	UG/KG	650 UJ	1100 UJ	51%
2,4-Dichlorophenol	UG/KG	650 UJ	1100 UJ	51%
2,4-Dimethylphenol	UG/KG	650 UJ	1100 UJ	51%
2,4-Dinitrotoluene	UG/KG	650 UJ	1100 UJ	51%
2,6-Dinitrotoluene	UG/KG	650 UJ	1100 UJ	51%
2-Chloronaphthalene	UG/KG	650 UJ	1100 UJ	51%
2-Chlorophenol	UG/KG	650 UJ	1100 UJ	51%
2-Methylnaphthalene	UG/KG	650 UJ	1100 UJ	51%
2-Methylphenol	UG/KG	650 UJ	1100 UJ	51%
2-Nitrophenol	UG/KG	650 UJ	1100 UJ	51%
3 or 4-Methylphenol	UG/KG	650 UJ	1100 UJ	51%
3,3'-Dichlorobenzidine	UG/KG	650 UJ	1100 UJ	51%
4-Bromophenyl phenyl ether	UG/KG	650 UJ	1100 UJ	51%
4-Chloro-3-methylphenol	UG/KG	650 UJ	1100 UJ	51%
4-Chloroaniline	UG/KG	650 UJ	1100 UJ	51%
4-Chlorophenyl phenyl ether	UG/KG	650 UJ	1100 UJ	51%
Acenaphthene	UG/KG	650 UJ	1100 UJ	51%
Acenaphthylene	UG/KG	650 UJ	1100 UJ	51%
Anthracene	UG/KG	650 UJ	1100 UJ	51%
Benzo(a)anthracene	UG/KG	650 UJ	1100 UJ	51%
Benzo(a)pyrene	UG/KG	650 UJ	1100 UJ	51%
Benzo(b)fluoranthene	UG/KG	650 UJ	1100 UJ	51%
		650 UJ	1100 UJ	51%
Benzo(ghi)perylene	UG/KG		1100 UJ	51%
Benzo(k)fluoranthene	UG/KG	650 UJ 650 UJ	/a/a //	
Bis(2-Chloroethoxy)methane	UG/KG		1100 UJ	51%
Bis(2-Chloroethyl)ether	UG/KG	650 UJ	1100 UJ	51%
Bis(2-Chloroisopropyl)ether	UG/KG	650 UJ	1100 UJ	51%
Bis(2-Ethylhexyl)phthalate	UG/KG	650 UJ	1100 UJ	51%
Butylbenzylphthalate	UG/KG	650 UJ	1100 UJ	51%
Carbazole	UG/KG	650 UJ	1100 UJ	51%
Chrysene	UG/KG	650 UJ	1100 UJ	51%
Di-n-butylphthalate	UG/KG	650 UJ	1100 UJ	51%
Di-n-octylphthalate	UG/KG	650 UJ	1100 UJ	51%
Dibenz(a,h)anthracene	UG/KG	650 UJ	1100 UJ	51%
Dibenzofuran	UG/KG	650 UJ	1100 UJ	51%
Diethyl phthalate	UG/KG	650 UJ	1100 UJ	51%
Dimethylplithalate	UG/KG	650 UJ	1100 UJ	51%
Fluoranthene	UG/KG	650 UJ	1100 UJ	51%
Fluorene	UG/KG	650 UJ	1100 UJ	51%

### Table 4-1C

### Quality Control of Field Duplicates - RPDs Greater than 50% Ditch Soil at SEAD-121C

### SEAD-121C and SEAD-121I RI Report

### Seneca Army Depot Activity

			SI	DDRMO-8		
Parameter	Units	DRMO-40	05	DRMO-40	08	*RPD
Hexachlorobenzene	UG/KG	650	UJ	1100	UJ	51%
Hexachlorobutadiene	UG/KG	650	UJ	1100	UJ	51%
Hexachlorocyclopentadiene	UG/KG	650	UJ	1100	UJ	51%
Hexachloroethane	UG/KG	650		1100	UJ	51%
Indeno(1,2,3-cd)pyrene	UG/KG	650	UJ	1100	UJ	51%
Isophorone	UG/KG	650	UJ	1100	UJ	51%
N-Nitrosodiphenylamine	UG/KG	650	UJ	1100	UJ	51%
N-Nitrosodipropylamine	UG/KG	650	UJ	1100	UJ	51%
Naphthalene	UG/KG	650	UJ	1100	UJ	51%
Nitrobenzene	UG/KG	650	UJ	1100	UJ	51%
Phenanthrene	UG/KG	650	UJ	1100	UJ	51%
Phenol	UG/KG	650	UJ	1100	UJ	51%
Pyrene	UG/KG	650	UJ	1100	UJ	51%
Pesticides/PCBs						
Aroclor-1016	UG/KG	10	UJ	17	UJ	52%
Metals						
Arsenic	MG/KG	2.1		5.9	J	95%
Barium	MG/KG	72,2	J	122	J	51%
Cobalt	MG/KG	11.4		20.2	J	56%
Manganese	MG/KG	471		885	J	61%
Selenium	MG/KG	0.82	U	1.4	UJ	52%
Sodium	MG/KG	388		656	J	51%

### NOTES:

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $RPD = |SR - SDR| \times 100$  SR = Sample Result of a particular analyte.

(1/2) (SR + SDR) SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

<sup>\*</sup>Formula for Relative Percent Difference (RPD)

# Quality Control of Field Duplicates - RPDs Greater than 50% Groundwater at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

		M	MW121C-4		N N	MW121C-1	
Parameter	Units	121C-2002	121C-2004	*RPD	EB023	EB153	*RPD
Pesticides/PCBs							
4,4'-DDD	T/DA	0.01 R	0.01 R	NA	6.0	0.11 U	156%
4,4'-DDE	T/DO	0.005 UJ	0.005 UJ	1	0.27 J	0.093 J	%86
Beta-BHC	T/90	0.01 U	0.01 U		0.56 J	J 960.0	141%
Delta-BHC	UG/L	0.004 UJ	0.004 UJ	1	0.23 J	0.094	84%
Dieldrin	UG/L	U 600.0	U 600.0	1	0.11 U	0.052 J	72%
Endosulfan II	UG/L	0.01 UJ	0.01 UJ		0.28 J	0.11 U	87%
Endosulfan sulfate	UG/L	0.02 U	0.02 U	4 4 4	0.28 J	0.14 J	67%
Endrin aldehyde	UG/L	0.02 UJ	0.02 UJ		0.22 J	0.073 J	100%
Gamma-Chlordane	UG/L	0.01 U	0.01 U		0.47	0.086 J	138%
Heptachlor	UG/L	U 2000	U 2007		0.23 J	0.058 J	119%
Methoxychlor	NG/L	0.008 UJ	0.008 UJ		0.57	0.057 U	164%
Metals							
Aluminum	T/DA	146 J	1030	150%	133	738 J	139%
Chromium	UG/L	1.4 U	5.8	122%	1.2	2.4	%29
Cobalt	UG/L	2.3 U	4.8 J	20%	1.4 U	1.6	13%
Iron	T/DA	34.9 U	1720	192%	346	1430	122%
Zinc	NG/L	9.2 J	24	%68	2.4	9.3	118%

NOTES:

\*Formula for Relative Percent Difference (RPD) Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = \underbrace{|SR - SDR | X 100}_{(1/2) (SR + SDR)}$ 

SR = Sample Result of a particular analyte. SDR = Sample Duplicate Result of a particular analyte. Shading indicates RPD > 50%

U = not detected to the limit indicated
J = reported value is estimated
UJ = not detected to the estimated limit indicated
R = result is rejected
NA = Not Applicable, i.e. result rejected or missing result
---- = No difference between results or both results were non-detect

### Table 4-1E

### Quality Control of Field Duplicates - RPDs Greater than 50% Surface Water at SEAD-121C SEAD-121C and SEAD-121I RI Report

### Seneca Army Depot Activity

		SV	VDRMO-8	
Parameter	Units	DRMO-3008	DRMO-3005	*RPD
Metals				
Iron	UG/L	19 J	34.2 J	57%
Manganese	UG/L	11.6	26.1	77%

### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = | SR - SDR | X 100$ 

SR = Sample Result of a particular analyte.

(1/2) (SR + SDR)

SDR = Sample Duplicate Result of a particular

analyte.

Shading indicates RPD > 50%

J = reported value is estimated

Quality Control of Field Duplicates -RPDs Greater than 50% Groundwater at Building 360 SEAD-121C and SEAD-121I RI Report Table 4-1F

Seneca Army Depot Activity

Location ID			MW-1			MW-1	
Sample Date			4/4/2003			5/9/2003	
Parameter	Units	DRMO-2005	DRMO-2008	*RPD	DRMO-2013	121C-2019	*RPD
Pesticides/PCBs							
Endosulfan I	NG/L	0.02 U	0.02 U	44 00 00 00	0.02 UJ	0.01 UJ	%29
Metals							
Aluminum	T/BN	150 U	28.3 J	137%	32 U	32 U	
Selenium	UG/L	4.2 J	3.3 J	24%	1.3 U	3.2 J	84%

# NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

RPD = | SR - SDR | X 100 (1/2) (SR + SDR)

SR = Sample Result of a particular analyte. SDR = Sample Duplicate Result of a particular analyte. Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

- = No difference between results or both results were non-detect

Quality Control of Field Duplicates - RPDs Greater than 50%
Surface Soil at SEAD-1211
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

1044   **RPD   1211-1006   1211-1031   **RPD   1211-1035   1211-1030   **S1211-123   1211-1030   **S1211-123   1211-1030   **S1211-123   1211-1030   **S1211-123   1211-1030   **S1211-123   **S1211-123   **S1211-123   **S1211-123   **S1211-123   **S1211   **S1211-123   **S1211-123				0.110.00		C-4	01.710.0			00 110100	
ecter         Units         1211-1043         1211-1044         PRPD         1211-1051         1211-1051         1211-1052         1211-1052         1211-1053         1211-1053         1211-1050         1211-1051         1211-1053         1211-1053         1211-1053         1211-1055         1221         1221         1211-1055				2-11719S			221711-10			2217175	
e organic Compounds         UG/KG         110 U         33 U         108%         4 5 J         2 2 U         18%         2 1 U         3.5 U	Parameter	Units	1211-1043	1211-1044	*RPD	1211-1006	1211-1031	*RPD	1211-1025	1211-1030	*RPD
e         UGKKG         110 U         33 U         108%         45 J         22 U         13%         34 U         36 U           enzame         UGKKG         21 J         33 U         108%         25 U         22 U         13%         24 J         35 U           enzame         UGKG         21 J         35 J         35 J         35 J         25 U         22 U         13%         34 J         35 J           ethylesene         UGKG         21 J         34 J         45%         25 U         22 U         13%         31 J         45 J           Vylene         UGKG         11 J         27         38%         25 U         22 U         13%         21 J         45 J           Vylene         UGKG         11 J         46%         25 U         22 U         13%         21 J         45 J           vylene         UGKG         11 J         46%         25 U         22 U         13%         21 J         45 J           cene         UGKG         38J         71 J         48%         25 U         22 U         13%         21 J         43 J           cene         UGKG         38J         38 J         38 U	Volatile Organic Compounds										
eneme         UGKG         66 J         10 J         4 Ps         25 J         22 J         13%         24 J         57 J           eneme         UGKG         2.1         3.5 J         55 S         2.5 U         2.2 J         13%         4.4 J         9.7 J           ana Nylene         UGKG         2.2 J         3.4 J         4.5%         2.5 U         2.2 J         13%         3.7 J         6.7 J           Sylene         UGKG         1.1 J         2.8%         2.5 U         2.2 J         13%         3.1 J         6.7 J           shatch Corporated         UGKG         6.9 J         11 J         46%         2.5 U         2.2 J         13%         3.1 J         6.7 J           cene         UGKG         89 J         74 J         18%         3.60 U         2.2 JU         13%         2.1 J         4.1 J           active Longounds         UGKG         380 J         7.4 J         18%         3.60 U         2.2 JU         13%         2.1 JU         4.1 J           shatch Compounds         1.1 J         4.6%         2.5 U         2.2 JU         13%         2.1 JU         4.1 J         4.1 J           shatch Compounds         1.1 J         4.6%         <	Acetone	UG/KG	110 U	33 UJ	108%	4.5 J	2.2 U	%69	3.1 U	3.6 UJ	15%
recipreme         UG/RG         2.1         3.51         55%         2.5         U 2.2         1.3%         4.4         9.51           ann Xylone         UG/RG         2.2         1.4         3.41         3.45         2.5         U 2.2         1.1         8.7         1.1           Sylone         UG/RG         5.3         1.1         5.8%         2.5         U 2.2         1.1         5.1.1         6.7           Sylone         UG/RG         5.9         1.1         5.8%         2.5         U 2.2         1.1         5.1.1         5.1           Sylone         UG/RG         6.9         1.1         46%         2.5         U 2.2         1.1         5.1<	Benzene	UG/KG	6.6.1	10 J	41%	2.5 U	2.2 U	13%	24	57 J	%18
an Nylone         UG/KG         2.2   J         3.4   J         45%         2.5   U         2.2   U         13%         3.9   Mol.         8.7   J           ethyleteone         UG/KG         5.5   J         2.7   U         2.5   U         2.2   U         13%         3.1   U         6.1   J           ethyleteone         UG/KG         6.9   J         11   J         2.5   U         2.5   U         2.2   U         13%         2.1   U         6.1   J           ethyleteore         UG/KG         6.9   J         11   J         46%         2.5   U         2.2   U         13%         2.1   U         4.1   J           abalthracene         UG/KG         380   J         360   U         360   U <td>Ethyl benzene</td> <td>UG/KG</td> <td>2 J</td> <td>3.5 J</td> <td>. 55%</td> <td>2.5 U</td> <td>2.2 U</td> <td>13%</td> <td>4.4</td> <td>9.5 J</td> <td>73%</td>	Ethyl benzene	UG/KG	2 J	3.5 J	. 55%	2.5 U	2.2 U	13%	4.4	9.5 J	73%
ethyl ketone         UG/KG         55         27 J         68%         2.5 U         2.2 U         13%         3.1 U         67 J           Aylenee         UG/KG         6.1 J         1.1 J         58%         2.5 U         2.2 U         13%         3.1 U         67 J           abanthracene         UG/KG         89 J         7.4 I         18%         3.6 U          3.0 U         3.6 U          3.0 U         3.0 U          <	Meta/Para Xylene	UG/KG	2.2 J	3.4 J	43%	2.5 U	2.2 U	13%	3.9	8.7 J	26%
Vylene         UG/KG         11 J         458%         2.5 I         2.2 I         13%         2.1 J         5.1 J           Justile Organic Compounds         UG/KG         6.9         11 J         46%         2.5 I         2.2 I         13%         2.1 J         5.1 J           cente         UG/KG         6.9         11 J         46%         2.5 I         2.2 I         13%         2.1 J         5.1 J           cente         UG/KG         350 J         350 J         13%         360 J	Methyl ethyl ketone	UG/KG	55	27 J	%89	2.5 U	2.2 U	13%	3.110	67 J	182%
cente         UG/KG         69         11 J         46%         25 J         22 J         13%         18         43 J           cente         UG/KG         89 J         74 J         18%         36 J         26 J         230 J         230 J         230 J           cente         UG/KG         350 J         350 J         350 J         350 J         36 J         360 J	Ortho Xylene	UG/KG	1.1 J	2 J	58%	2.5 U	2.2 U	13%	2.1 J	5.1.5	83%
Second Publisher   Second Se	Toluene	UG/KG	6.9	111 J	46%	2.5 U	2.2 U	13%	18	43 J	82%
cente         UG/KG         389 J         34 J         18%         360 J         360 J         360 J         260 J         300 J         260 J           a)anthracene         UG/KG         380 J         350 J         1336 J         360 J <t< td=""><td>Semivolatile Organic Compoun</td><td>qs</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Semivolatile Organic Compoun	qs									
Sylathracene         UG/KG         350 J          481 J         471 J         2%         700 J         260 J           Silathracene         UG/KG         781 J         350 JU          2100 U         260 J         260 J           Ethylhaster         UG/KG         561 J         671 J         386 JU          2100 U         200 U         200 U           Pahhalate         UG/KG         390 U         24%         100 J         360 U          2100 U         200 U           phhalate         UG/KG         320 U         24%         100 J         78 J         25%         250 U         490 J           three         UG/KG         420 J         24%         100 J         78 J         25%         250 U         490 J           des/PCBs         LUG/KG         1200 J         440 J         25%         79 J         58 J         78 J         250 J         490 J           des/PCBs         LII         6.5 J         46%         3.7 J         4.2 J         13%         230 J         150 J           des/PCBs         LII         8.6 J         13 J         4.2 J         13%         230 J         230 J           imm	Anthracene		f 68	74 J	18%	360 U	360 U	1	330 J	2300 U	150%
Signature         UG/KG         78 J         39 U         1339k         36 U         36 U          2100 U         260 J           ole         UG/KG         56 J         67 J         18%         36 U         36 U         36 U         200 U         250 U           ole         UG/KG         720 J         390 U          36 U          340 J         250 U           threne         UG/KG         720 J         490 J         24%         100 J         78 J         25%         250 U         300 U           threne         UG/KG         450 J         490 J         28%         60 J         78 J         25%         250 U         450 J           threne         UG/KG         11 J         66 J         58%         79 J         98 J         21%         250 J         460 J           three         UG/KG         11 J         66 J         48%         37 J         42 J         13%         23 O         150 J           three         CASS         11 J         66 J         480 J         48 J         42 J         13%         23 O         15 J           three         CASS         11 J         42 J         42 J	Benzo(a)anthracene	UG/KG	350 J	350 J	1	48 J	47 J	2%	700 J	Z60 J	65%
ole         UGKG         56 J         67 J         18%         360 U          340 J         2300 U           Pithhalet         UGKG         330 U         320 U          360 U          360 U          240 J         230 J           Athene         UGKG         430 J         22%         60 J         76 J         78 J         178 J         2200 J         530 J           Athene         UGKG         450 J         440 J         2%         60 J         56 J         7% J         2200 J         530 J           Athene         UGKG         1200 J         660 J         58%         79 J         98 J         17% J         2200 J           Athene         UGKG         11 J         660 J         58%         79 J         98 J         17% J         230 J           Athene         UGKG         11 J         46%         3.7 J         4.2 J         1.3%         2.30 J         1.60 J           Athene         MGKG         11 J         46%         3.7 J         4.2 J         1.3 M         1.3 J         1.3 J         1.3 J           Athene         MGKG         2.2 J         4.2 J         2.2 J         3.2 J	Bis(2-Ethylhexyl)phthalate	UG/KG	78 J	390 U	133%	360 UJ	360 U	1	2100,0	260,J	156%
Phythalate         UG/KG         390 U         390 U	Carbazole	UG/KG	56 J	67 J	18%	360 U	360 U	-	340 J	2300 UJ	148%
othere         UG/KG         720         920         24%         100 l         78 l         25%         25%         25%         400 l         78 l         25%         25%         400 l         56 l         7%         25%         50 l         7%         25%         79 l         79 l <td>Diethyl phthalate</td> <td>UG/KG</td> <td>390 U</td> <td>390 U</td> <td></td> <td>360 U</td> <td>360 U</td> <td></td> <td>2100:13</td> <td>230 J</td> <td>161%</td>	Diethyl phthalate	UG/KG	390 U	390 U		360 U	360 U		2100:13	230 J	161%
othere         UG/KG         456         440         2%         60         36         7         7%         2200         550-1           des/PCBs         UG/KG         1200         1         660         58%         79         37         7%         2200         550-1           des/PCBs         1         1         660         58%         37         4         21         220         500         1600           des/PCBs         1         1         6.9         46%         37         4.2         21         220         230         1600         230           allant         MG/KG         9700         9020         7%         6480         7510         15%         3730         230         230           num         MG/KG         21.2         1         43         68%         5.2         2.2         11         1.2         1           imm         MG/KG         23.2         4         6.8         1.4         8.6         1.1         1.2         1         1.2         1           imm         MG/KG         23.2         1         52%         256         3.2         2.2         1.2         1.2         1	Fluoranthene	UG/KG	720	920	24%	100 1	78 3	25%	2500,	490 J	134%
des/PCBs         1001         660         58%         791         981         21%         2300         1600 J           des/PCBs         31/lan I         4.2 J         4.2 J         13%         2300         1600 J           illan I         UG/KG         11 J         6.9 J         46%         3.7 J         4.2 J         13%         2300         1600 J           v. Cyanide         MG/KG         118         8.6         131%         3.4         2.5         37%         3730         2.300         2.310           ny         MG/KG         21.2 J         4.3         68%         5.2         2.5         37%         1.1 U         1.2 U           ium         MG/KG         21.2 J         4.3         68%         5.2         2.5         349 R         2.39 R           ium         MG/KG         23.9 J         40.6         3.2%         8.4         34.7         349 R         2.73 J           ium         MG/KG         3.10 J         3.5%         1.350 J         3.5%         1.2 U         1.2 U           ium         MG/KG         3.10 J         3.4%         3.40 M         2.70 J         4.20 J         1.35 J           ium         MG/KG<	Phenanthrene	UG/KG	450	440	2%	60 J	56 J	1%	2200	530.J	122%
des/PCBs           station         MG/KG         11 J         6.9 J         46%         3.7 J         4.2 JJ         13%         23         2.3 JU           station         MG/KG         11 J         6.9 J         46%         3.7 J         4.2 JJ         13%         23         2.2 JU           num         MG/KG         1.8 J         8.6 J         131%         5.2 J         2.5 J         3.4 J         2.5 J         3.4 J         2.3 J         1.1 JU         1.2 JU         1.2 JU           num         MG/KG         2.5 J J         50 J         64%         5.2 J         3.4 J         3.6 J         3.2 J	Рутепе	UG/KG	1200 J	099	58%	79 3	1 86	21%	2300	1600 J	36%
Ac Cyanide         NG/KG         11 J         6.9 J         46%         3.7 J         4.2 J         13%         23         2.3 JU           num         MG/KG         1.18         9.20         7%         6480         7510         15%         3.73         2.200           num         MG/KG         2.1.2 J         8.6         1.31%         3.4         2.5         3.4%         3.73         1.2 JU           num         MG/KG         2.1.2 J         8.6         1.31%         5.2         8.4         8.9         6.7         3.49 R         2.39 R           ium         MG/KG         2.5.9 J         40.6 J         52%         8.4         8.9         6%         2.37 J         1.74 J           ium         MG/KG         2.5.9 J         40.6 J         52%         8.4         8.9         6%         2.37 J         1.74 J           ium         MG/KG         6.10         4.20         1.%         0.556 UJ         0.551 UJ         1.8         8.9         6%         2.73 J         1.74 J           insc         MG/KG         6.110         4.20         3.4%         7.86         8.2         4.%         34000         2.73 J         1.74 J         1.11 U <td>Pesticides/PCBs</td> <td></td>	Pesticides/PCBs										
v. & Cyanide         w. Cyanide         p. 200         7%         6480         7510         15%         3730         2200           num         M.G/KG         21.2 J         8.6         131%         2.5         31%         1.1 U         1.2 D           c         M.G/KG         21.2 J         4.3         64%         5.2          349 R         2.39 R           iwm         M.G/KG         25.9 J         50 J         64%         5.2          349 R         2.39 R           iwm         M.G/KG         25.9 J         40.6 J         52%         8.4         8.9         6%         237 J         174 J           ie, Total         M.G/KG         0.552 U         0.559 U         1%         2.556 U         0.551 UJ         1%         2.770 J         6000 J           sium         M.G/KG         6110         4240         36%         13500         9040         40%         2770 J         1         6090 J           nn         M.G/KG         51.J         17.9 J         111%         0.8         8%         160 J         131 J           m         M.G/KG         1.9 J         4.2 J         15%         11 U          24	Endosulfan I	UG/KG	11   J	6.9 J	46%	3.7 J	4.2 3	13%	23	, 2.31U	164%
Num         MG/KG         9700         9720         7%         6480         7510         15%         3730         2200           nny         MG/KG         1.8         8.6         131%         3.4         2.5         31%         1.1         1.2         1.2           c         MG/KG         21.2 JJ         43 J         .68%         5.2          349 R         2.29 R           ium         MG/KG         25.9 JJ         40.6 J         52%         8.4         8.9         6%         237 J         174 J           le. Total         MG/KG         0.552 JU         0.555 JU         1.%         0.556 JU         0.551 JU         1%         2.73         1           nesc         MG/KG         6110         4240         36%         13500         9040         40%         2.770 J         6090 J           nn         MG/KG         51.1         17.9 J         111%         0.8         8%         160 J         131 J           nn         MG/KG         51.1         17.9 J         111%         0.8         8%         160 J         131 J           nn         MG/KG         1.9 J         4.2 J         1.3 M         1.1 U <td>Metals &amp; Cyanide</td> <td></td>	Metals & Cyanide										
only         MG/KG         1.8         8.6         131%         3.4         2.5         11         U         1.2 U         1.2 U           c         MG/KG         21.2 J         43 J         68%         5.2          349         R         1.2 U         1.2 U           ium         MG/KG         25.9 J         50 J         64%         14.3         14.7         3%         516         352/R         352/R           le, Total         MG/KG         0.592 U         0.559 U         1%         0.556 U         0.551 U         1%         1.76 I         1.74 J           sium         MG/KG         31200 J         57800 J         58%         13500 J         34900 J         2770 J         6090 J           inn         MG/KG         1.79 J         1.11 W         0.87         4%         34900 J         2770 J           mn         MG/KG         1.9 J         4.2 J         7.5%         1.1 U	Aluminum	MG/KG	9200	9020	7%	6480	7510	15%	3730	2200	52%
c         MG/KG         21.2 J         43 J         68%         5.2         5.2         349 R         239 R         239 R           ium         MG/KG         25.9 J         50 J         64%         14.3         14.7         3%         516         362           le, Total         MG/KG         23.9 J         40.6 J         52%         8.4         8.9         6%         237 J         174 J           sium         MG/KG         65.92 U         0.555 U         1%         0.556 U         0.551 U         1%         1.76 J         27.3           inse         MG/KG         31200 J         57800 J         54%         11 U         0.87         4%         34900 J         27.200           inn         MG/KG         1.9 J         1.7 9 J         11 W         0.87         4%         34900 J         27.200           inn         MG/KG         1.9 J         1.7 9 J         11 W         0.87         8%         16 J         131 J           inn         MG/KG         1.9 J         4.2 J         75%         1.1 U         1.1 U         1.3 J	Antimony	MG/KG	1.8	8.6	131%	3.4	2.5	31%	1.1 U	1.2 U	%6
ium         MG/KG         25.9 J         50 J         64%         14.3         14.7         3%         516         362           le, Total         MG/KG         23.9 J         40.6 J         52%         8.4         8.9         6%         237 J         174 J           sium         MG/KG         61.0         42.6 J         36%         1350         9040         40%         2770 J         6090 J           nn         MG/KG         31200 J         57800 J         54%         11 W         0.87         8%         150 J         131 J           m         MG/KG         1.9 J         1.1 W         0.87         8%         160 J         131 J           m         MG/KG         1.9 J         1.4 J         131%         1.1 W          241 R         18.6 R           m         MG/KG         3 J         1.4 J         131%         1.1 W          173 J         152 J	Arsenic	MG/KG	21.2.1	43.J	%89	5.2	5.2	4	349 R	239 R	NA
Ic, Total         MG/KG         23.9 J         40.6 J         52%         8.4         8.9         6%         237 J         174 J           sium         MG/KG         0.592 U         0.555 U         1%         0.556 UJ         0.551 UJ         1%         1.26         2.73           nesc         MG/KG         31200 J         57800 J         54%         786         822         4%         349000         272000           nn         MG/KG         5.1 J         17.9 J         111%         0.87         0.81         8%         160 J         131 J           m         MG/KG         1.9 J         4.2 J         75%         1.1 U         1.1 U         24.1 R         18.6 R           m         MG/KG         3 J         1.4 J         131%         1.1 U          173 J         152 J           retroleum Hydrocarbons         MG/KG         47 U         48 U         2%         44 UJ          240 I         1600	Chromium	MG/KG	25.9 J	50 J	64%	14.3	14.7	3%	516	362	35%
le, Total         MG/KG         0.592 U         0.595 U         1%         0.556 U         0.551 U         1%         1.26         2.73           sium         MG/KG         6110         4240         36%         13500         9040         40%         2770 J         6090 J           nesc         MG/KG         31200 J         57800 J         54%         786         822         4%         349000         27200 J           nn         MG/KG         5.1 J         17.9 J         111%         0.87         0.81         8%         160 J         131 J           m         MG/KG         1.9 J         4.2 J         75%         1.1 U          24.1 R         18.6 R           m         MG/KG         31         14.4         131%         1.1 U          24.1 R         18.6 R           etroleum Hydrocarbons         MG/KG         47 U         48 U         2%         44 UJ          240         1600	Cobalt	MG/KG	23.9 J	40.6 J	. 52%	8.4	8.9	%9	237 J	174 J	31%
sium         MG/KG         6110         4240         36%         13500         9040         40%         2770         J         6090 J           nnsc         MG/KG         33200 J         57800 J         54%         786         822         4%         349000         272000           nn         MG/KG         5.1 J         17.9 J         111%         0.87         0.8         8%         160 J         131 J           nn         MG/KG         1.9 J         4.2 J         75%         1.1 U          24.1 R         18.6 R           nn         MG/KG         3 I         14.4 I         131%         1.1 U          24.1 R         18.6 R           letroleum Hydrocarbons         MG/KG         47 U         48 U         2%         44 UJ          240 I         1600 I	Cyanide, Total	MG/KG	0.592 U	0.595 U	1%	0.556 UJ	0.551 UJ	1%	1.26	2.73	74%
nesc         MG/KG         33200 J         57800 J         54%         786         822         4%         349000 J         272000 J           nn         MG/KG         5.1 J         17.9 J         111%         0.87         0.8         %         160 J         131 J           nn         MG/KG         1.9 J         4.2 J         75%         1.1 U         1.1 U          24.1 R         18.6 R           nn         MG/KG         3 J         14.4 J         131%         1.1 U          173 J         152 J           etroleum Hydrocarbons         MG/KG         47 U         48 U         2%         44 UJ          240 I         1600 I	Magnesium	MG/KG	6110	4240	36%	13500	9040	40%	2770 J	f 0609	75%
nn         MG/KG         5.1 J         17.9 J         111%         0.87         0.81         8%         160 J         131 J           m         MG/KG         1.9 J         4.2 J         75%         1.1 U          24.1 R         18.6 R           m         MG/KG         3 I         14.4 I         131%         1.1 U          173 J         152 J           etroleum Hydrocarbons         MG/KG         47 U         48 U         2%         44 UJ          240 I         1600 I	Manganese	MG/KG	33200 J	57800 J	24%	786	822	4%	349000	272000	, 25%
m         MG/KG         1.91J         4.21J         755%         1.11U         —         24.1 R         18.6 R           m         MG/KG         31         14.4         131%         1.11U         —         173 J         152 J           etroleum Hydrocarbons         MG/KG         47/U         48 U         2%         44 UJ         —         240 I         1600 I	Selenium	MG/KG	5.1.J	17.9 J	111%	0.87	0.8	8%	160 J	131 J	. 20%
MG/KG   3    14.4    131%   1.1 U   1.1 U     173 J   152 J   152 J   MG/KG   47 U   48 U   2%   44 UJ   44 UJ     240    1600	Silver	MG/KG	I.9 J	4.2 J	75%	U.I.U	1.1 U		24.1 R	18.6 R	NA
MG/KG 47 U 48 U 2% 44 UJ 44 UJ 240  1600	Thallium	MG/KG	3	14.4	131%	1.1 U	1.1 (U		173 J	152 J	. 13%
MG/KG 47/U 48/U 2% 44/UJ 240 1600	Other										
	Total Petroleum Hydrocarbons	MG/KG	47 U	48 U	2%	44 UJ	44 UJ		240	1600	148%

NOTES:

\*Formula for Relative Percent Difference (RPD) Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

RPD = ISR - SDR | X 100 (1/2) (SR + SDR)

SR = Sample Result of a particular analyte.
SDR = Sample Duplicate Result of a particular analyte.
Shading indicates RPD > 50%

SENECAPID Area/Report/Draft Final/Risk Assessment/data/S1211-surface-soil-rev.xls/1211 ss SADU RPD >50

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### Table 4-1H

### Quality Control of Field Duplicates - RPDs Greater than 50% Ditch Soil at SEAD-121I

### SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

				SD121I-7		
Parameter	Units	121I-40	05	121I-40	07	*RPD
Volatile Organic Compounds						
Acetone	UG/KG	25	J	10	J	86%
Semivolatile Organic Compound	ds					
2-Methylnaphthalene	UG/KG	420	U	130	J	105%
Acenaphthene	UG/KG	280	J	1200		124%
Acenaphthylene	UG/KG	70	J	420	U	143%
Anthracene	UG/KG	420	J	1900		128%
Benzo(a)anthracene	UG/KG	2200	J	5000	J	78%
Benzo(a)pyrene	UG/KG	2800	J	5900	J	71%
Benzo(b)fluoranthene	UG/KG	3600	J	8100	J	77%
Benzo(ghi)perylene	UG/KG	1400	J	3200	J	78%
Benzo(k)fluoranthene	UG/KG	2500	J	4900	J	65%
Carbazole	UG/KG	440	MARCAL SCALL SA	1700		118%
Chrysene	UG/KG	2400	J	5400	J	77%
Dibenz(a,h)anthracene	UG/KG	130	J	350	J	92%
Dibenzofuran	UG/KG	71	J	640		160%
Fluoranthene	UG/KG	4400	Number of the state of	13000		99%
Fluorene	UG/KG	190	J	1100		141%
Indeno(1,2,3-cd)pyrene	UG/KG	400	J	1300	J	106%
Phenanthrene	UG/KG	2500		10000		120%
Pyrene	UG/KG	6500	J	17000	J	89%
Pesticide						
4,4'-DDE	UG/KG	14	J	2.2	UJ	146%
Metal						
Thallium	MG/KG	0.71	J	0.34	U	70%

### NOTES:

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = | SR - SDR | X 100$ 

SR = Sample Result of a particular analyte.

(1/2) (SR + SDR)

SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

'---- = No difference between results or both results were non-detect

<sup>\*</sup>Formula for Relative Percent Difference (RPD)

### Table 4-11

### Quality Control of Field Duplicates - RPDs Greater than 50% Surface Water at SEAD-121I

### SEAD-121C and SEAD-121I RI Report

### Seneca Army Depot Activity

			SW121I-7	
Parameter	Units	121I-3007	121I-3005	*RPD
Metals				
Manganese	UG/L	5.3	3	55%
Selenium	UG/L	3.1 J	1.8 J	53%

### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = | SR - SDR | X 100$ 

SR = Sample Result of a particular analyte.

(1/2) (SR + SDR)

SDR = Sample Duplicate Result of a particular analyte.

Shading indicates RPD > 50%

J = reported value is estimated

### Table 4-2 SUMMARY STATISTICS - SURFACE SOIL SEAD-121C

### SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value 1	Exceedances	Detects	Analyses 2
Volatile Organic Compounds				L	1		
Acetone	UG/KG	13	28%	200	0	13	47
Benzene	UG/KG	41	2%	60	0	1	48
Carbon disulfide	UG/KG	4.7	4%	2700	0	2	48
Chloroform	UG/KG	4.8 3	4%	300	0	2	48
Ethyl benzene	UG/KG	3300	4%	5500	0	2	48
Meta/Para Xylene	UG/KG	4400	8%		0	3	40
Methylene chloride	UG/KG	2.6	2%	100	0	1	48
Ortho Xylene	UG/KG	16	3%		0	1	40
Toluene	UG/KG	28	19%	1500	0	9	48
Semivolatile Organic Compounds							
2,4-Dinitrotoluene	UG/KG	45	2%		0	1	48
2-Methylnaphthalene	UG/KG	610	19%	36400	0	9	48
Acenaphthene	UG/KG	2600	23%	50000	0	11	48
Acenaphthylene	UG/KG	2500	21%	41000	0	10	48
Anthracene	UG/KG	7100	42%	50000	0	20	48
Benzo(a)anthracene	UG/KG	10000	55%	224	14	26	47
Benzo(a)pyrene	UG/KG	8700	51%	61	21	24	47
Benzo(b)fluoranthene	UG/KG	12000	64%	1100	5	30	47
Benzo(ghi)perylene	UG/KG	3200 <sup>3</sup>	53%	50000	0	25	47
Benzo(k)fluoranthene	UG/KG	7500	47%	1100	4	22	47
Bis(2-Ethylhexyl)phthalate	UG/KG	200	56%	50000	0	27	48
Butylbenzylphthalate	UG/KG	120	13%	50000	0	6	48
Carbazole	UG/KG	4200	35%		0	17	48
Chrysene	UG/KG	9100	53%	400	10	25	47
Di-n-butylphthalate	UG/KG	132 <sup>3</sup>	10%	8100	0	5	48
Di-n-octylphthalate	UG/KG	23 3	4%	50000	0	2	48
Dibenz(a,h)anthracene	UG/KG	470 <sup>3</sup>	26%	14	11	12	47
Dibenzofuran	UG/KG	1700	21%	6200	0	10	48
Diethyl phthalate	UG/KG	21 3	13%	7100	0	6	48
Fluoranthene	UG/KG	27000	73%	50000	0	35	48
Fluorene	UG/KG	3500	27%	50000	/ 0	13	48
Hexachlorobenzene	UG/KG	8.5	2%	410	0	1	48
Indeno(1,2,3-cd)pyrene	UG/KG	970 <sup>3</sup>	46%	3200	0	22	48
N-Nitrosodiphenylamine	UG/KG	4.8	2%		0	1	48
Naphthalene	UG/KG	400	19%	13000	0	9	48
Phenanthrene	UG/KG	29000	52%	50000	0	25	48
Pyrene	UG/KG	34000	67%	50000	0	32	48
Pesticides/PCBs							
4,4'-DDD	UG/KG	44	12%	2900	0	5	43
4,4'-DDE	UG/KG	69	32%	2100	0	15	47
4,4'-DDT	UG/KG	100	28%	2100	0	13	47
Aldrin	UG/KG	14 3	6%	41	0	3	48
Alpha-Chlordane	UG/KG	63 <sup>3</sup>	8%		0	4	48

### Table 4-2 SUMMARY STATISTICS - SURFACE SOIL SEAD-121C

### SEAD-121C and SEAD-121I RI Report

### Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value 1	Exceedances	Detects	Analyses 2
Delta-BHC	UG/KG	2	6%	300	0	3	48
Dieldrin	UG/KG	41 3	4%	44	0	2	48
Endosulfan I	UG/KG	185 <sup>3</sup>	38%	900	0	18	48
Endosulfan II	UG/KG		2%	900	0	1	47
Endrin	UG/KG	21.5	2%	100	0	1	47
Endrin ketone	UG/KG	7.5 <sup>3</sup>	6%		0	3	48
Gamma-Chlordane	UG/KG	1.2	2%	540	0	1	48
Heptachlor	UG/KG	14	4%	100	0	2	47
Heptachlor epoxide	UG/KG	2.8	4%	20	0	2	46
Aroclor-1242	UG/KG	58	2%		0	1	48
Aroclor-1254	UG/KG	930	19%	10000	0	9	48
Aroclor-1260	UG/KG	85	10%	10000	0	5	48
Metals							
Aluminum	MG/KG	17,000	100%	19300	0	48	48
Antimony	MG/KG		81%	5.9	11	39	48
Arsenic	MG/KG	11.6	100%	8.2	2	48	48
Barium	MG/KG		100%	300	7	48	48
Beryllium	MG/KG		100%	1.1	1	48	48
Cadmium	MG/KG	29.1	60%	2.3	14	29	48
Calcium	MG/KG	296,000	100%	121000	6	48	48
Chromium	MG/KG	74.8	100%	29.6	12	48	48
Cobalt	MG/KG	17	100%	30	0	35	35
Copper	MG/KG	9,750	100%	33	35	48	48
Iron	MG/KG		100%	36500	5	48	48
Lead	MG/KG	18,900	100%	24.8	40	48	48
Magnesium	MG/KG	20,700	100%	21500	0	48	48
Manganese	MG/KG	858	100%	1060	0	48	48
Mercury	MG/KG	0.47	92%	0.1	8	44	48
Nickel	MG/KG	224	100%	49	9	48	48
Potassium	MG/KG	1,990	100%	2380	0	48	48
Selenium	MG/KG	1.3	21%	2	0	10	48
Silver	MG/KG	21.8	38%	0.75	13	18	48
Sodium	MG/KG	478	88%	172	26	42	48
Thallium	MG/KG	1.1	21%	0.7	3	10	48
Vanadium	MG/KG	25.4	100%	150	0	48	48
Zinc	MG/KG	3,610	100%	110	28	48	48
Other							
Total Organic Carbon	MG/KG	9,000	100%		0	40	40
Total Petroleum Hydrocarbons	MG/KG	7,600	25%		0	10	40

### NOTES:

- 1. The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 2. Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample and its duplicate.

## Table 4-3 SUMMARY STATISTICS - DITCH SOIL SEAD-121C

### SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value 1	Exceedances	Detects	Analyses 2
Volatile Organic Compounds							
Acetone	UG/KG	150	70%	200	0	7	10
Carbon disulfide	UG/KG	12	20%	2700	0	2	10
Methyl ethyl ketone	UG/KG	130	30%	300	0	3	10
Semivolatile Organie Compou	nds						
3 or 4-Methylphenol	UG/KG	790	10%		0	1	10
Anthracene	UG/KG	250	20%	50000	0	2	10
Benzo(a)anthracene	UG/KG	1100	20%	224	2	2	10
Benzo(a)pyrene	UG/KG	900	20%	61	2	2	10
Benzo(b)fluoranthene	UG/KG	1100	20%	1100	0	2	10
Benzo(ghi)perylene	UG/KG	290	10%	50000	0	1	10
Benzo(k)fluoranthene	UG/KG	580	10%	1100	0	1	10
Chrysene	UG/KG	1200	20%	400	1	2	10
Fluoranthene	UG/KG	2100	20%	50000	0	2	10
Indeno(1,2,3-cd)pyrene	UG/KG	270	10%	3200	0	1	10
Phenanthrene	UG/KG	1100	20%	50000	0	2	10
Pyrene	UG/KG	2100	20%	50000	0	2	10
Metals and Cyanide							
Aluminum	MG/KG	21500	100%	19300	1	10	10
Antimony	MG/KG	4.9	50%	5.9	0	5	10
Arsenic	MG/KG	6.1	100%	8.2	0	10	10
Barium	MG/KG	291	100%	300	0	10	10
Beryllium	MG/KG	0.8 3	80%	1.1	0	8	10
Cadmium	MG/KG	14.3	50%	2.3	3	5	10
Calcium	MG/KG	161000	100%	121000	2	10	10
Chromium	MG/KG	29.8	100%	29.6	1 .	10	10
Cobalt	MG/KG	15.8 3	100%	30	0	10	10
Copper	MG/KG	1190	100%	33	7	10	10
Cyanide, Amenable	MG/KG	2.36	10%		0	1	10
Cyanide, Total	MG/KG	2.36	10%		0	1	10
Iron	MG/KG	27300 <sup>3</sup>	100%	36500	0	10	10
Lead	MG/KG	436	100%	24.8	8	10	10
Magnesium	MG/KG	17600	100%	21500	0	10	10
Manganese	MG/KG	918	100%	1060	0	10	10
Mercury	MG/KG	0.3	100%	0.1	6	10	10
Nickel	MG/KG	42.7	100%	49	0	10	10
Potassium	MG/KG	1410	100%	2380	0	10	10
Selenium	MG/KG	2.5	40%	2	2	4	10
Silver	MG/KG	2.6	50%	0.75	5	5	10
Sodium	MG/KG	1120	100%	172	9	10	10
Vanadium	MG/KG	29.1	100%	150	0	10	10
Zinc	MG/KG	566	100%	110	7	10	10
Other	MONO	300	10076	110		10 1	10
Total Organic Carbon	MG/KG	9100	100%		0	10	10
Total Petroleum Hydrocarbons	MG/KG	2600	20%		0	2	10

### NOTES:

- The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 2. Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.
- The maximum detected concentration was obtained from the average of the sample DRMO-4008 and its duplicate DRMO-4005 collected at SDDRMO-8.

# Table 4-4 SUMMARY STATISTICS - SUBSURFACE SOIL SEAD-121C SEAD-121C and SEAD-121I RI Report

### Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value 1	Exceedances	Detects	Analyses
Volatile Organic Compounds		20000	0.2000				
Acetone	UG/KG	28	45%	200	0	9	20
Benzene	UG/KG	1800	10%	60	1	2	20
Chloroform	UG/KG	4	10%	300	0	2	20
Ethyl benzene	UG/KG	24000	5%	5500	1	1	20
Meta/Para Xylene	UG/KG	130000	6%		0	1	16
Methyl ethyl ketone	UG/KG	7.6	10%	300	0	2	20
Methylene chloride	UG/KG	3.5	10%	100	0	2	20
Ortho Xylene	UG/KG	75	6%		0	1	16
Styrene	UG/KG	2.7	5%		0	1	20
Toluene	UG/KG	84	20%	1500	0	4	20
Semivolatile Organic Compo					1		
2-Methylnaphthalene	UG/KG	2500	20%	36400	0	4	20
Acenaphthene	UG/KG	50	15%	50000	0	3	20
Acenaphthylene	UG/KG	220	10%	41000	0	2	20
Anthracene	UG/KG	240	15%	50000	0	3	20
Benzo(a)anthracene	UG/KG	5200	35%	224	2	7	20
Benzo(a)pyrene	UG/KG	920	32%	61	3	6	19
Benzo(b)fluoranthene	UG/KG	1300	42%	1100	1	8	19
Benzo(ghi)perylene	UG/KG	210	37%	50000	0	7	19
Benzo(k)fluoranthene	UG/KG	490	32%	1100	0	6	19
Bis(2-Ethylhexyl)phthalate	UG/KG	87	40%	50000	0	8	20
Butylbenzylphthalate	UG/KG	39	10%	50000	0	2	20
Carbazole	UG/KG	56	15%		0	3	20
Chrysene	UG/KG	4900	35%	400	2	7	20
Di-n-butylphthalate	UG/KG	19	10%	8100	0	2	20
Di-n-octylphthalate	UG/KG	17	15%	50000	0	3	20
Dibenz(a,h)anthracene	UG/KG	33	16%	14	2	3	19
Dibenzofuran	UG/KG	45	15%	6200	0	3	20
Diethyl phthalate	UG/KG	250	25%	7100	0	5	20
Fluoranthene	UG/KG	1600	40%	50000	0	8	20
Fluorene	UG/KG	160	20%	50000	0	4	20
Indeno(1,2,3-cd)pyrene	UG/KG	150	30%	3200	0	6	20
Naphthalene	UG/KG	1900	20%	13000	0	4	20
Phenanthrene	UG/KG	1000	40%	50000	0	8	20
Pyrene	UG/KG	1700	40%	50000	0	8	20
Pesticides/PCBs							
4,4'-DDE	UG/KG	17	15%	2100	0	3	20
4,4'-DDT	UG/KG	16	15%	2100	0	3	20
Aldrin	UG/KG	11	5%	41	0	]	20
Delta-BHC	UG/KG	1.3	5%	300	0	1	20
Endosulfan I	UG/KG	78	5%	900	0	1	20
Endrin	UG/KG	23	5%	100	0	1	20
Endrin ketone	UG/KG	9.7	5%		0	1	20
Heptachlor epoxide	UG/KG	1.1	5%	20	0	1	19
Aroclor-1260	UG/KG	200	15%	10000	0	3	20
Metals							
Aluminum	MG/KG	17600	100%	19300	0	20	20
Antimony	MG/KG	11.5	20%	5.9	1	4	20
Arsenic	MG/KG	8.1	100%	8.2	0	20	20
Barium	MG/KG	1050	100%	300	1	20	20
Beryllium	MG/KG	1	100%	1.1	0	20	20
Cadmium	MG/KG	8.1	10%	2.3	I	2	20

# Table 4-4 SUMMARY STATISTICS - SUBSURFACE SOIL SEAD-121C SEAD-121C and SEAD-1211 RI Report

### Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value <sup>1</sup>	Exceedances	Detects	Analyses
Calcium	MG/KG	97200	100%	121000	0	20	20
Chromium	MG/KG	37	100%	29.6	3	20	20
Cobalt	MG/KG	19.7	100%	30	0	20	20
Copper	MG/KG	2440	100%	33	6	20	20
Iron	MG/KG	54100	100%	36500	l	20	20
Lead	MG/KG	1780	100%	24.8	7	20	20
Magnesium	MG/KG	24900	100%	21500	1	20	20
Manganese	MG/KG	790	100%	1060	0	20	20
Mercury	MG/KG	0.07	95%	0.1	0	18	19
Nickel	MG/KG	69.7	100%	49	3	20	20
Potassium	MG/KG	1870	100%	2380	0	20	20
Silver	MG/KG	0.72	10%	0.75	0	2	20
Sodium	MG/KG	214	70%	172	2	14	20
Thallium	MG/KG	1.8	10%	0.7	2	2	20
Vanadium	MG/KG	27	100%	150	0	20	20
Zinc	MG/KG	691	100%	110	7	20	20
Other							
Total Organic Carbon	MG/KG	9500	100%		0	16	16
Total Petroleum Hydrocarbons	MG/KG	3700	25%		0	4	16

### NOTE:

<sup>1.</sup> The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.

### Table 4-5A SUMMARY STATISTICS - EBS GROUNDWATER SEAD-121C

### SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Source of	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value	Criteria <sup>1</sup>	Exceedances	Detects	Analyses 2
Volatile Organic Compounds		20000	0.200000					
1.4-Dichlorobenzene	UG/L	36	50%	3	GA	I	1	2
Acetone	UG/L	57 <sup>3</sup>	50%			0	1	2
Bromochloromethane	UG/L	1	50%	5	GA	0	1	2
Bromoform	UG/L	4	50%	80	MCL	0	1	2
Carbon disulfide	UG/L	2 3	50%			0	1	2
Chlorobenzene	UG/L	2	50%	5	GA	0	1	2
Vinyl chloride	UG/L	1	50%	2	GA	0	1	2
Semivolatile Organic Compo		<u> </u>						
Bis(2-Ethylhexyl)phthalate	UG/L	0.4	100%	5	GA	0	2	2
Butylbenzylphthalate	UG/L	0.12 3	50%			0	1	2
Di-n-butylphthalate	UG/L	1.7 3	100%	50	GA	0	2	2
				30	- GA			
Diethyl phthalate	UG/L	0.057 3	50%			0	1	2
Fluorene	UG/L	0.48	50%	0.5		0	1	2
Hexachlorobutadiene Phenanthrene	UG/L UG/L	0.4	100%	0.5	GA	0	2	2
Pyrene	UG/L UG/L	0.24	50%		<del></del>	0		2
Pesticides/PCBs	1 UG/L	0.13	30%			0	1	4
4,4'-DDD	UG/L	0.81	100%	0.3	GA	2	2	2
4,4'-DDE	UG/L	0.3	100%	0.2	GA	1	2	2
4,4'-DDT	UG/L	0.56	100%	0.2	GA	2	2	2
Alpha-BHC	UG/L	0.059	100%	0.01	GA	2	2	2
Alpha-Chlordane	UG/L	0.082 3	50%			0	1	2
		0.082		0.04				
Beta-BHC	UG/L		100%	0.04	GA	2	2	2
Delta-BHC	UG/L	0.16 3	100%	0.04	GA	2	2	2
Dieldrin	UG/L	0.2	100%	0.004	GA	2	2	2
Endosulfan l	UG/L	0.10 3	50%			0	1	2
Endosulfan II	UG/L	0.28	100%			0	2	2
Endosulfan sulfate	UG/L	0.69	100%			0	2	2
Endrin	UG/L	0.71	50%	0	GA	0	1	2
Endrin aldehyde	UG/L	0.97	100%	5	GA	0	2	2
Endrin ketone	UG/L	0.2	50%	5	GA	0	1	2
Gamma-BHC/Lindane	UG/L	0.038	50%	0.05	GA	0	1	2
Gamma-Chlordane	UG/L	0.28 3	100%			0	2	2
Heptachlor	UG/L	0.14 3	50%	0.04	GA	1	1	2
Heptachlor epoxide	UG/L	0.11	100%	0.03	GA	2	2	2
Methoxychlor	UG/L	0.62	100%	35	GA	0	2	2
Metals								
Aluminum	UG/L	5350	100%	50	SEC	2	2	2
Arsenic	UG/L	2.8 3	50%	10	MCL	0	1	2
Barium	UG/L	106	100%	1000	GA	0	2	2
Beryllium	UG/L	0.1	50%	4	MCL	0	1	2
Cadmium	UG/L	0.27 3	50%	5	GA	0	1	2
Calcium	UG/L	167500 <sup>3</sup>	100%			0	2	2
Chromium	UG/L	6.5	100%	50	GA	0	2	2
Cobalt	UG/L	3.6	100%			0	2	2
Copper	UG/L	5.2	100%	200	GA	0	2	2
Iron	UG/L	5620	100%	300	GA	2	2	2
Magnesium	UG/L	23950 <sup>3</sup>	100%			0	2	2
					arc.			
Manganese	UG/L	1365 3	100%	50	SEC	2	2	2
Nickel	UG/L	10.6	100%	100	GA	0	2	2
Potassium	UG/L	21400	100%			0	2	2

### Table 4-5A SUMMARY STATISTICS - EBS GROUNDWATER SEAD-121C

### SEAD-121C and SEAD-1211 RI Report Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Source of	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value	Criteria <sup>1</sup>	Exceedances	Detects	Analyses 2
Selenium	UG/L	4.7 3	100%	10	GA	0	2	2
Sodium	UG/L	95200	100%	20000	GA	1	2	2
Vanadium	UG/L	6.5	100%			0	2	2
Zinc	UG/L	16.4	100%	5000	SEC	0	2	2

- GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
   MCL = Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
   SEC = Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 2. Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample-duplicate pair EB153/EB023 at MW121C-1.

### Table 4-5B SUMMARY STATISTICS - RI GROUNDWATER SEAD-121C

### SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

	Τ	Maximum	Frequency	Criteria	Source of	Number of	Number of	Number of
  Parameter	Units	Detect	of Detection	Value	Criteria <sup>1</sup>	Exceedances	Detects	Analyses 2
Semivolatile Organic Compo	unds							
Bis(2-Ethylhexyl)phthalate	UG/L	1.4	17%	5	GA	0	1	6
Di-n-butylphthalate	UG/L	1.6	17%	50	GA	0	1	6
Metals								
Aluminum	UG/L	588 <sup>3</sup>	100%	50	SEC	4	6	6
Antimony	UG/L	8.4	33%	3	GA	2	2	6
Barium	UG/L	73.7	100%	1000	GA	0	6	6
Beryllium	UG/L	0.24	17%	4	MCL	0	1	6
Cadmium	UG/L	1.1	17%	5	GA	0	1	6
Calcium	UG/L	558000	100%			0	6	6
Chromium	UG/L	21.4	83%	50	GA	0	5	6
Cobalt	UG/L	3	50%			0	3	6
Copper	UG/L	17.7	50%	200	GA	0	3	6
lron	UG/L	869 <sup>3</sup>	50%	300	GA	3	3	6
Lead	UG/L	10.5	83%	15	MCL	0	5	6
Magnesium	UG/L	109000	100%			0	6	6
Manganese	UG/L	297	100%	50	SEC	6	6	6
Mercury	UG/L	0.2	33%	0.7	GA	0	2	6
Nickel	UG/L	2.1 3	17%	100	GA	0	1	6
Potassium	UG/L	9400	100%			0	6	6
Selenium	UG/L	6.8	33%	10	GA	0	2	6
Sodium	UG/L	58400 <sup>3</sup>	100%	20000	GA	3	6	6
Zinc	UG/L	96.2	100%	5000	SEC	0	6	6

- 1. GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
  - MCL = Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
    SEC = Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 2. Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample-duplicate pair 121C-2004/121C-2002 at MW121C-4.

# Table 4-6 SUMMARY STATISTICS - GROUNDWATER BUILDING 360

### SEAD-121C AND SEAD-1211 RI REPORT

Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Source of	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value	Criteria 1	Exceedances	Detects	Analyses 2
Volatile Organic Compounds								
1,1-Dichloroethane	UG/L	4.3 3	67%	5	GA	0	4	6
1,2-Dichloropropane	UG/L	0.4 3	17%	l	GA	0	1	6
Acetone	UG/L	8.4 3	25%			0	1	4
Carbon disulfide	UG/L	0.6	17%			0	1	6
Cis-1,2-Dichloroethene	UG/L	1	33%	5	GA	0	2	6
Methylene chloride	UG/L	1 3	17%	5	GA	0	1	6
Vinyl chloride	UG/L	2.3 3	67%	2	GA	1	4	6
Semivolatile Organic Compou							<u> </u>	
Bis(2-Ethylhexyl)phthalate	UG/L	2.5	17%	5	GA	0	1	6
Metals					-			
Aluminum	UG/L	105	57%	50	SEC	4	4	7
Arsenic	UG/L	4.7 3	14%	10	MCL	0	1	7
Barium	UG/L	141 3	100%	1000	GA	0	7	7
Cadmium	UG/L	3.9	14%	5	GA	0	1	7
Calcium	UG/L	119149.7969	100%			0	7	7
Chromium	UG/L	84	71%	50	GA	1	5	7
Cobalt	UG/L	7.40	43%			0	3	7
Copper	UG/L	167	43%	200	GA	0	3	7
Iron	UG/L	255000	100%	300	GA	4	7	7
Lead	UG/L	204	29%	15	MCL	2	2	7
Magnesium	UG/L	27400	100%			0	7	7
Manganese	UG/L	1645 <sup>3</sup>	100%	50	SEC	7	7	7
Mercury	UG/L	0.28	29%	0.7	GA	0	2	7
Nickel	UG/L	38.8	86%	100	GA	0	6	7
Potassium	UG/L	12300	100%			0	7	7
Selenium	UG/L	7.5	57%	10	GA	0	4	7
Silver	UG/L	8.6	14%	50	GA	0	1	7
Sodium	UG/L	42850 <sup>3</sup>	100%	20000	GA	7	7	7
Thallium	UG/L	3.3 3	14%	2	MCL	1	1	7
Vanadium	UG/L	4.4	14%		1	0	1	7
Zinc	UG/L	5740	100%	5000	SEC	2	7	7
Other			1				····	
Total Petroleum Hydrocarbons	MG/L	1.52	33%			0	2	6

- GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
   MCL = Maximum Contaminant Level Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
  - SEC = Secondary Drinking Water Regulations Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
- 2. Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample and its duplicate pairs: DRMO-2005/DRMO-2008 collected April 2003 from MW-1 and DRMO-2013/DRMO-2019 collected May 2003 from MW-1.

# Table 4-7 SUMMARY STATISTICS - SURFACE WATER SEAD-121C

### SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

Maximum Frequency   Criteria   Number of Number of Number of											
D	¥724		1 - 1	Value <sup>1</sup>							
Parameter	Units	Detect	of Detection	Value	Exceedances	Detects	Analyses 2				
Semivolatile Organic Compoun			100/				1.0				
Bis(2-Ethylhexyl)phthalate	UG/L	4.2	10%	0.6	11	1	10				
Metals					,						
Aluminum	UG/L	8760	100%	100	5	10	10				
Arsenic	UG/L	50.3	10%	150	0	1	10				
Barium	UG/L	423	100%		0	10	10				
Beryllium	UG/L	0.86	90%	1100	0	9	10				
Cadmium	UG/L	19.5	40%	3.84	2	4	10				
Calcium	UG/L	166000	100%		0	10	10				
Chromium	UG/L	129	80%	139.45	0	8	10				
Cobalt	UG/L	47	70%	5	2	7	10				
Copper	UG/L	1160	100%	17.32	2	10	10				
Iron	UG/L	110000	80%	300	5	8	10				
Lead	UG/L	839	100%	1.4624632	10	10	10				
Magnesium	UG/L	26200	100%		0	10	10				
Manganese	UG/L	2380	100%		0	10	10				
Mercury	UG/L	2.1	20%	0.0007	2	2	10				
Nickel	UG/L	154	30%	99.92	1	3	10				
Potassium	UG/L	5350	100%		0	10	10				
Selenium	UG/L	4.6	10%	4.6	0	1	10				
Silver	UG/L	8	20%	0.1	2	2	10				
Sodium	UG/L	123000	100%		0	10	10				
Thallium	UG/L	6.3	20%	8	0	2	10				
Vanadium	UG/L	233	50%	14	2	5	10				
Zinc	UG/L	6910	100%	159.25	2	10	10				
Other											
Total Petroleum Hydrocarbons	MG/L	8.08	11%		0	1	9				

- 1. Criteria values are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
- 2. Sample-duplicate pair (DRMO-3008/DRMO-3005 collected from SWDRMO-8) was averaged and the average results were used in the summary statistic presented in this table.

# Table 4-8 SUMMARY STATISTICS - SURFACE SOIL AND DITCH SOIL SEAD-121I

### SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value 1	Exceedances	Detects	Analyses 2
Volatile Organic Compounds							
Acetone	UG/KG	150	80%	200	0	36	45
Benzene	UG/KG	41 3	20%	60	0	9	45
Ethyl benzene	UG/KG	7.8	13%	5500	0	6	45
Meta/Para Xylene	UG/KG	6.3 3	13%		0	6	45
Methyl ethyl ketone	UG/KG	78	24%	300	0	11	45
Methylene chloride	UG/KG	2.8	20%	100	0	9	45
Ortho Xylene	UG/KG	3.6 <sup>3</sup>	13%		0	6	45
Toluene	UG/KG	31 <sup>3</sup>	18%	1500	0	8	45
Semivolatile Organic Compour							
2-Methylnaphthalene	UG/KG	260	10%	36400	0	5	51
3,3'-Dichlorobenzidine	UG/KG	315 <sup>3</sup>	2%		0	1	47
Acenaphthene	UG/KG	6100	51%	50000	0	26	51
Acenaphthylene	UG/KG	560	12%	41000	0	6	51
Anthracene	UG/KG	12000	58%	50000	0	29	50
Benzo(a)anthracene	UG/KG	28000	90%	224	28	46	51
Benzo(a)pyrene	UG/KG	23000	88%	61	44	45	51
Benzo(b)fluoranthene	UG/KG	29000	94%	1100	14	48	51
Benzo(ghi)perylene	UG/KG	29000	82%	50000	0	42	51
Benzo(k)fluoranthene	UG/KG	23000	74%	1100	14	37	50
Bis(2-Ethylhexyl)phthalate	UG/KG	1600	33%	50000	0	17	51
Butylbenzylphthalate	UG/KG	420 <sup>3</sup>	6%	50000	0	3	48
Carbazole	UG/KG	6800	57%		0	29	51
Chrysene	UG/KG	32000	86%	400	25	44	51
Di-n-butylphthalate	UG/KG	45	2%	8100	0	1	50
Di-n-octylphthalate	UG/KG	420 <sup>3</sup>	2%	50000	0	1	47
Dibenz(a,h)anthracene	UG/KG	5000	34%	14	15	15	44
Dibenzofuran	UG/KG	2000	27%	6200	0	14	51
Diethyl phthalate	UG/KG	640 <sup>3</sup>	2%	7100	0	1	51
Fluoranthene	UG/KG	62000	94%	50000	1	48	51
Fluorene	UG/KG	4200	43%	50000	0	22	51
Indeno(1,2,3-cd)pyrene	UG/KG	12000	71%	3200	3	35	49
Isophorone	UG/KG	315 <sup>3</sup>	2%	4400	0	1	51
Naphthalene	UG/KG	630	14%	13000	0	7	51
Nitrobenzene	UG/KG	315 <sup>3</sup>	2%	200	1	1	51
Phenanthrene	UG/KG	52000	94%	50000	1	48	51
Phenol	UG/KG	315 <sup>3</sup>	2%	30	1	1	51
Pyrene	UG/KG	64000	94%	50000	1	48	51
Pesticides/PCBs		······································					
4,4'-DDE	UG/KG	34	11%	2100	0	5	45
4,4'-DDT	UG/KG	39	5%	2100	0	2	44
Aldrin	UG/KG	12	9%	41	0	4	45
Dieldrin	UG/KG	34	4%	44	0	2	45
Endosulfan I	UG/KG	95	59%	900	0	24	41

# Table 4-8 SUMMARY STATISTICS - SURFACE SOIL AND DITCH SOIL SEAD-121I

### SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

		Maximum	Frequency	Criteria	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value 1	Exceedances	Detects	Analyses 2
Endrin	UG/KG	30	4%	100	0	2	45
Heptachlor epoxide	UG/KG	55	21%	20	3	8	39
Aroclor-1254	UG/KG	67	4%	10000	0	2	45
Aroclor-1260	UG/KG	46	7%	10000	0	3	45
Metals and Cyanide							
Aluminum	MG/KG	13200	100%	19300	0	45	45
Antimony	MG/KG	7.5	31%	5.9	1	14	45
Arsenic	MG/KG	104	100%	8.2	8	34	34
Barium	MG/KG	207	100%	300	0	45	45
Beryllium	MG/KG	0.68	98%	1.1	0	44	45
Cadmium	MG/KG	6.6	31%	2.3	3	14	45
Calcium	MG/KG	298000	100%	121000	18	45	45
Chromium	MG/KG	439 <sup>3</sup>	100%	29.6	6	45	45
Cobalt	MG/KG	206 <sup>3</sup>	100%	30	4	45	45
Copper	MG/KG	209 <sup>3</sup>	100%	33	10	40	40
Cyanide, Total	MG/KG	2.00 <sup>3</sup>	7%		0	3	45
Iron	MG/KG	58400 <sup>3</sup>	100%	36500	2	45	45
Lead	MG/KG	122	100%	24.8	22	45	45
Magnesium	MG/KG	22300	100%	21500	1	45	45
Manganese	MG/KG	310500 <sup>3</sup>	100%	1060	15	45	45
Mercury	MG/KG	0.18	98%	0.1	1	44	45
Nickel	MG/KG	342	100%	49	7	45	45
Potassium	MG/KG	1450	100%	2380	0	45	45
Selenium	MG/KG	146 <sup>3</sup>	47%	2	5	21	45
Silver	MG/KG	10.5	18%	0.75	4	6	34
Sodium	MG/KG	372	82%	172	24	37	45
Thallium	MG/KG	163 <sup>3</sup>	20%	0.7	5	9	45
Vanadium	MG/KG	182 <sup>3</sup>	100%	150	1	45	45
Zinc	MG/KG	532	100%	110	14	45	45
Other							
Total Organic Carbon	MG/KG	8900	100%		0	45	45
Total Petroleum Hydrocarbons	MG/KG	2200	33%		0	15	45

### Notes

- 1. The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.
- 2. Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample and its duplicate.

### Table 4-9 SUMMARY STATISTICS - SURFACE WATER SEAD-121I

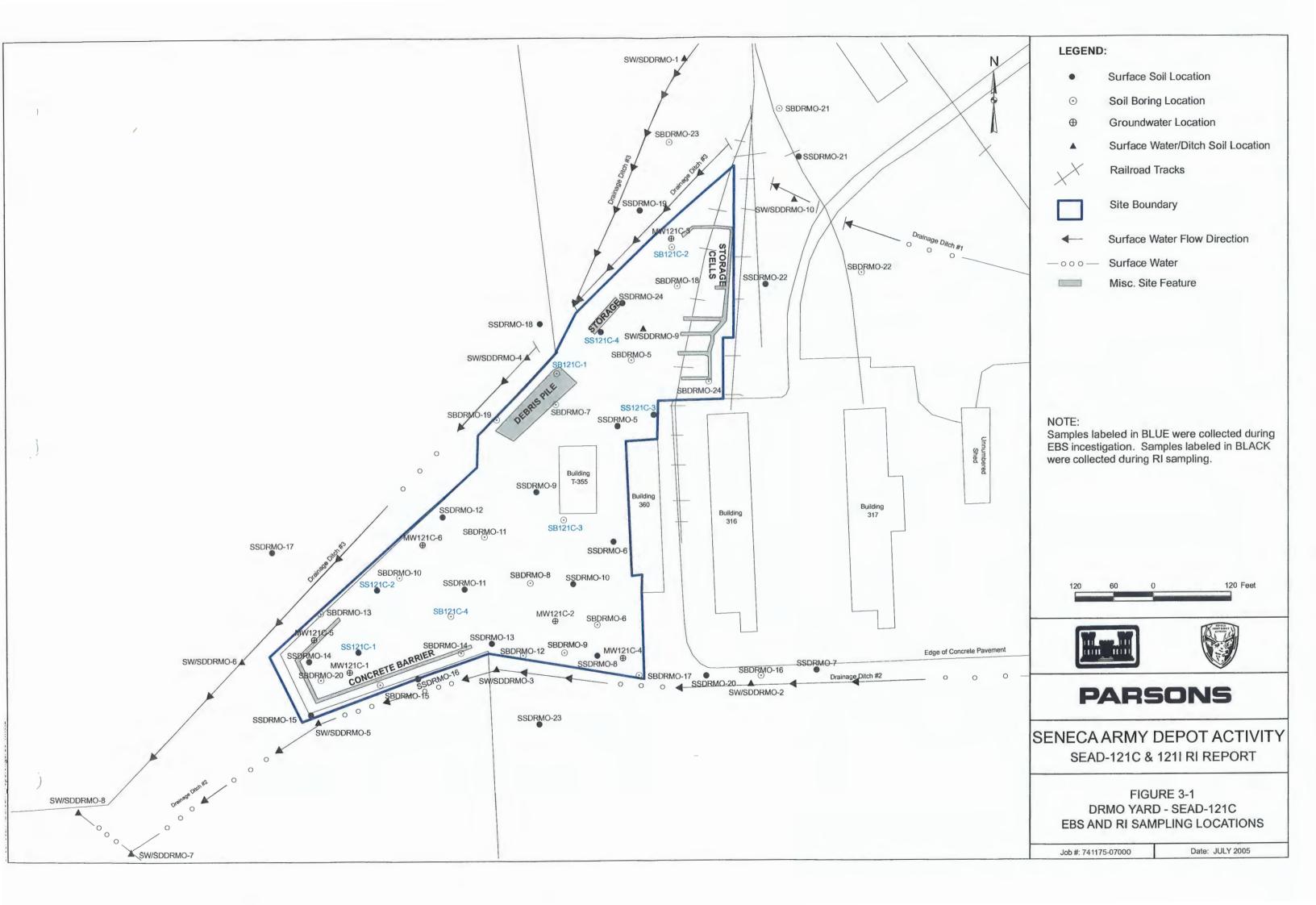
### SEAD-121C and SEAD-121I RI Report

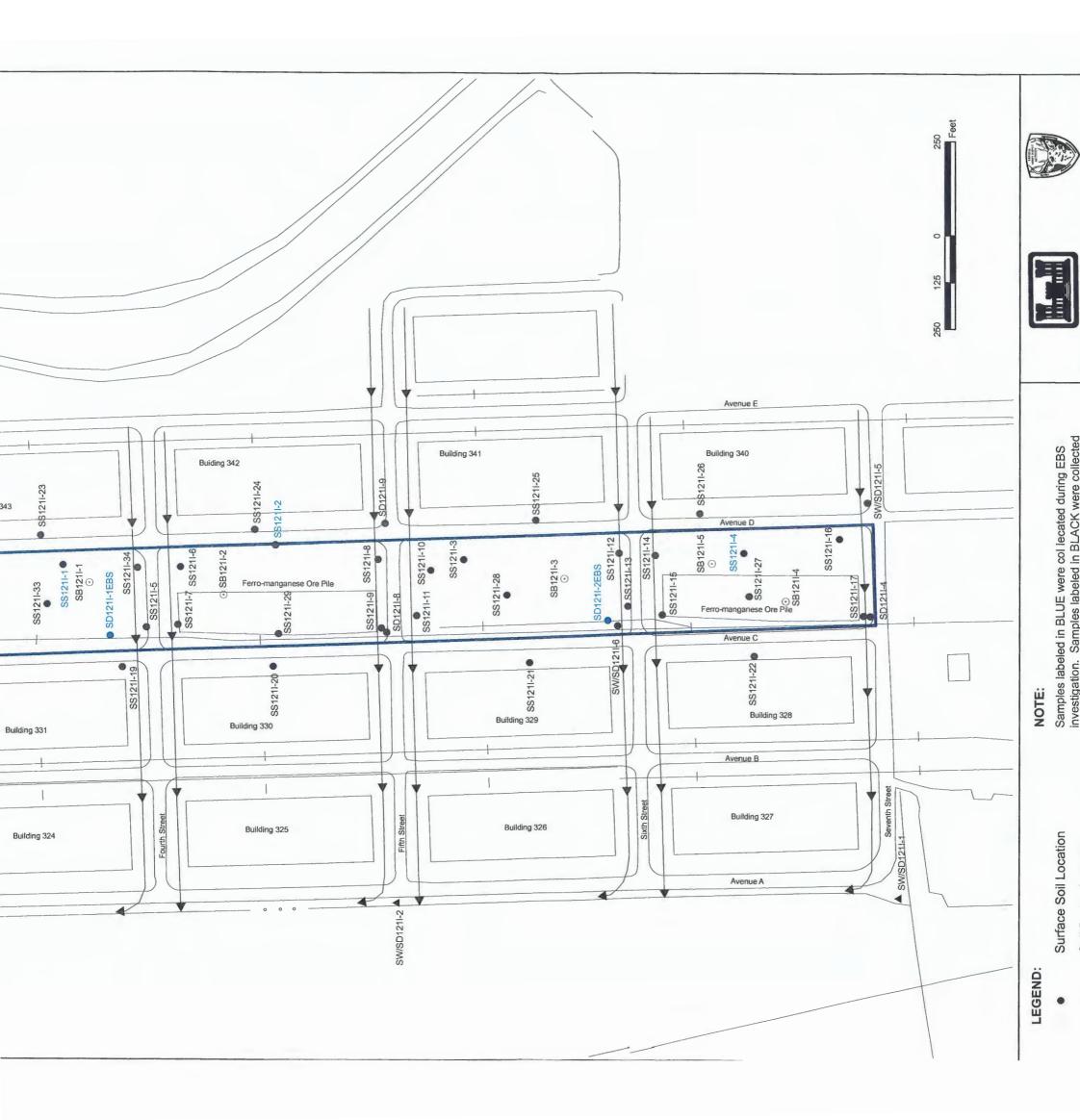
Seneca Army Depot Activity

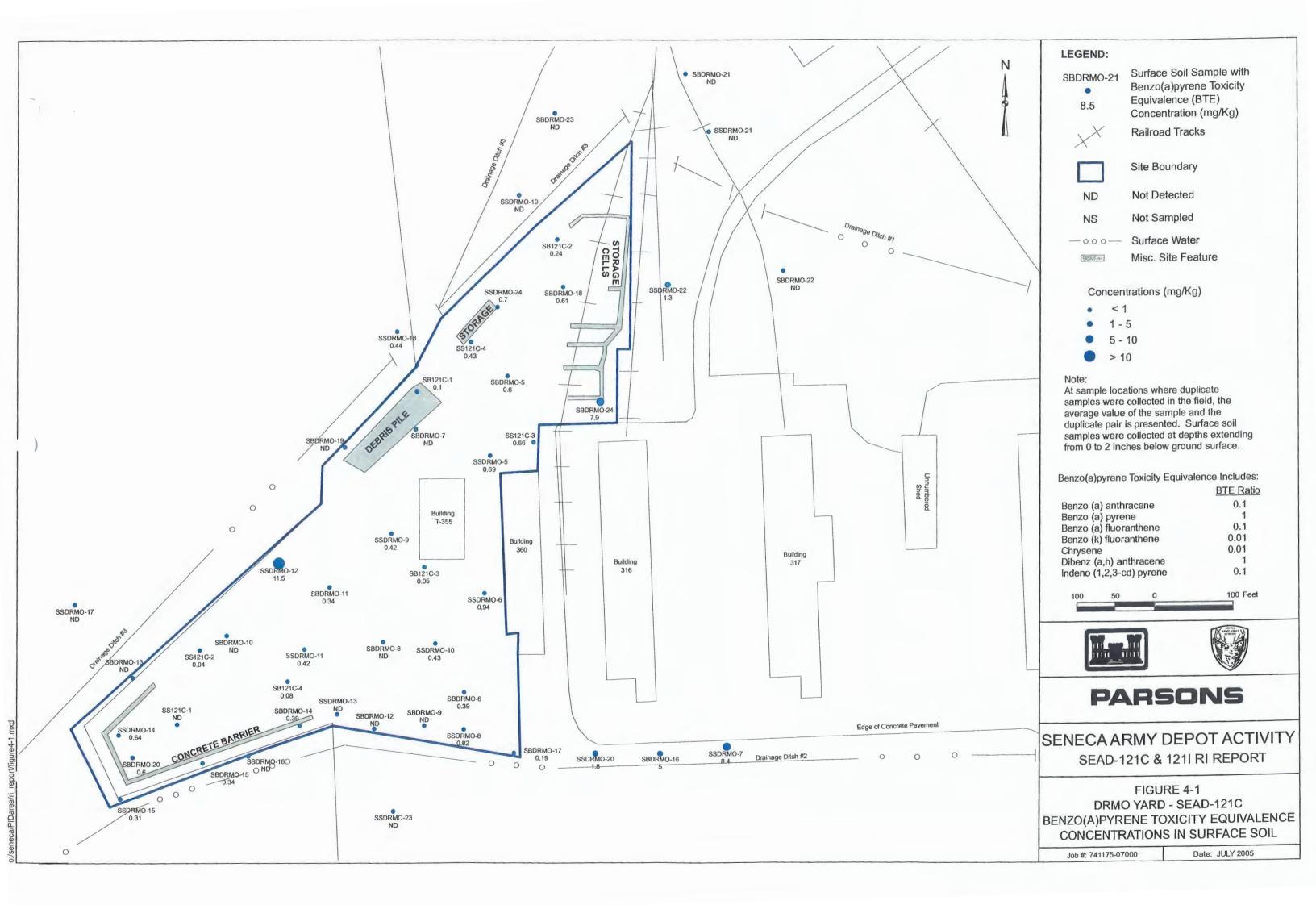
		Maximum	Frequency	Criteria	Number of	Number of	Number of
Parameter	Units	Detect	of Detection	Value <sup>1</sup>	Exceedances	Detects	Analyses 2
Semivolatile Organic	Compo	unds					
Butylbenzylphthalate	UG/L	1.1	14%		0	1	7
Fluoranthene	UG/L	1.1	14%		0	1	7
Metals							
Aluminum	UG/L	2050	100%	100	3	7	7
Barium	UG/L	49.2	86%		0	6	7
Beryllium	UG/L	0.28	86%	1100	0	6	7
Cadmium	UG/L	0.54	14%	3.84	0	1	7
Calcium	UG/L	74200	100%		0	7	7
Chromium	UG/L	6	71%	139.45	0	5	7
Cobalt	UG/L	3	29%	5	0	2	7
Copper	UG/L	11.2	86%	17.32	0	6	7
Iron	UG/L	3410	71%	300	2	5	7
Lead	UG/L	26.3	57%	1.4624632	4	4	7
Magnesium	UG/L	11100	100%		0	7	7
Manganese	UG/L	206	100%		0	7	7
Nickel	UG/L	3.6	29%	99.92	0	2	7
Potassium	UG/L	4640	100%		0	7	7
Selenium	UG/L	2.5 <sup>3</sup>	14%	4.6	0	1	7
Sodium	UG/L	38500	100%		0	7	7
Vanadium	UG/L	3.9	43%	14	0	3	7
Zinc	UG/L	190	100%	159.25	1	7	7

- 1. Criteria values are from the New York State Ambient Water Quality Standards, Class C for Surface Water
- 2. Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
- 3. The maximum detected concentration was obtained from the average of the sample (121I-3007) and its duplicate (121I-3005) collected at SW121I-7.



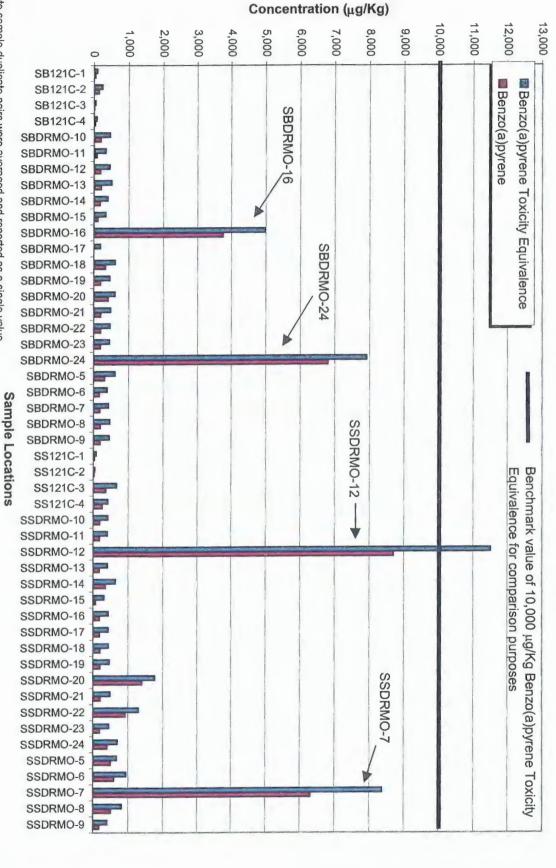


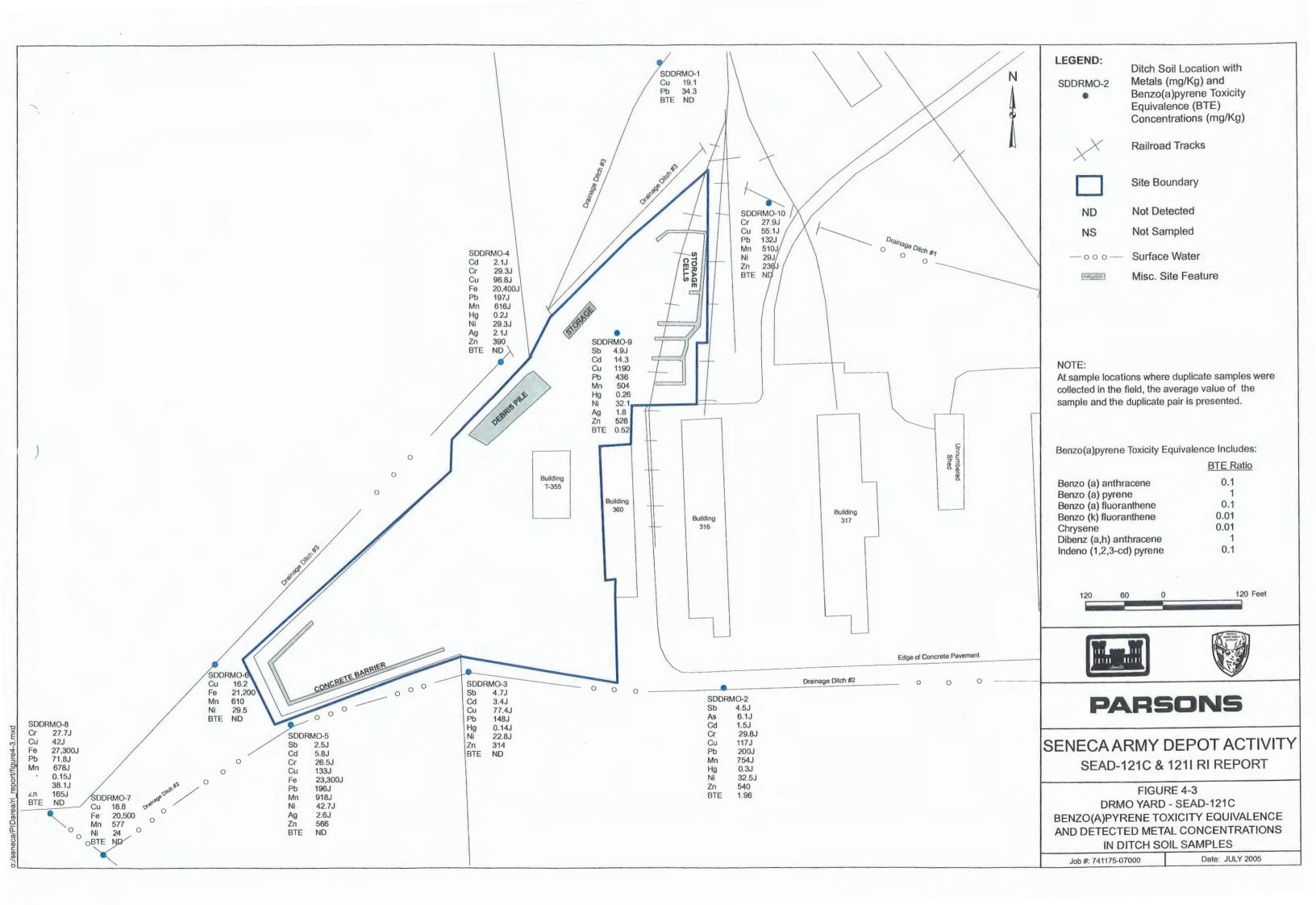




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FIGURE 4-2 Benzo(a)pyrene Toxicity Equivalence in Surface Soil at the DRMO Yard SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

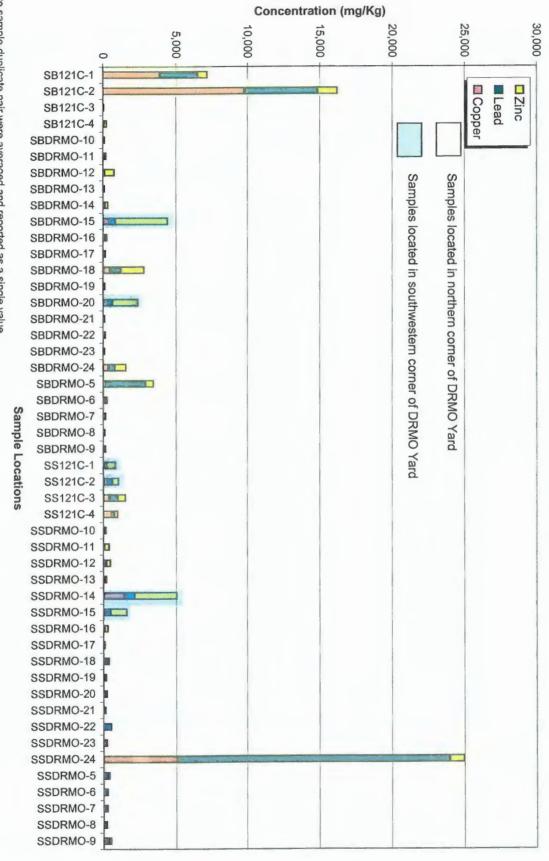


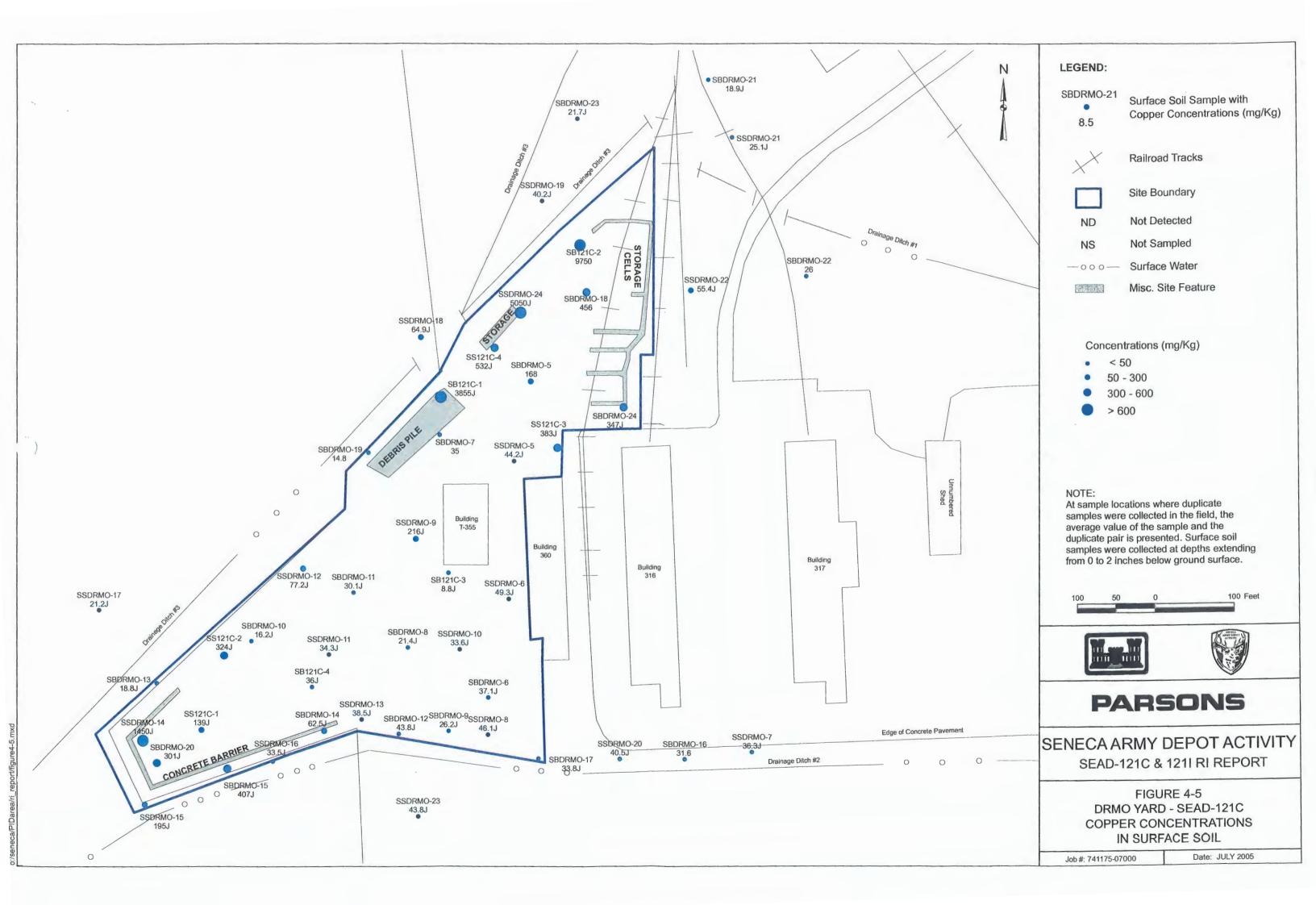


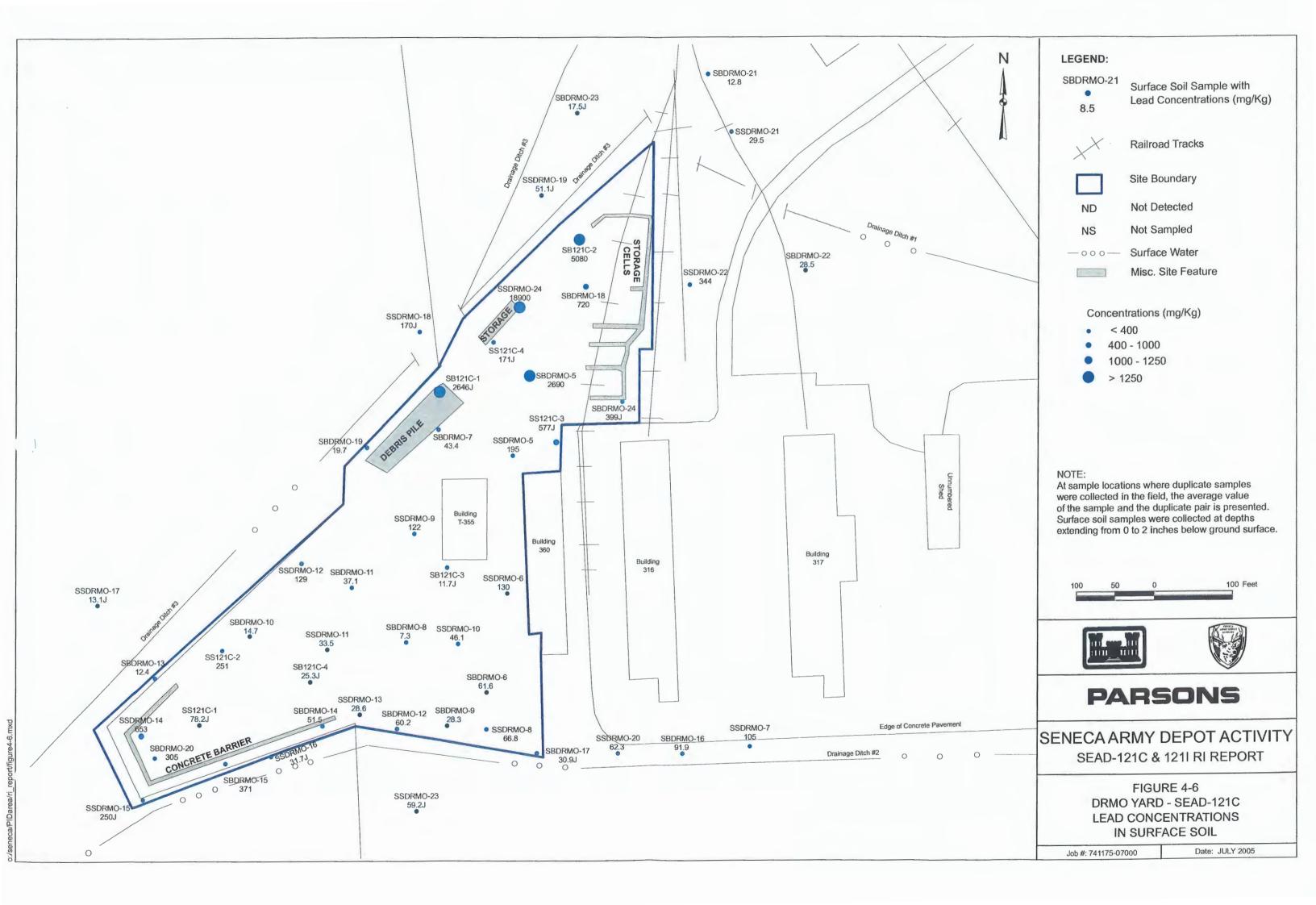
Note sample-duplicate pair were averaged and reported as a single value.

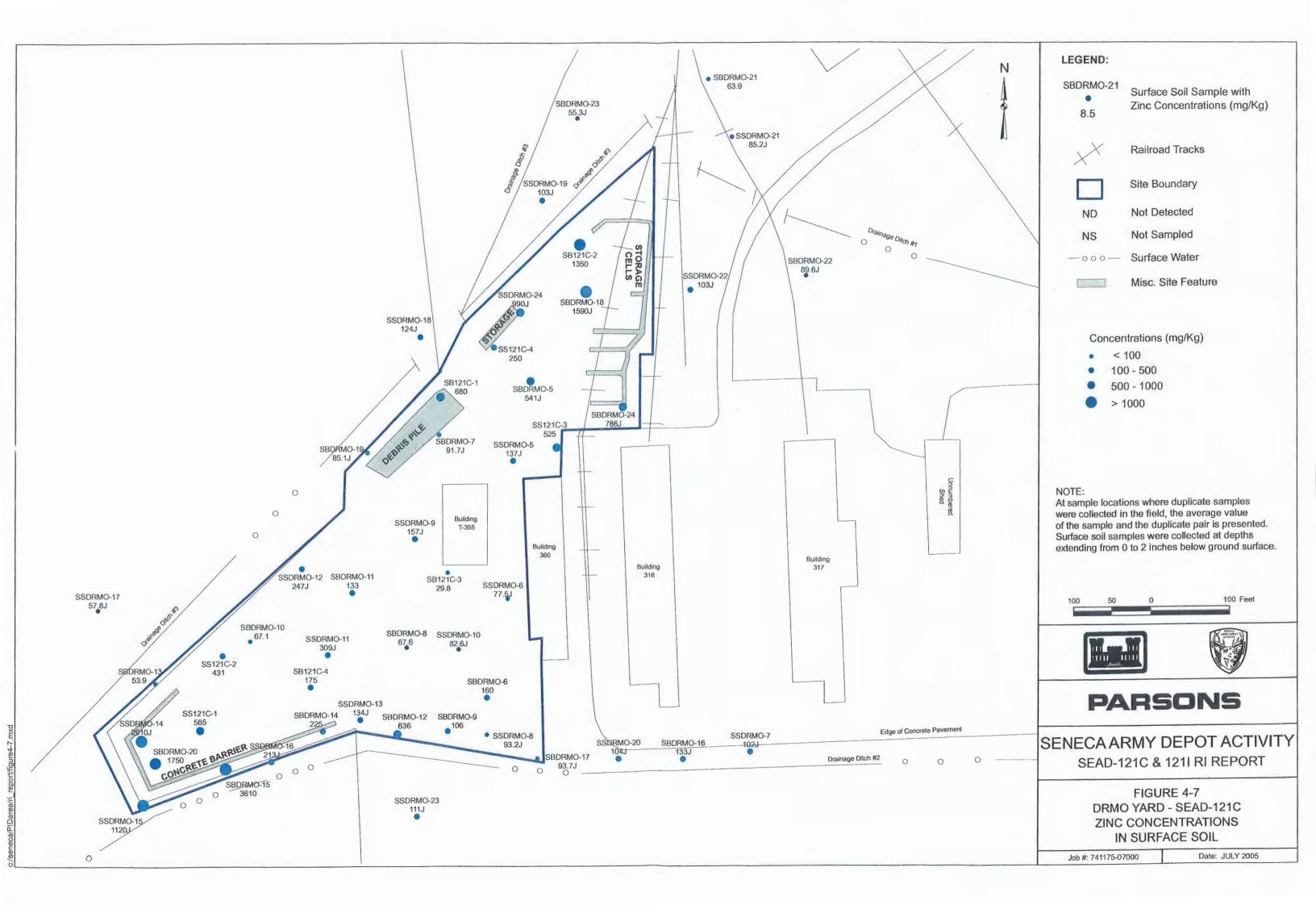
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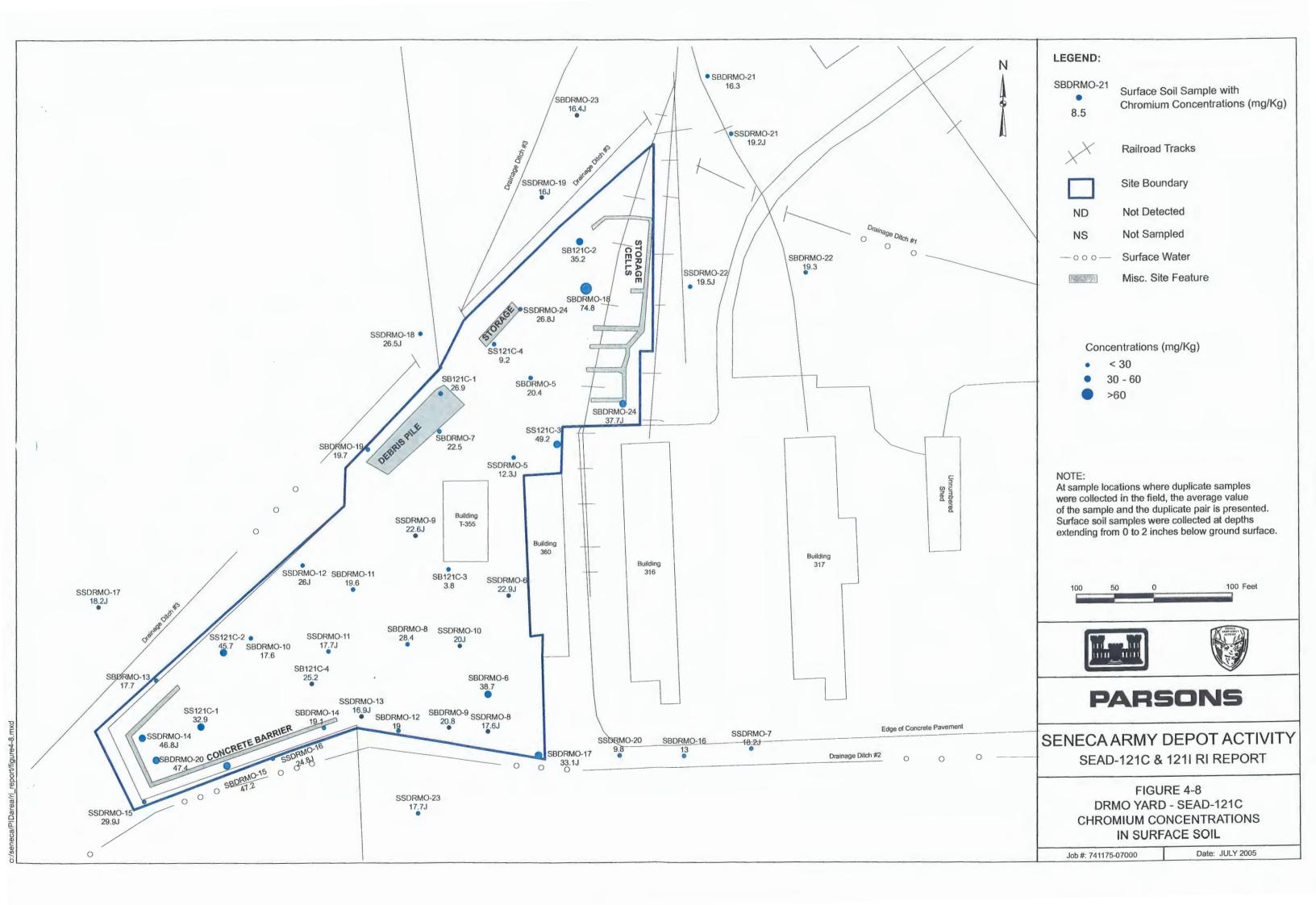
# FIGURE 4-4 Distribution of Tier 1 Metals in Surface Soil at the DRMO Yard SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity



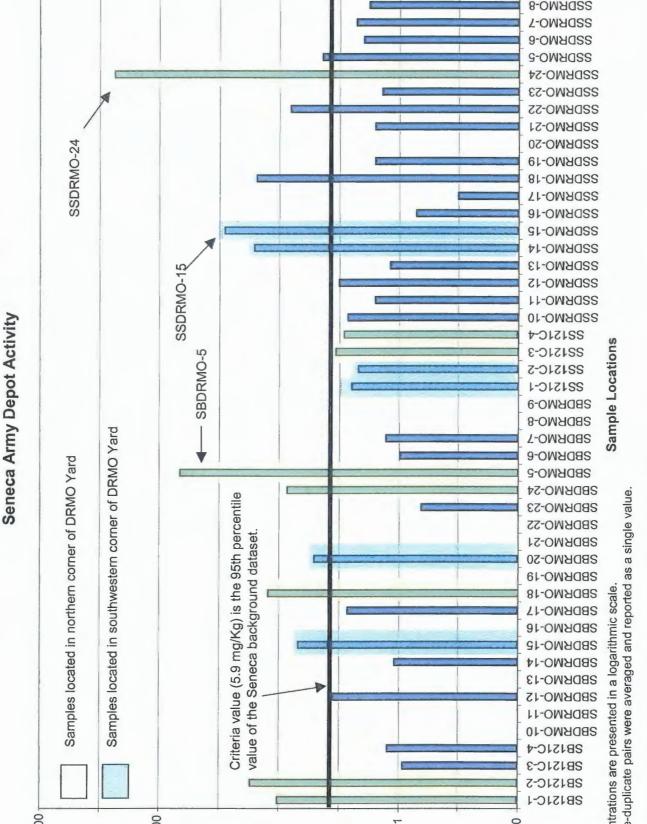






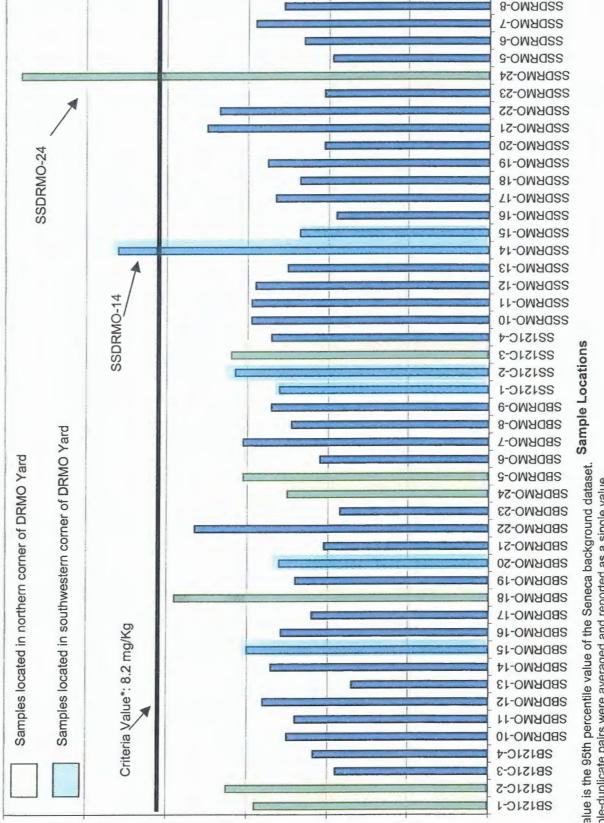


## Distribution of Antimony in Surface Soil at the DRMO Yard SEAD-121C and SEAD-121I RI Report FIGURE 4-9



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## Distribution of Arsenic in Surface Soil at the DRMO Yard SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity FIGURE 4-10



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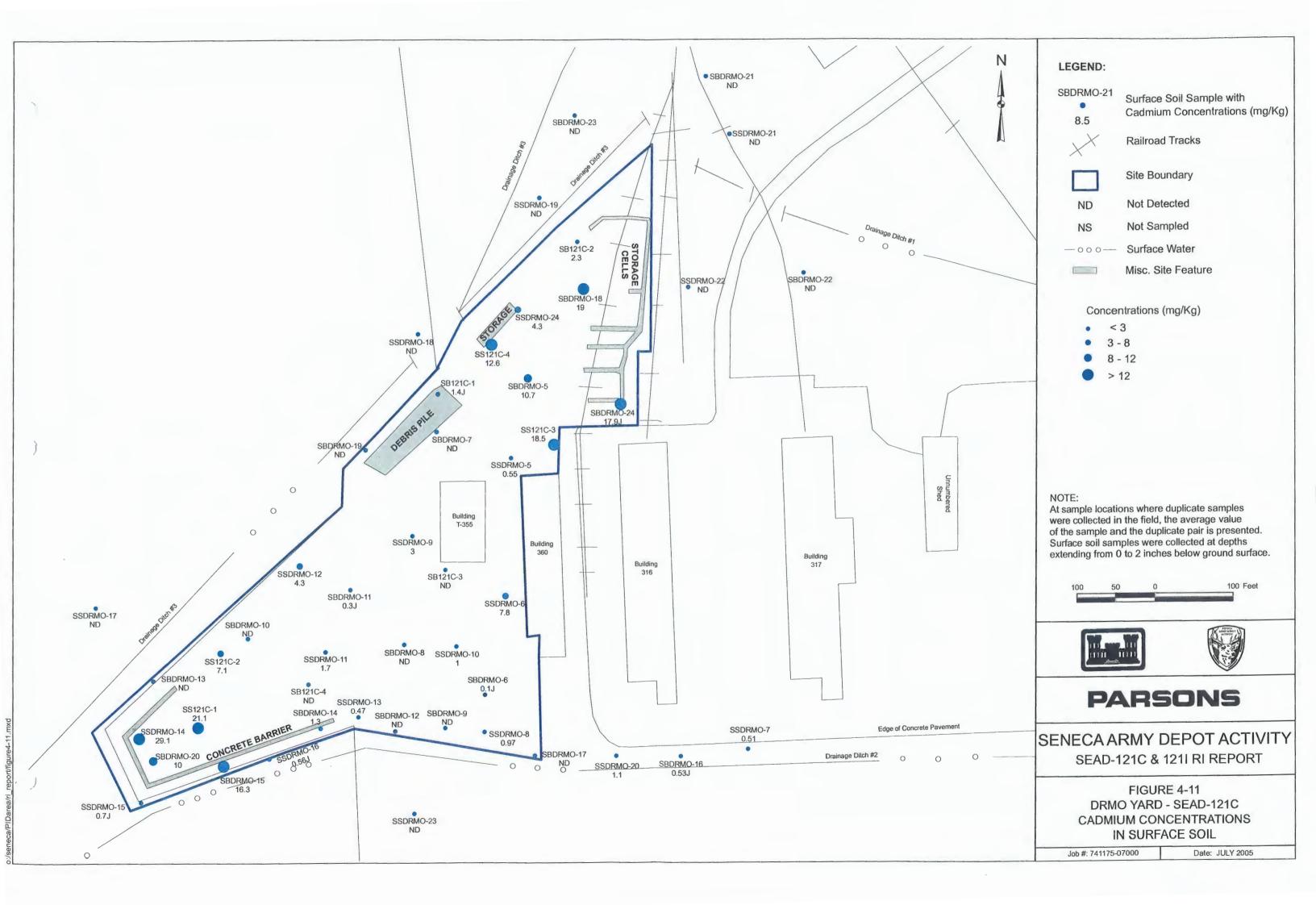
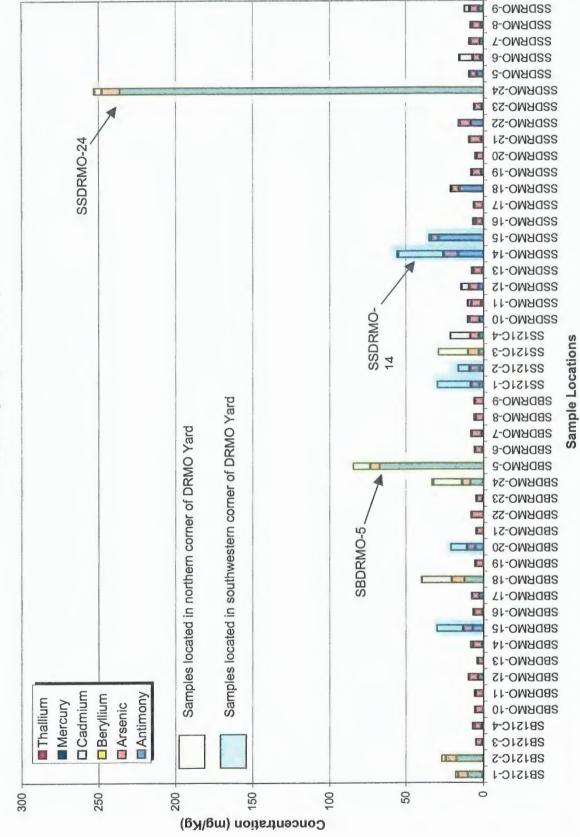


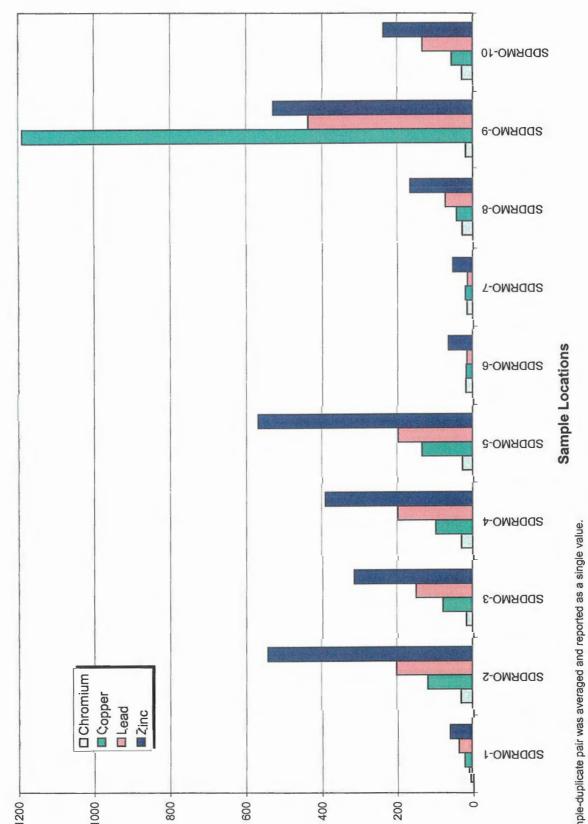
FIGURE 4-12
Distribution of Tier 2 Metals in Surface Soil at the DRMO Yard
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



Note sample-duplicate pairs were averaged and reported as a single value.

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Distribution of Tier 1 Metals in Ditch Soil at the DRMO Yard SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity **FIGURE 4-13** 



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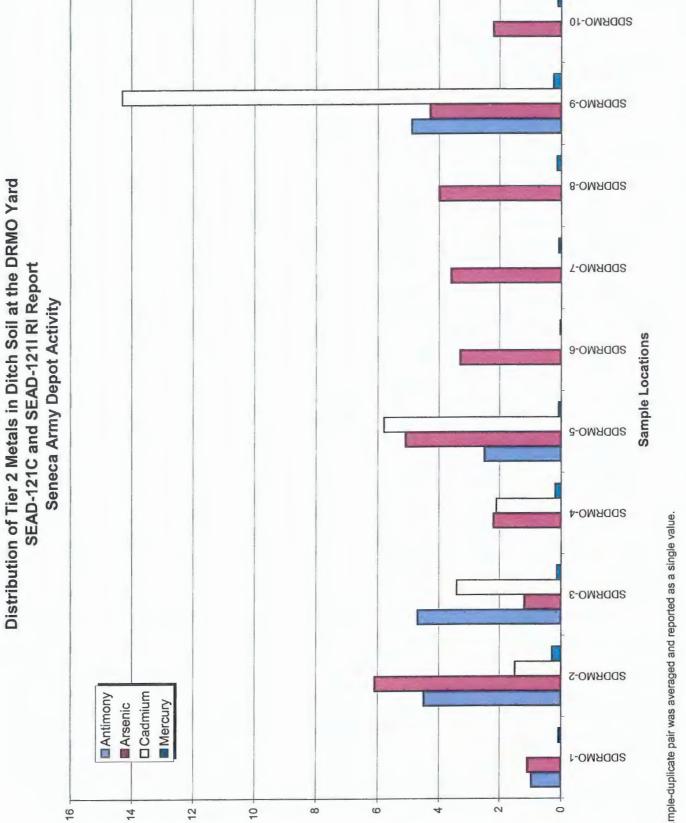
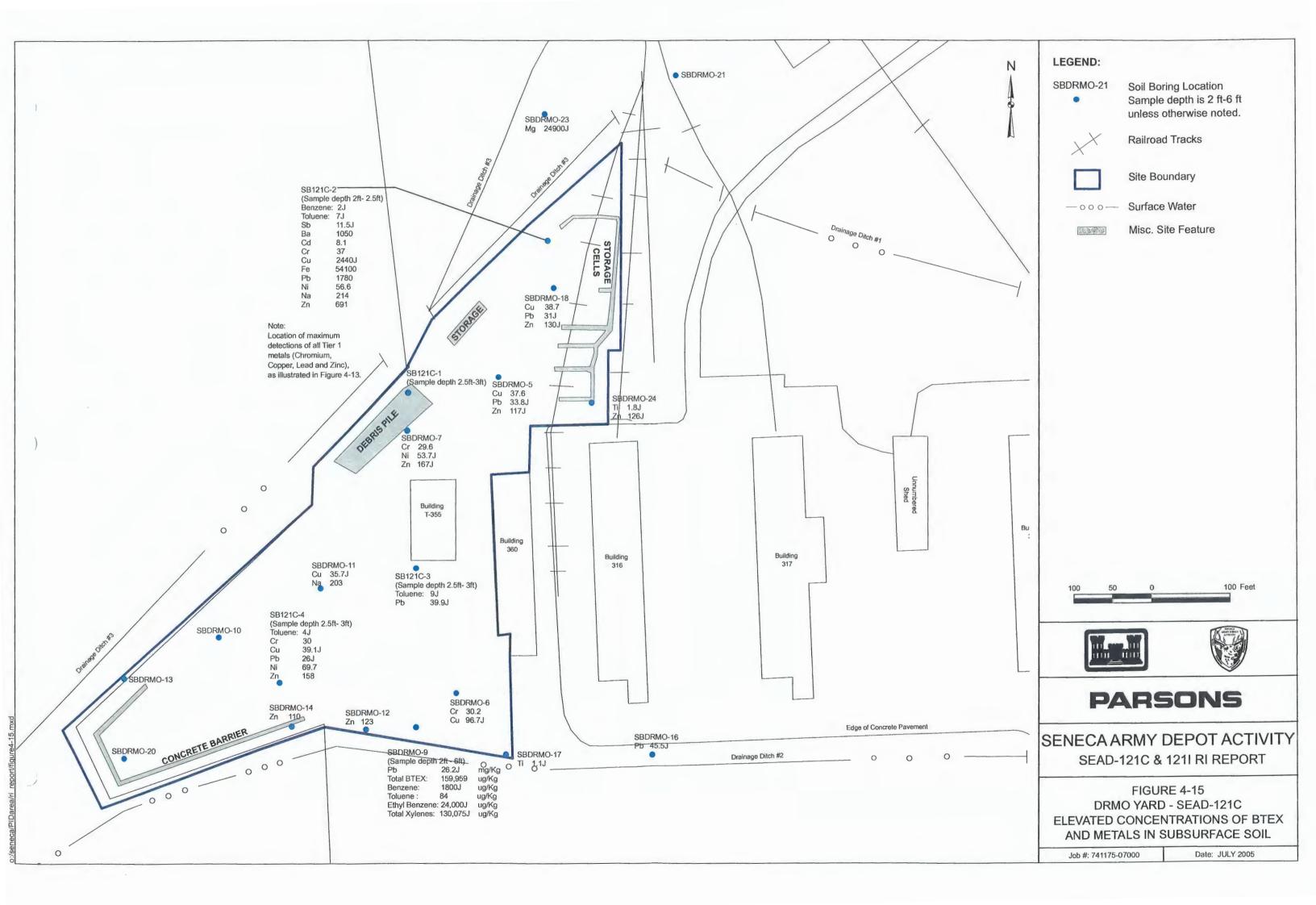
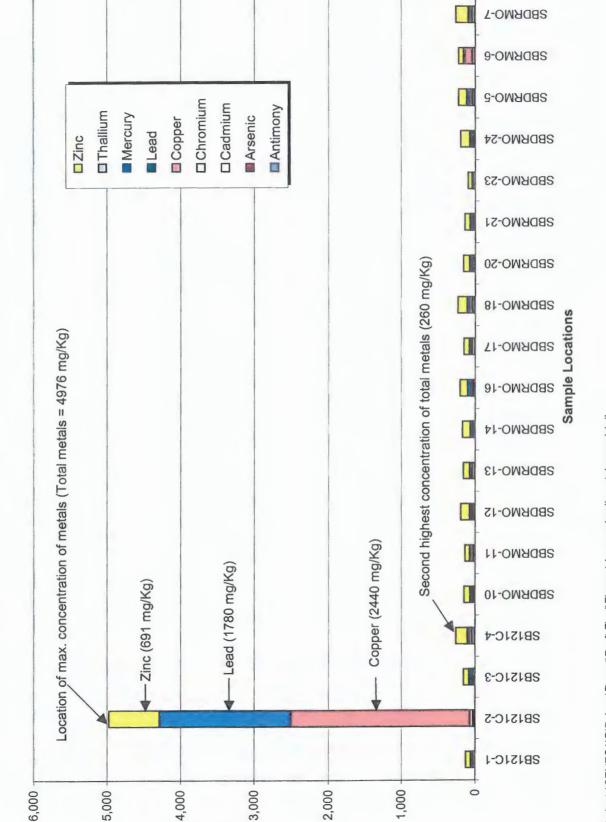


FIGURE 4-14

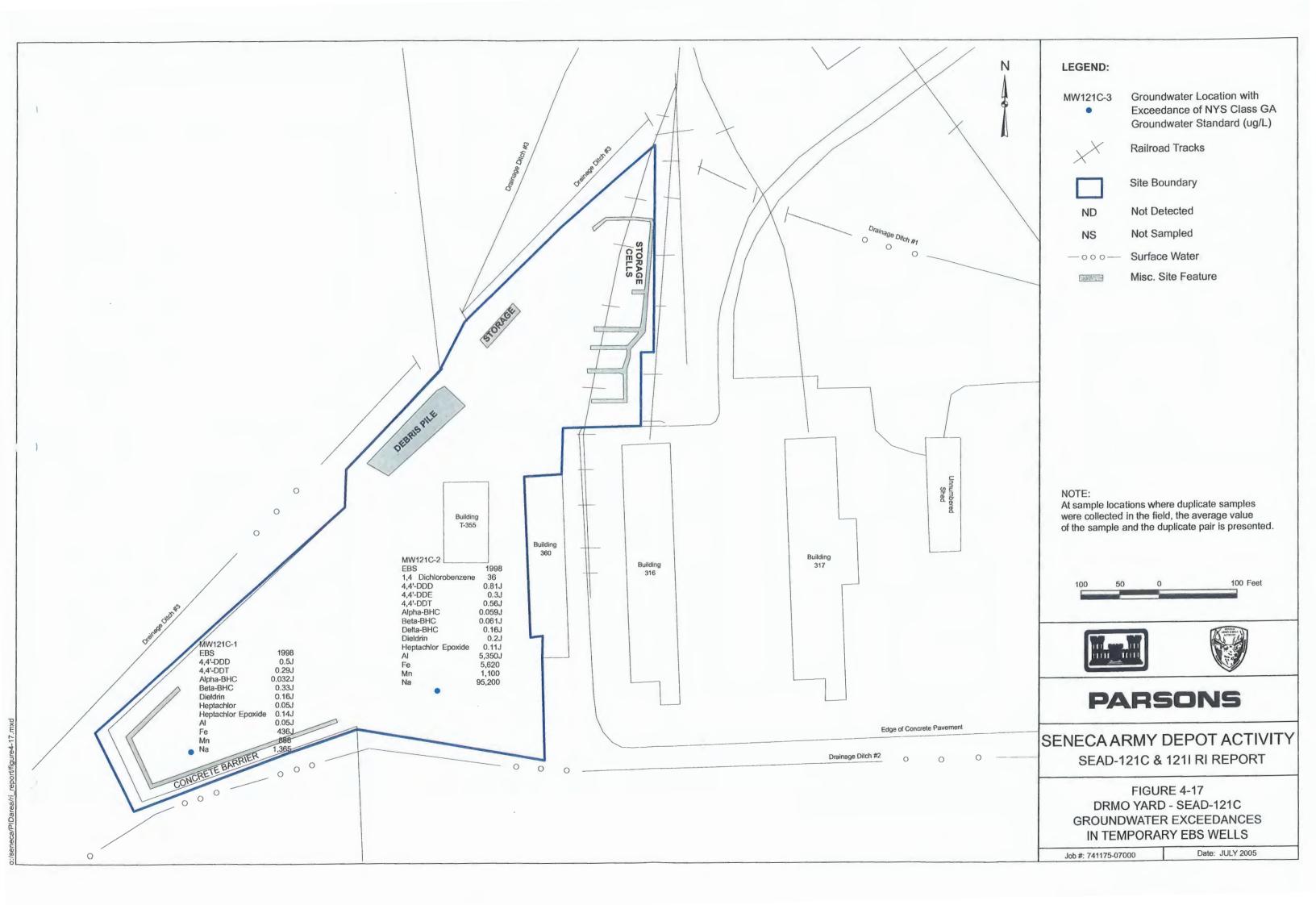
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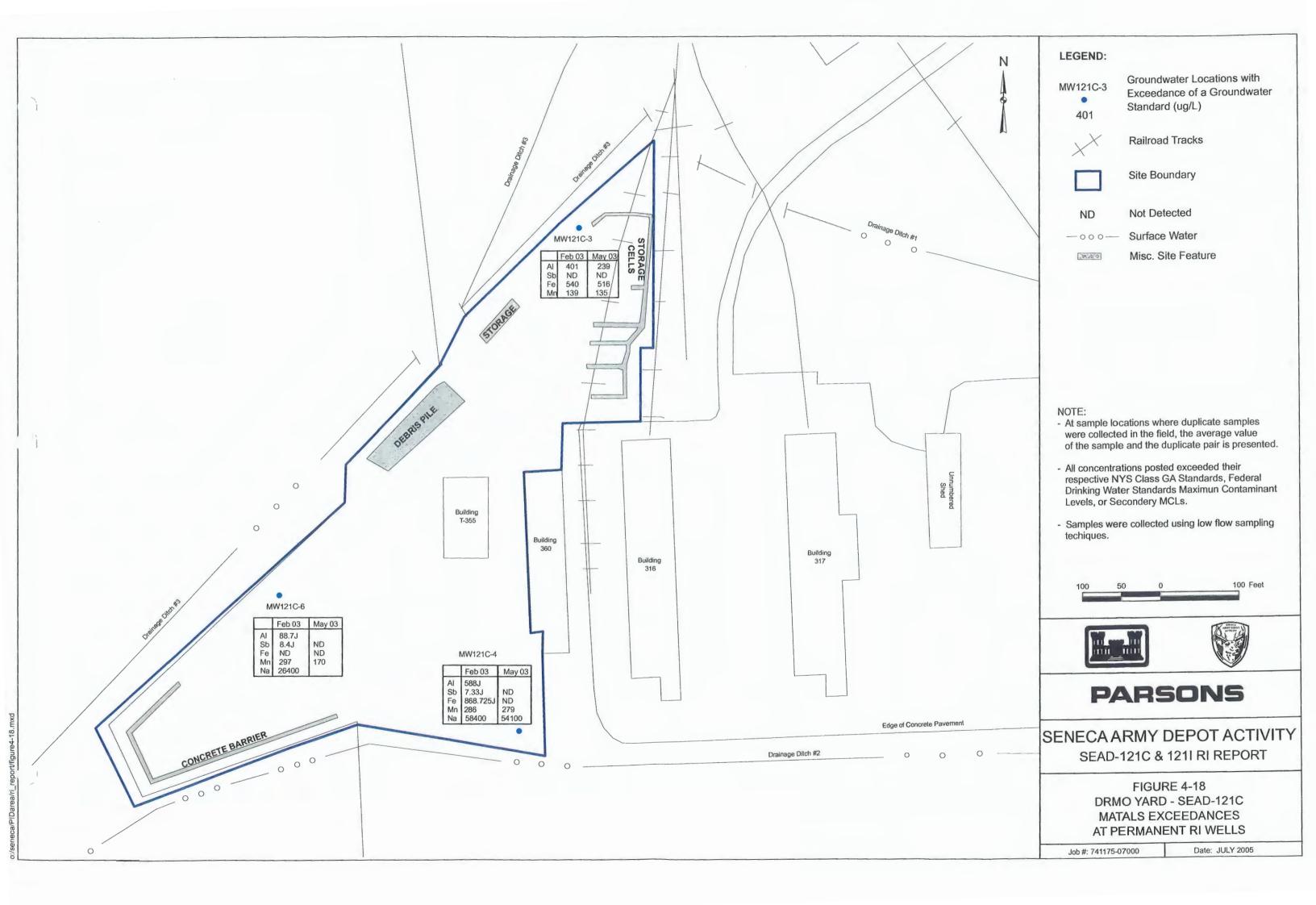


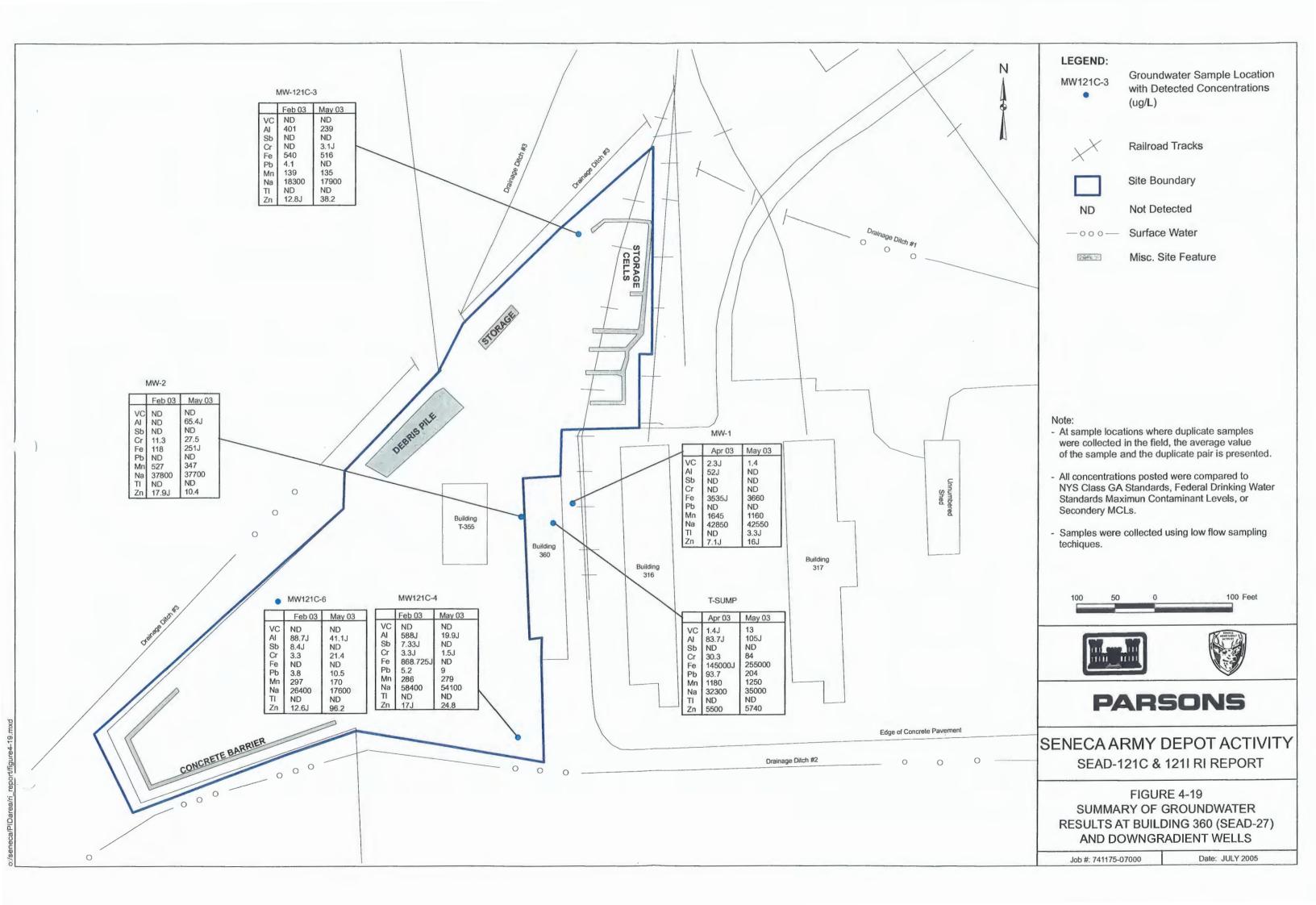
Distribution of Metals in Subsurface Soil at the DRMO Yard SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity FIGURE 4-16

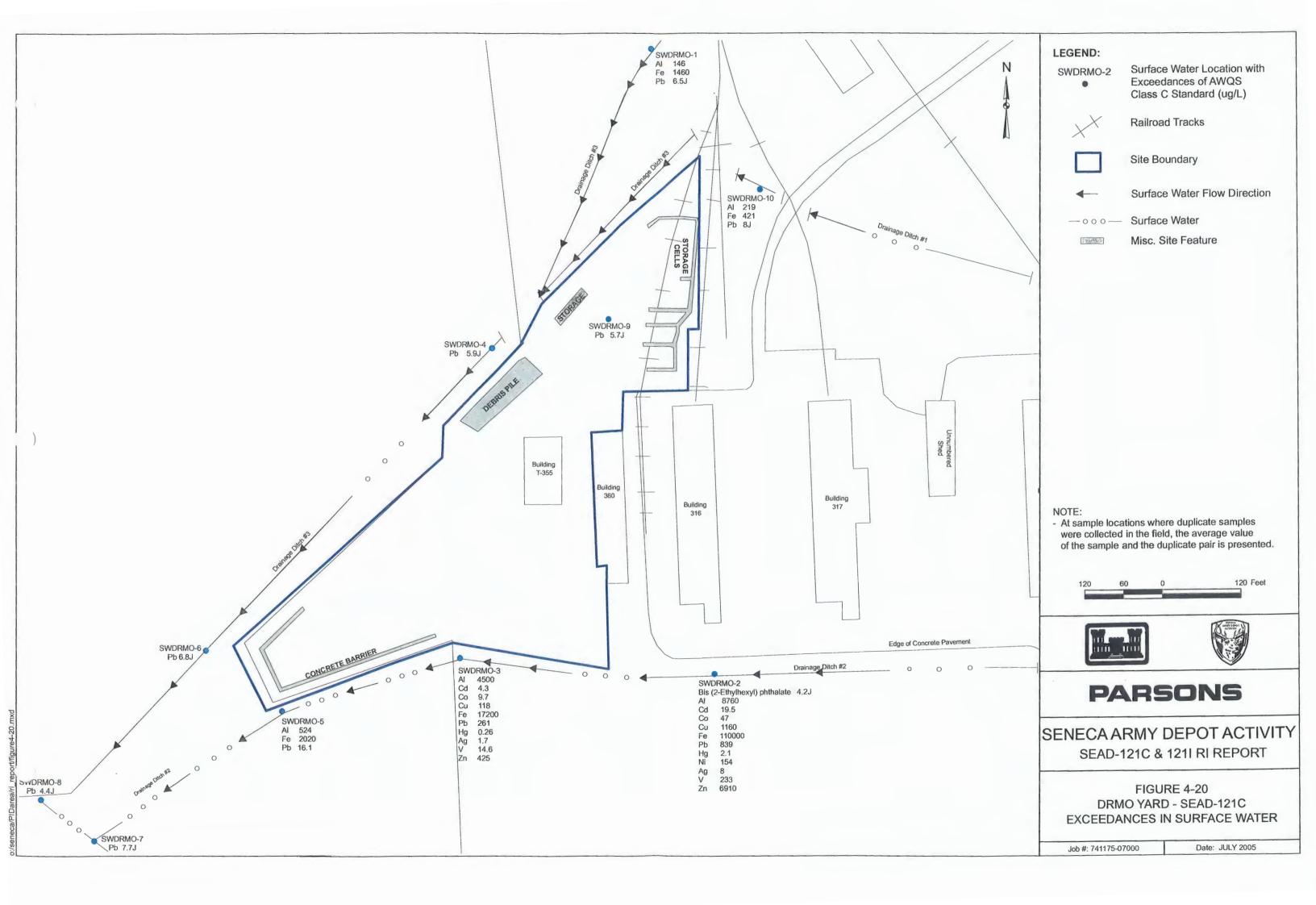


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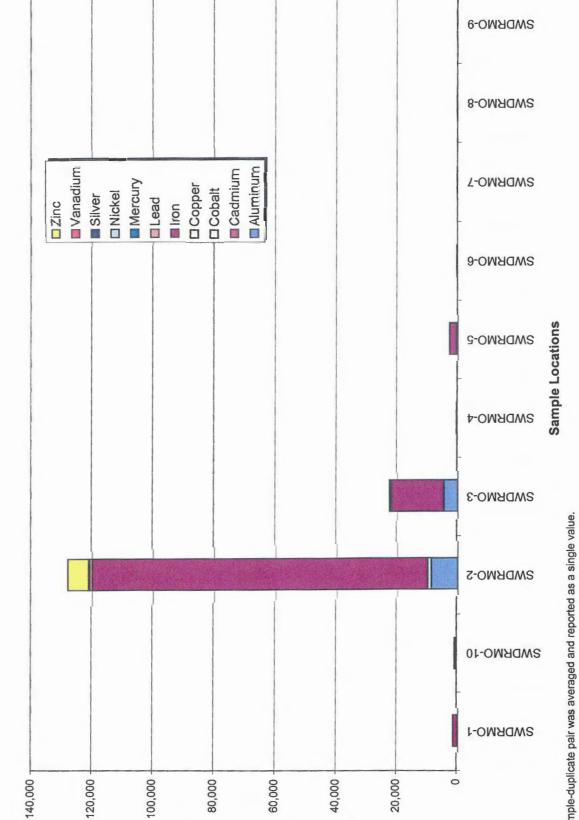








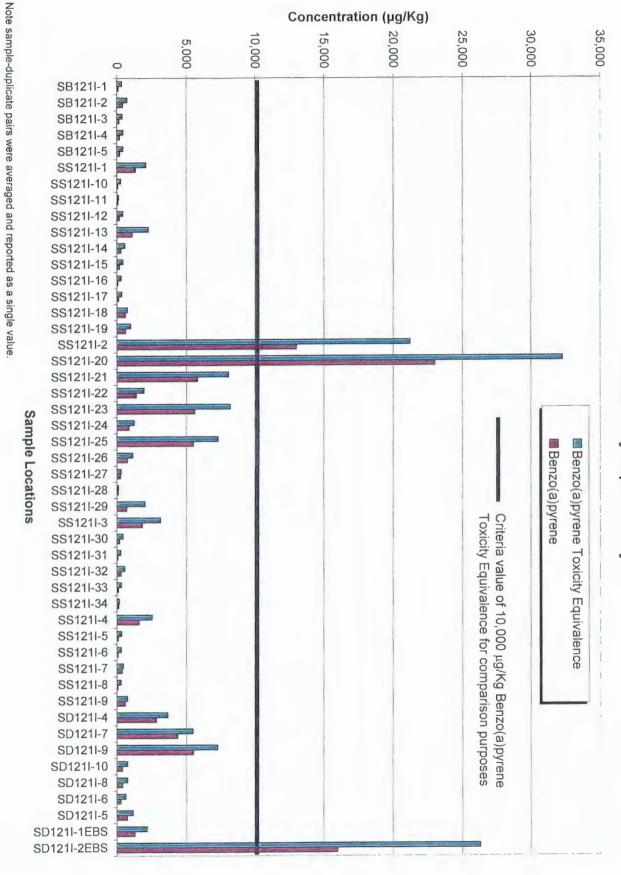
Distribution of Metals in Surface Water at the DRMO Yard SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity FIGURE 4-21



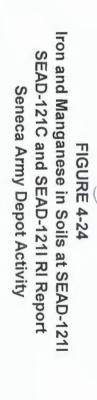
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# FIGURE 4-23 Benzo(a)pyrene Toxicity Equivalence in Soils at SEAD-121I SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity



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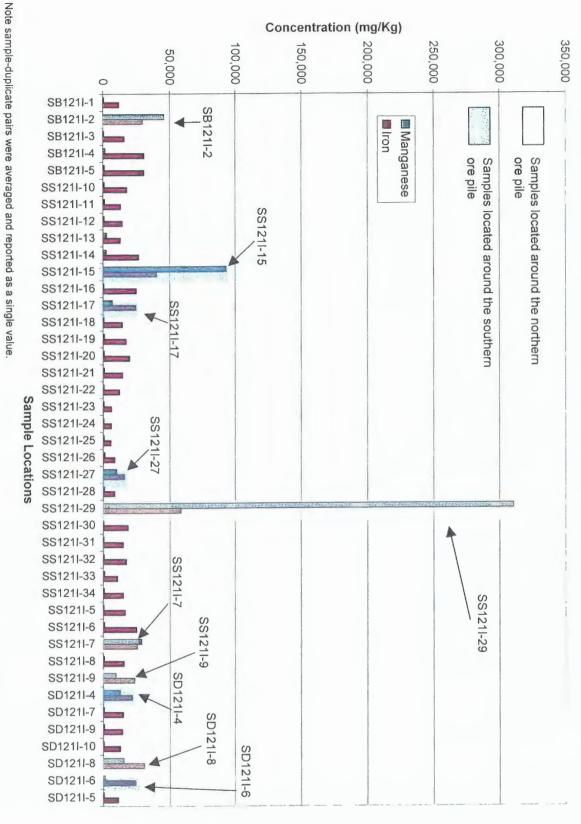
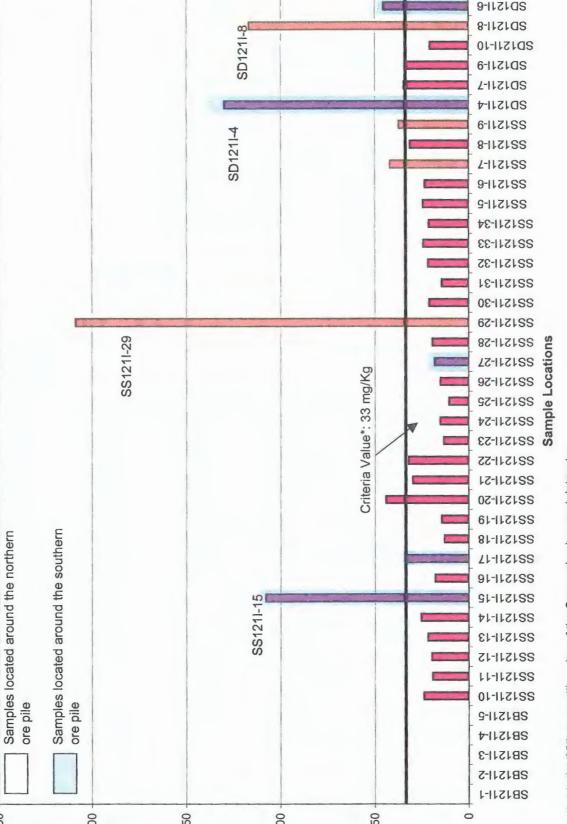




FIGURE 4-26
Copper in Soils at SEAD-1211
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

00



value is the 95th percentile value of the Seneca background dataset. nple-duplicate pairs were averaged and reported as a single value.

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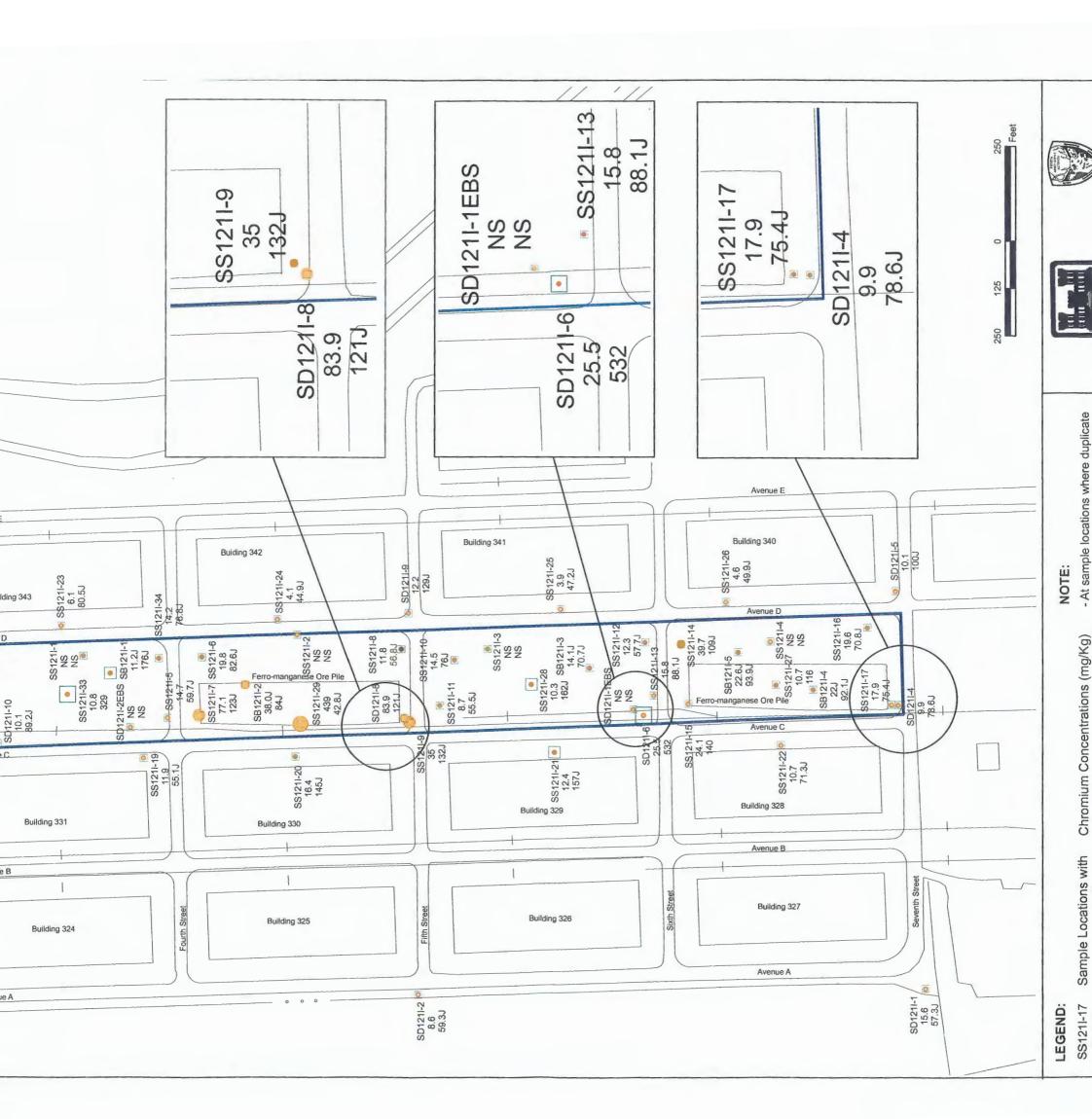


FIGURE 4-28
Chromium in Soils at SEAD-1211
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity



\*Criteria value is the 95th percentile value of the Seneca background dataset. Note sample-duplicate pairs were averaged and reported as a single value.

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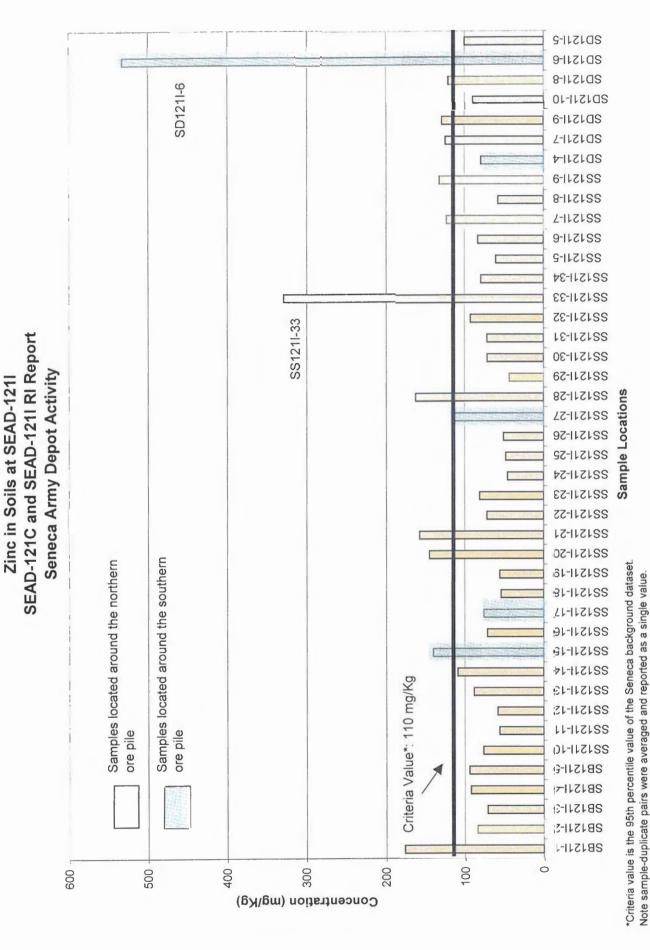
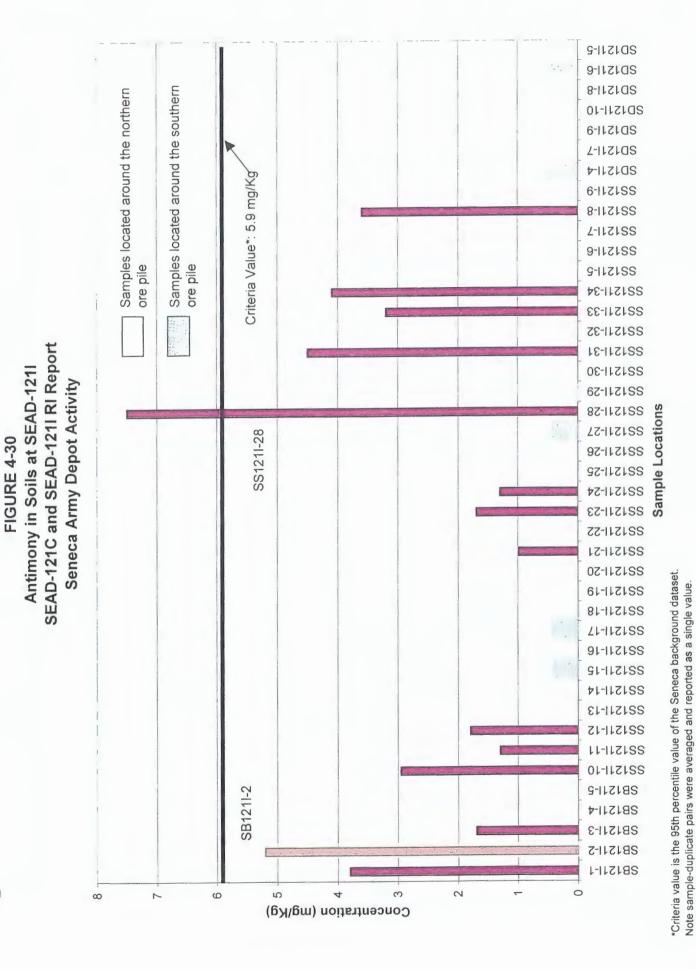


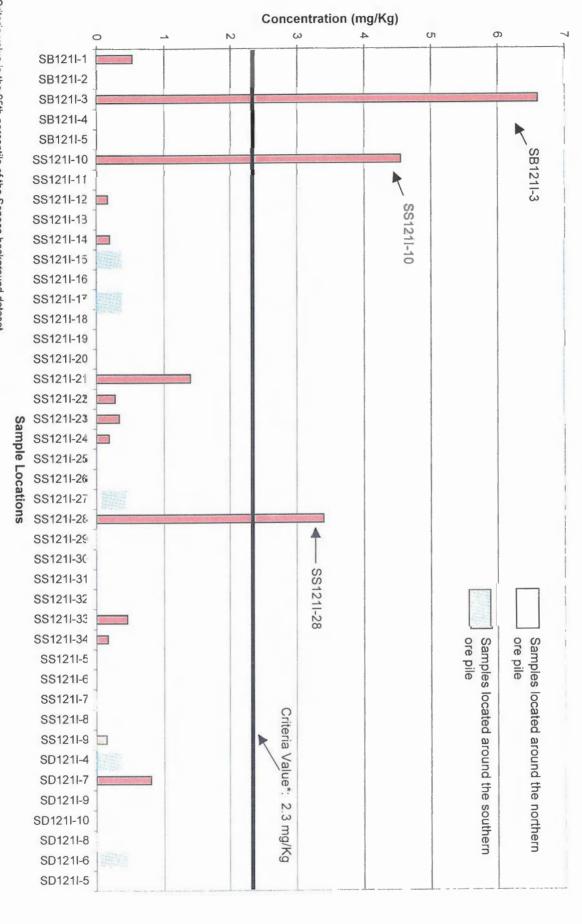
FIGURE 4-29

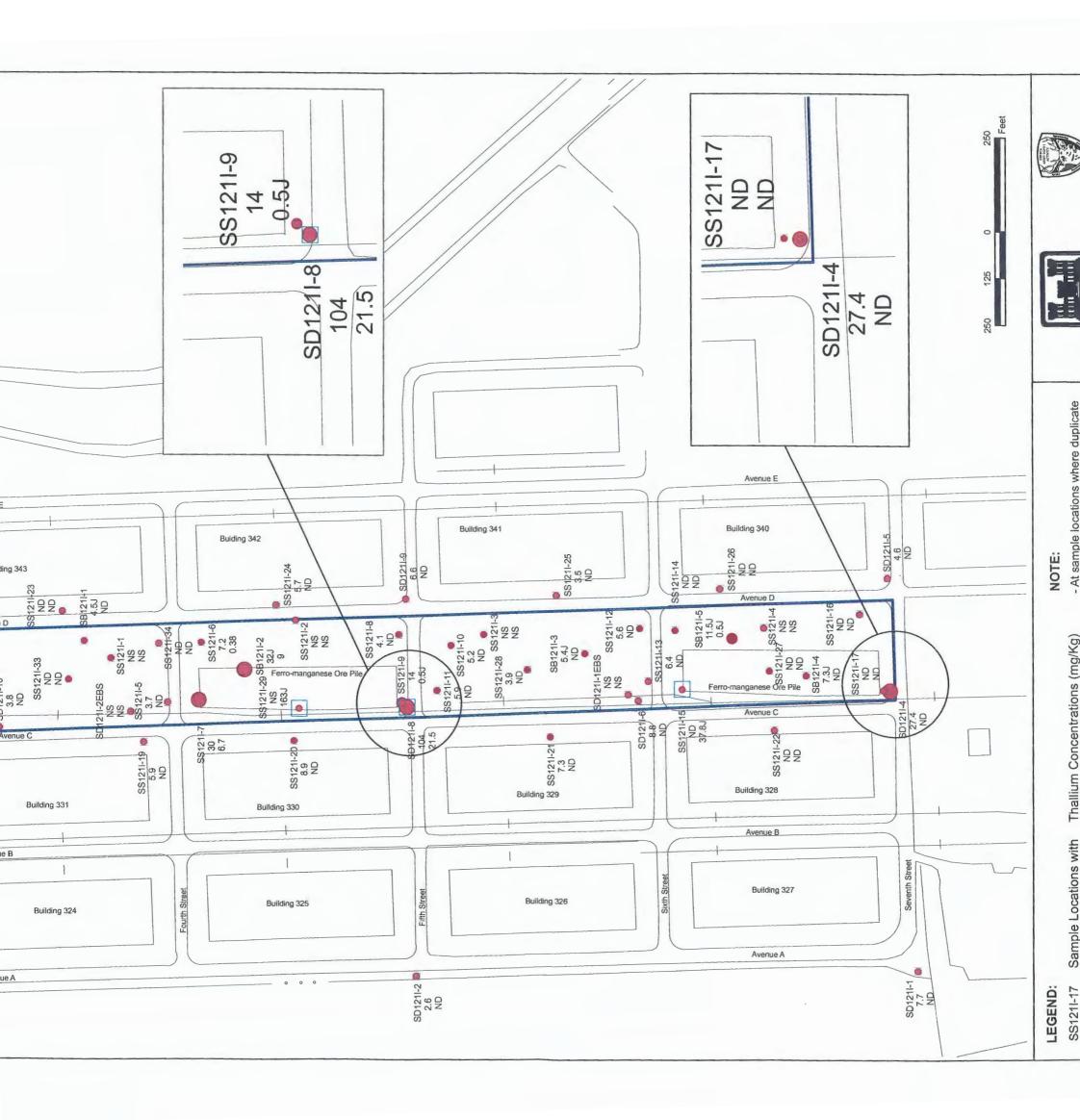
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## FIGURE 4-31 Cadmium in Soils at SEAD-121I SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity





SD1211-6 SD1211-6 SD1211-8 SD1211-10 SD1211-9 SD1211-4 SD1211-8 SD1211-7 SD1211-4 6-1121SS 8-112128 Z-11-Z1SS 9-11-7158 SS1211-7 -2511715 55112188 281211-33 25-11-32 SS1211-31 281211-30 82117158 Sample Locations 82-11-218 72-11-218 221211-26 22-11-25 221211-24 221211-23 2211-22 221211-21 221211-20 Samples located around the southern ore Samples located around the northern ore Criteria Value\*: 8.3 mg/Kg 821211-19 81-112128 221211-17 251211-16 251211-15 51211-14 221211-13 251211-12 221211-11 -SB1211-2 221211-10 SB1211-5 pile SB1211-4 SB1211-3 **SB1211-2** SB1211-1 0 120 100 9 40 20 80 Concentration (mg/Kg)

SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

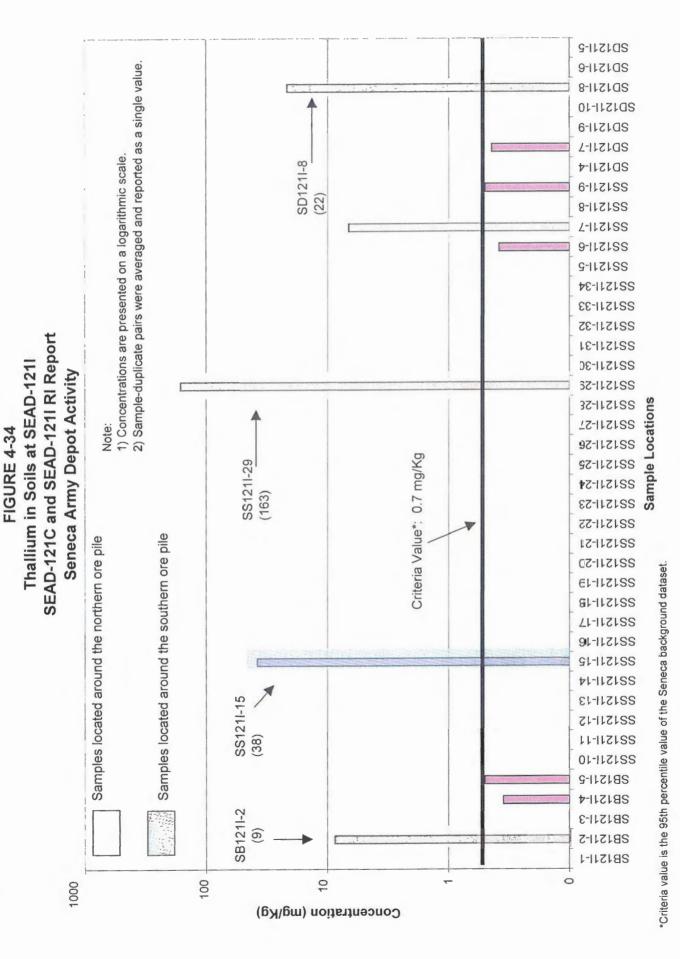
Arsenic in Soils at SEAD-1211

FIGURE 4-33

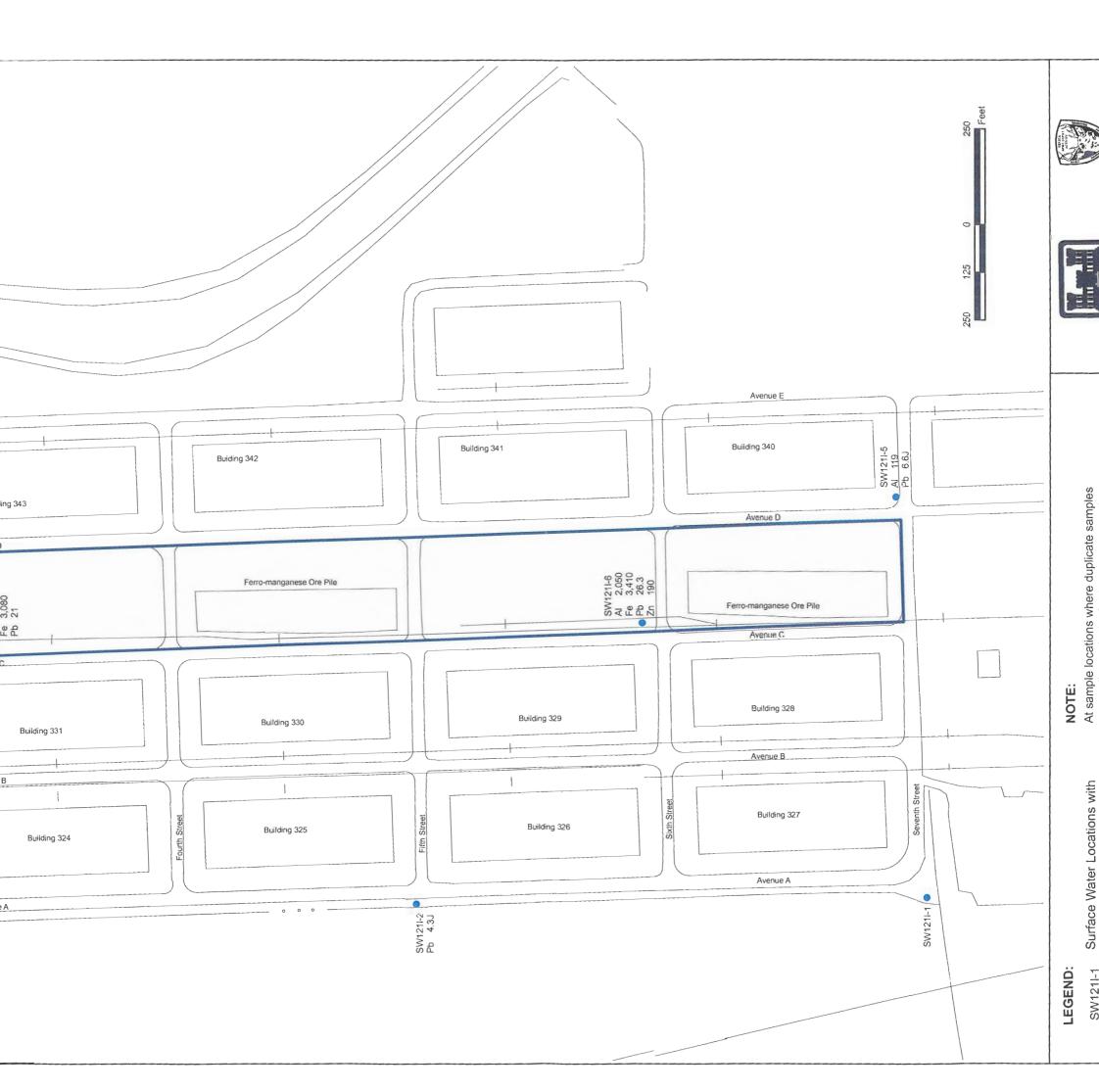
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Note sample-duplicate pairs were averaged and reported as a single value.

\*Criteria value is the 95th percentile of the Seneca background dataset.



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## 5.0 CONTAMINANT FATE AND TRANSPORT

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

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

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

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

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

## 5.1.1 Summary of Physical Site Characteristics

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

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

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

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

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

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

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

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

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#### Summary of Chemical Impacts at SEAD-121C 5.1.2

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

#### Soil

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

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

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

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

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

Page 5-3

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

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

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

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

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

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

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

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

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

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

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

Analytes Exceeding TAGMs in SEAD-121C Ditch Soil SVOCs				
Metals				
Aluminum	Copper	Silver		
Cadmium	Lead	Sodium		
Calcium	Mercury	Zinc		
Chronium	Selenium			

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

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

# Groundwater

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

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

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

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

## Surface Water

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

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

## 5.1.3 Conceptual Model Summary

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

# 5.2 CONCEPTUAL SITE MODEL OF SEAD-121I

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

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## 5.2.1 Summary of Physical Site Characteristics

The site-wide physical characteristics of SEAD-121I (Rumored Cosmoline Oil Disposal Area) have been described in the preceding sections. SEAD-121I, shown in Figure 1-4, consists of four rectangular grassy areas that are bounded by 3<sup>rd</sup> and 7<sup>th</sup> Streets (north and south ends, respectively) and Avenues C and D (west and east sides, respectively). Buried reinforced concrete storm drains run east to west through the site along 3<sup>rd</sup> St., 4<sup>th</sup> St., 5<sup>th</sup> St., 6<sup>th</sup> St., and 7<sup>th</sup> St. To the east and west of the four rectangular plots comprising SEAD-1211 there are two rows of buildings that are actively used for warehousing. Buildings 331 and 329, located to the west and across Avenue C, receive frequent truck deliveries. A railroad spur line enters SEAD-121I from the south and extends to the northern end of the SEAD where it terminates near the intersection of 3<sup>rd</sup> Street and Avenue C. Two sidings branch off the main spur line; one terminates in the first (north to south) block and the other terminates in the third (north to south) block. There are concrete loading docks located in the first and third blocks next to the railroad lines. The major pathway of surface water flow out of SEAD-121I is overland flow to ruts located along the sides of the roadways, to catch basins and then into the underground sewer pipes. The sewer pipes discharge to a man-made drainage ditch that flows south to north, and is located two blocks (approximately 1000 feet) west of SEAD-1211. From that point, surface water flow either infiltrates into the ground, or during high flow periods it may enter Kendaia Creek, which flows in a predominant westerly direction, and discharges into Seneca Lake north of Pontius Point and the SEDA's Lake Shore Housing Area. In addition, a portion of the surface water flow from SEAD-1211 may move easterly toward Cayuga Lake.

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

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

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

# 5.2.2 Summary of Chemical Impacts at SEAD-121I

On the basis of the analytical results obtained from surface soil, ditch soil, and surface water samples, the following impacts to various media are present at SEAD-1211:

surface soil: PAHs, a pesticide, and metals;

ditch soils: PAHs and metals; and

surface water: metals.

## Surface Soil and Ditch Soil

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

Chrysene	Nitrobenzene
Dibenz(a,h)anthracene	Phenanthrene
Indeno(1,2,3-cd)pyrene	Phenol
Fluoranthene	Pyrene
	1
Copper	Nickel
Iron	Selenium
Lead	Silver
Manganese	Thallium
Mercury	Zinc
	Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Fluoranthene  Copper Iron Lead Manganese

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

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

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

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

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

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

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

## Surface Water

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

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

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

# 5.2.3 Conceptual Model Summary

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

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

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

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

## 5.3.1 Overview of Compound Fate

# 5.3.1.1 Fate of Inorganic Compounds (Metals)

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

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

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

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

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

dissolved in the soil solution;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

#### 5.3.1.2 Fate of Organic Compounds

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

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

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

considered to have low mobility; compounds with a K<sub>oc</sub> greater than 2000 ml/g are considered to be immobile (Dragun, 1988).

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

## Volatile Organic Compounds

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

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

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

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

## Semivolatile Organic Compounds

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

# Polycyclic Aromatic Hydrocarbons (PAHs)

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

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

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

## Pesticides/PCBs

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

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

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

#### 5.3.2.1 Metals

#### Aluminum

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

# Antimony

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

# Arsenic

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

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

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

#### Barium

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

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

## Cadmium

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

# Chromium

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

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

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

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

#### Cobalt

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

# Copper

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

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

## Iron

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

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

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

#### Lead

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

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

# Magnesium

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

# Manganese

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

## Mercury

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

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

## Nickel

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

# Selenium

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

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

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

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

## <u>Silver</u>

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

# Thallium

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

# Vanadium

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

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

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

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

## Zinc 2

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

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

## 5.3.2.2 Volatile Organic Compounds

#### Acetone

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

# Benzene

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

# Ethyl benzene

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

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

# Methyl ethyl ketone

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

#### Toluene

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

# Vinyl chloride (SEAD-121C only)

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

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

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

## Xylene

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

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

#### 5.3.2.3 Semivolatile Organic Compounds

# Bis(2-ethylhexly)phthalate

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

#### Butyl benzyl phthalate

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

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

## Carbazole

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

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

## Dibenzofuran

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

## Diethyl phthalate

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

# Fluorene

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

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

## **PAHs**

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

# 5.3.2.4 Pesticides/PCBs

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

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

# Aldrin

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

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

# Alpha-chlordane (SEAD-121C only)

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

# Delta-BHC (SEAD-121C)

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

# **Dieldrin**

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

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

## Endosulfan I

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

# **Endrin**

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

## Endrin ketone (SEAD-121C only)

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

#### Heptachlor Epoxide

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

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

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

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

# Aroclor-1254

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

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

## Aroclor-1260

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

TABLE 5-1
Relative Relationship Between Koc and Mobility
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

Koc	Class	Mobility
>2,000	I	Immobile
500-2,000	II	Low Mobility
150-500	III	Intermediate Mobility
50-150	IV	Mobile
<50	V	Very Mobile

# Notes:

- 1) Koc = Organic carbon partition coefficient
- 2) Source: Dragun, 1988.

#### 6.0 BASELINE HUMAN HEALTH RISK ASSESSMENT

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

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

#### 6.1 SECTION ORGANIZATION

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

## Conceptual Site Model (Section 6.2)

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

## Data Evaluation (Section 6.3)

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

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

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

## Exposure Assessment (Section 6.5)

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

# **Toxicity Assessment (Section 6.6)**

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

## Risk Characterization (Section 6.7)

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

## Uncertainty Analysis (Section 6.8)

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

## COC Identification (Section 6.9)

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

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

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

#### Summary and Conclusions (Section 6.11)

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

## 6.2 CONCEPTUAL SITE MODEL

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

# 6.2.1 Sources, Release Mechanisms, and Affected Media

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

#### SEAD-121C

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

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

## **SEAD-1211**

Information provided by the Army indicates that the loading docks at the Rumored Cosmoline Oil Disposal Area (SEAD-1211) were used for delivery of equipment and machinery that was frequently packed in or coated with Cosmoline (oil). During delivery and unpacking of the equipment and machinery, Cosmoline may have been released to the ground. The results of the investigation showed no evidence of any systemic release of Cosmoline oil. Two piles of ferro-manganese ore, which are part of the United States' strategic stockpile of raw materials, are staged directly on the ground within SEAD-121I, and these are the likely source of elevated concentrations of iron and manganese detected in the soils within the area. PAHs detected in the vicinity of SEAD-121I were likely a result

of either roofing and maintenance operations at the surrounding warehouses or the historic and continuing truck traffic to and from neighboring active warehouses. The primary release mechanisms from the site are soil particles resuspension and deposition, surface water runoff, and infiltration of precipitation through the potential source areas.

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

## 6.2.2 Fate and Transport

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

## Volatile Organic Compounds

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

## Semivolatile Organic Compounds

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

## Pesticides/PCBs

Pesticides and polychlorinated biphenyls (PCBs) were found in soil at both sites. Exceedances of the TAGM value were observed for heptachlor epoxide at SEAD-121I; all other pesticides and PCBs were detected below TAGM criteria. Affinity for absorption into the soil reduces the transport potential of pesticides. Low concentrations of pesticides can dissolve into water but absorption to soil is the dominant partitioning route. Transport of suspended solids and sediment in groundwater or surface water is a potential transportation mechanism. Surface water flow across the sites is expected to be more significant than groundwater flow due to the low hydraulic groundwater gradient at SEAD-121C and SEAD-121I. No pesticides or PCBs were detected in groundwater or surface water samples collected from SEAD-121C and SEAD-121I.

#### Metals

The metals detected at SEAD-121I were deposited from the surface water runoff of the ferrous-manganese ore piles (as discussed previously). The ore piles are not a waste, but are part of the United States' strategic stockpile of raw materials. The behavior of metals in soil is unlike organic compounds in many aspects. For example, volatilization of metals from soil is not considered a realistic mechanism for pollutant migration. Leaching and sorption are considered potential mechanisms for metal transport. Leaching of metals from soil is controlled by numerous factors. The most important factor is the chemical form (base metal or cation) in the soil. The leaching of metals from soils is substantial if the metal exists as a soluble salt. Upon contact with surface water or precipitation, the metals, either as metal oxides or metal salts, can be solubilized, eventually leaching to the groundwater. Multiple metals were found in soil and surface water at SEAD-121C and SEAD-121I; and in groundwater at SEAD-121C. Soil samples from both sites had exceedances of NYSDEC TAGM values for most metals. Groundwater samples from SEAD-121C and surface water samples from SEAD-121I had exceedances of respective criteria for several metals. Surface water samples from SEAD-121C had exceedances of NYSDEC AWOS Class C for several metals.

## 6.2.3 Physical Setting and Characteristics

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

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

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Yard, north of the silo-like structure and Buildings 360 and 316. Train tracks were observed to approach the DRMO Yard from the north, with one spur ending at Building 317, a second ending at Building 316, while a third spur extended to the area between Building 316 and Building 360.

The physical characteristics of SEAD-1211 (Rumored Cosmoline Oil Spill Area) have been described in the preceding sections. SEAD-121I, shown in Figure 1-4, consists of four rectangular grassy areas that are bounded by 3rd and 7th Streets (north and south ends, respectively) and Avenues C and D (west and east sides, respectively). Buried reinforced concrete storm drains run east to west through the site along 3<sup>rd</sup> St., 4<sup>th</sup> St., 5<sup>th</sup> St., 6<sup>th</sup> St., and 7<sup>th</sup> St. To the east and west of the four rectangular plots comprising SEAD-1211 are two rows of buildings that are actively used for warehousing. Buildings 331 and 329 located to the west and across Avenue C receive frequent truck deliveries. A railroad spur line enters SEAD-121I from the south and extends to the northern end of the SEAD where it terminates near the intersection of 3<sup>rd</sup> Street and Avenue C. Two sidings branch off the main spur line; one terminates in the first (north to south) block and the other terminates in the third (north to south) block. There are concrete loading docks located in the first and third blocks next to the railroad lines. The major pathway of surface water flow out of SEAD-1211 is overland flow to ruts located along the sides of roadways, to catch basins and then into the underground sewer pipes. The sewer pipes discharge to a man-made drainage ditch that flows south to north, and is located two blocks (approximately 1,000 feet) west of SEAD-121I. From here, surface water flow either infiltrates into the ground or during high flow periods may enter Kendaia Creek, which flows in a predominant westerly direction, and discharges into Seneca Lake at a location north of Pontius Point and the SEDA's former Lake Shore Housing Area. In addition, a portion of the surface water flow from SEAD-1211 may move easterly toward Cayuga Lake.

Two ferrous-manganese ore piles are located within the site; one ore pile is in the first (north to south) block and the other ore pile is in the third (north to south) block. These ore piles are part of United States' Strategic Stockpile. The ore piles are exposed to the weather and run off surface water is collected by the existing storm water collection system within the Planned Industrial Development (PID) area. The ore piles are expected to be removed from SEAD-1211 at a future time.

## 6.2.4 Land Use and Potentially Exposed Populations

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

## 6.2.4.1 Current Land Use

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

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

## 6.2.4.2 Potential Future Land Use

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

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

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

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

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

## 6.2.4.3 Potentially Exposed Populations

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

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

# Current/Future Construction Worker

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

## **Future Industrial Worker**

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

# Current Adolescent Trespasser/Future Adolescent Visitor

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

As discussed in Section 6.2.4.2, the Army recommends prohibiting the development and use of land within the PID area for residential housing, elementary and secondary schools, childcare facilities and playgrounds for the whole PID areas. This recommendation is recorded in the signed Final Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas (signed on September 28, 2004 by USEPA). As a result, receptors such as future residents or day-care children were not evaluated in this risk assessment.

#### 6.2.5 Identification of Exposure Pathways

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

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

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

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

# Inhalation of Particulate Matter in Ambient Air From Soils

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

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

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

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

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

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

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

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### Groundwater Intake

Groundwater is not currently used as a potable water source at the Depot. Three private groundwater supply wells are located approximately one mile to the south-east of the sites (Figure 1-11). However, the three private wells are located on the east sloping side of the watershed divide, while the sites are located on the west slope of the watershed divide (Figure 1-5). The future plan for all areas of SEDA is to obtain potable water from the existing water supply line that passes through the Town of Varick. Varick's water is obtained from Seneca Lake and processed through the water treatment plant in the Town of Waterloo. It is unlikely that a groundwater well would be installed for future drinking water use since a potable water pipeline exists. The shallow groundwater aquifer at SEAD-121C and SEAD-121I is inadequate for either yield or quality. Groundwater at SEAD-121C is generally at 2 ft. above the bedrock, and the bedrock is typically less than 8 ft. bgs. SEAD-1211 does not have groundwater monitoring wells. Typically bedrock at SEAD-1211 was encountered 0.5 to 2 ft. bgs. Therefore, groundwater, if it exists at SEAD-121I, would be inadequate for either yield. In addition, the land in the PID Area surrounding SEAD-121C and SEAD-121I is subject to a groundwater use restriction, indicating that site groundwater will not be a drinking water source (Parsons, 2004).

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

## Dermal Contact with On-Site Groundwater

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

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

## Dermal Contact with On-Site Surface Water

Surface water was found at both SEAD-121C and SEAD-121I during and following precipitation events but does not persist in drainage ditches at either site throughout the year. Potential exposure to

surface water would be limited. Construction workers may be exposed to surface water via dermal contact while working at the sites. An adolescent trespasser may be exposed to surface water via dermal contact. Industrial workers are unlikely to have activities that would expose them to surface water; therefore dermal exposure to surface water for industrial workers was considered minimal and therefore not included in the risk assessment.

## 6.3 DATA EVALUATION

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

#### 6.3.1 Data Used in Risk Assessment

The data sets used for the BRA were:

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

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

Groundwater data representative of site conditions were used in the risk assessment. As discussed in Section 4, the data from the temporary wells placed in SEAD-121C were not reliable because: 1) the temporary wells could not be properly developed and purged prior to sample collection; and, 2) bailers were used to collect the samples. Both of these factors contributed to increased turbidity in samples and result in overstated results, especially for metals. Data from samples collected at the DRMO Yard using low-flow sampling techniques at permanent wells were considered to be representative of the site conditions. Therefore, only the groundwater data collected during the RI sampling program at SEAD-121C were included in the risk assessment.

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

Soil data collected during the 1998 EBS (Parsons, 1999);

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

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

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

# 6.3.2 Background Data

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

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

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

# 6.3.3 Data Usability Evaluation

Data used in the risk assessment have been validated and qualified by a Parsons' chemist under the guidelines set forth in the USEPA Contract Laboratory Program National Functional Guidelines, the

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

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

#### For Organics:

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

# For Inorganics:

- J The associated value is an estimated quantity.
- U The material was analyzed for, but was not detected above the level of the associated value.

  The associated value is either the sample quantitation limit or the sample detection limit.
- UJ The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

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R The data was unusable. (Note: Analyte may or may not be present.).

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

#### 6.3.4 Precision

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

Matrix spikes involve the introduction of known concentrations of compounds or elements to a sample. The assumption is that these introduced compounds will be recovered from environmental samples to the same degree as in matrix spikes. Laboratory control spikes involve the introduction of known concentrations of compounds or elements to laboratory reagent water or pre-purified and extracted sand. Blank spikes eliminate the possibility of matrix interferences or contributions, thereby monitoring analytical performance from sample preparation to analysis. Field duplicates are a pair of samples taken from the same sampling location. They are collected simultaneously and provide the most legitimate means of assessing precision. A total of 16 field duplicate samples were collected for SEAD-121C and SEAD-1211.

Site	<u>Media</u>	Number of Field Sample-
		Duplicate Pairs
SEAD-121C	Surface Soil	5
SEAD-121C	Ditch Soil	1
SEAD-121C	Groundwater	2
SEAD-121C	Surface Water	1
Building 360 (SEAD-27)	Groundwater	2
SEAD-1211	Surface Soil	3
SEAD-121I	Ditch Soil	1
SEAD-121I	Surface Water	1

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

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## 6.3.5 Accuracy

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

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

Two types of compounds were added to environmental samples for assessing accuracy: surrogate compounds and matrix spike compounds. Surrogates are compounds that closely approximate target analytes in structure, but are not target analytes. Surrogate compounds are added to samples in the preparation stages and monitor the effectiveness of the preparation process. Matrix spike compounds are target analytes that are added based upon expectations of matrix interferences that impede analyte detection. Laboratory method blank samples were spiked with surrogate compounds, per analysis day, as an additional means of estimating accuracy. The accuracy of chemical analyses was estimated using the percent recovery (PR) of compounds or elements that were added to analytical spikes.

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

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

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

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

## 6.3.6 Representativeness

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

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

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

- Sample Package Completeness and Deliverables
- Technical Holding Time
- QA/QC Results

## 6.3.6.1 Sample Preservation and Technical Holding Time

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

#### 6.3.6.2 Other QA/QC Results

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

## 6.3.7 Protocol for Using Field Duplicate Results

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

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

Table C-1A in Appendix C presents the method used for selecting qualifiers for the average results. The sample and its field duplicate were treated as one entry and the average concentration was used to represent the result at the sampling location. This protocol is reflected in all the summary statistics (i.e. number of detections or exceedances and the maximum concentration) presented in this report and the risk assessment. Tables C-1J through C-1P presented in Appendix C present the data for sample duplicate pairs and their corresponding average values. It should be noted that a maximum reported value can be generated from the average of a sample duplicate pair. Laboratory duplicates were not used for the risk assessment.

## 6.4 IDENTIFICATION OF CHEMICALS OF POTENTIAL CONCERN

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

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

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

• For groundwater and surface water, the maximum detected concentration of each data set was compared to the Region 9 PRGs for tap water corresponding to a risk level of 1 x 10<sup>-6</sup> (for carcinogens) or hazard quotient level of 1 (for non-carcinogens). Other appropriate USEPA screening values were used if Region 9 PRGs were not available [e.g., USEPA Region 3 Risk-

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Based Concentrations for tap water, and USEPA Maximum Contaminant Level (MCL) for drinking water]. Chemicals were eliminated as COPCs for human exposure if concentrations were less than the screening level or if there was no screening value available. A chemical was considered a COPC if the maximum detected concentration was greater than the screening value.

- Essential nutrients were eliminated as COPCs in all media, if applicable. Essential nutrients include calcium, magnesium, sodium, and potassium. The recommended dietary allowances and adequate intakes by Wright (2001) and other resources were evaluated to determine whether the concentration is within the recommended daily requirements for essential nutrients.
- An evaluation was made to determine whether any previously eliminated chemical or medium should be included due to other considerations (e.g., potential break-down products, chemicals with detection limits above health-based levels). In addition, any member of a chemical class that has other members selected as COPCs was retained (e.g., detected carcinogenic PAHs).
- For each medium, a determination was made as to whether there were any COPCs identified. If no COPCs identified, the medium was dropped from further consideration in the risk assessment.

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

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

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

Constituents identified as human health COPCs at SEAD-1211 include:

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

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

### 6.5 EXPOSURE ASSESSMENT

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

- 1. Characterize Exposure Setting: In this step, information on the physical characteristics of the site that may influence exposure is considered. The physical setting involves climate, vegetation, soil characteristics, and surface and groundwater hydrology. All potentially exposed populations and sub-populations therein (receptors) are assessed relative to their potential for exposure. Additionally, locations relative to the site along with the current and potential future land use of the site are considered. This step is a qualitative one aimed at providing a general site perspective and offering insight on the surrounding population.
- 2. Identify Exposure Pathways: All exposure pathways, ways in which receptors can be exposed to contaminants that originate from the source, are reviewed in this step. Chemical sources and mechanisms for release along with subsequent fate and transport are investigated. Exposure points of human contact and exposure routes are discussed before quantifying the exposure pathways in step 3.
- 3. Quantify Exposure: In this final step, the exposure levels (COPC intakes or doses) are calculated for each exposure pathway and receptor. These calculations typically follow USEPA guidance for assumptions of intake variables or exposure factors for each exposure pathway and USEPA-recommended calculation methods.

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

# 6.5.1 Derivation of Exposure Point Concentrations

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

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The EPCs were derived for the following exposure points:

- SEAD-121C total soil;
- SEAD-121C and SEAD-1211 surface soil;
- SEAD-121C and SEAD-1211 ditch soil;
- SEAD-121C groundwater; and
- SEAD-121C and SEAD-121I surface water.

#### 6.5.1.1 Soil and Ditch Soil EPC

Soil EPCs were calculated for three exposure points at SEAD-121C: 1) total soil, defined as surface soil and subsurface soil (0-6 ft bgs.); 2) surface soil (0-2 ft bgs.); and 3) ditch soil. At SEAD-121I EPCs were calculated for two exposure points: 1) surface soil (0-2 ft bgs.) and 2) ditch soil. The industrial worker and adolescent trespasser were assumed to be exposed to the surface soil (0-2 ft bgs.) and ditch soil at both sites. The construction worker was assumed to be exposed to the total soil and ditch soil at SEAD-121C; and assumed to be exposed to the surface soil and ditch soil at SEAD-121I.

Soil EPCs for the reasonable maximum exposure and central tendency risk calculations are equal to an appropriate upper confidence limit (i.e., 95<sup>th</sup> UCL or 99<sup>th</sup> UCL based on data distributions) of the arithmetic mean of the concentrations (USEPA, 2004c). The EPC, or the appropriate UCL of the mean concentration, was calculated using the USEPA Software for Calculating Upper Confidence Limits (ProUCL version 3.00.02). ProUCL provides summary results for normal distribution test, lognormal distribution test, and gamma distribution test of the data. Based upon the data distribution and the associated skewness, ProUCL provides recommendations about an appropriate UCL computation method that may be used to estimate the unknown mean concentration of a COPC.

For lead, the arithmetic mean of each data set was used as the EPC, which is consistent with the USEPA (1994) guidance.

**Tables 6-4A, 6-4B**, and **6-4C** summarize the EPC for the total soil, surface soil, and ditch soil, respectively, at SEAD-121C. **Tables 6-5A** and **6-5B** summarize EPCs for surface soil and ditch soil, respectively, at SEAD-121I.

## 6.5.1.2 Groundwater EPC

No COPCs were identified during the screening step described in **Section 6.4**. As a result, EPCs were not developed for groundwater at the DRMO Yard. As part of the *COC Identification* discussion in **Section 6.9.1**, the impact of groundwater at SEAD-27 on the DRMO Yard was evaluated as part of a combined SEAD-27 and SEAD-121C evaluation.

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Groundwater was not recovered from the aquifer at SEAD-1211; hence risk from contact to groundwater was not evaluated at SEAD-1211.

#### 6.5.1.3 Surface Water EPC

Due to the small sample size (i.e., less than or equal to 10 samples), the maximum detected concentration was used as the EPC to estimate potential exposure to surface water for both the RME and CT scenarios.

Tables 6-4E and 6-5C summarize surface water EPCs at SEAD-121C and SEAD-121I, respectively.

#### 6.5.1.4 Ambient Air EPC From Soil Dust

EPCs for COPCs in ambient air caused by soil dust were estimated based on the soil EPCs and PM<sub>10</sub> concentrations in ambient air. Industrial workers and adolescent trespassers were assumed to be exposed to surface soil and dust caused by surface soil. Construction workers were assumed to be exposed to dust resulting from surface and subsurface soil. Therefore, ambient air EPCs caused by surface soil (0-2 ft. bgs.) were calculated for both SEAD-121C and SEAD-121I, and ambient air EPCs caused by surface and subsurface soil (0-6 ft. bgs.) were calculated for SEAD-121C. A detailed discussion of PM<sub>10</sub> concentration evaluation is presented in Section 6.5.3.

**Tables 6-6A** and **6-6B** summarize ambient air EPCs caused by dust from surface soil at SEAD-121C and SEAD-121I, respectively, for industrial workers and adolescent trespassers. **Table 6-6C** summarizes ambient air EPC caused by dust from surface soil at SEAD-121I for construction workers. **Table 6-7** summarizes ambient air EPCs caused by dust from surface and subsurface soil at SEAD-121C for construction workers.

#### 6.5.1.5 Ambient Air EPC From Ditch Soil Dust

Industrial workers, construction workers, and adolescent trespassers were assumed to be exposed to dust caused by ditch soil. Therefore, EPCs for COPCs in ambient air caused by ditch soil dust were estimated based on the ditch soil EPCs and PM<sub>10</sub> concentrations in ambient air. A detailed discussion of PM<sub>10</sub> concentration evaluation is presented in Section 6.5.3.

**Tables 6-8A** and **6-8B** summarize ambient air EPCs caused by dust from ditch soil at SEAD-121C and SEAD-121I, respectively, for industrial workers and adolescent trespassers. **Tables 6-8C** and **6-8D** summarize ambient air EPCs caused by dust from ditch soil at SEAD-121C and SEAD-121I, respectively, for construction workers.

## 6.5.2 Exposure Factor Assumptions

An important aspect of exposure assessment is the determination of assumptions regarding how receptors may be exposed to contaminants. An extensive listing of exposure factors are provided in

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USEPA guidance, and these were followed throughout this assessment. Standard scenarios and USEPA-recommended default assumptions were used where appropriate.

The exposure scenarios in this assessment involve the following receptors, based on the current land use and future use of Planned Industrial Development:

- current/future construction worker
- future industrial worker
- adolescent trespasser

The exposure assumptions for these scenarios were intended to approximate the frequency, duration, and manner in which receptors would be exposed to environmental media. For example, the exposure scenarios for industrial workers were established to approximate the exposure potential of future individuals employed at SEAD-121C or SEAD-121I.

Exposure assumptions and parameters were identified for both RME and CT exposure scenarios based on the following USEPA guidance and conservative professional judgment if USEPA guidance is not available.

- USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors
- USEPA, 1997a: Exposure Factors Handbook
- USEPA, 2002a: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites, December
- USEPA, 2004a: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)

Details of the exposure assumptions and parameters for each exposure scenario are shown in **Tables** 6-9A, 6-9B, and 6-9C for the construction worker, industrial worker, and adolescent trespasser, respectively. A brief summary of two selected exposure factor assumptions are presented below for each receptor.

Construction Worker. Construction workers were assumed to spend one year working at the sites, which is a typical duration for a significant construction project. These workers spend 5 days/week for 50 weeks (i.e., 250 days, RME scenario) or 219 days (CT scenario) at the sites. During each working day, construction workers inhale the ambient air at the site and may be exposed to surface and subsurface soil (0-6 ft. bgs.) or ditch soil through ingestion or dermal contact. No COPCs were identified in groundwater at SEAD-121C; therefore groundwater exposure was not evaluated. For uncertainty analysis, construction workers were assumed to dermally contact groundwater with their

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hands and forearms at a frequency of one event each day during 100 workdays (i.e., one day at the beginning of the week and one day at the end of the week for 50 weeks) to assemble or disassemble a pumping system. Each event was assumed to last half an hour. Construction workers were also assumed to be exposed to COPCs in surface water via dermal contact.

Industrial Worker. The future industrial workers were assumed to spend 5 days/week for 50 weeks (i.e., 250 days, RME scenario) or 219 days (CT scenario) each year at the sites. This exposure lasts for an entire 25-year (RME scenario) or 9-year (CT scenario) career. During each workday at SEAD-121C or SEAD-121I, industrial workers inhale the ambient air, and ingest and dermally contact surface soil (0-2 ft bgs.) or ditch soil. No COPCs were identified in groundwater at SEAD-121C; therefore groundwater exposure was not evaluated.

Adolescent Trespasser. Adolescent trespassers were assumed to spend 14 days a year for 6 years (ages 11-16 yr) at the sites. During each visit to SEAD-121C or SEAD-121I, the adolescent inhales the ambient air, dermally contacts surface water, and ingests and dermally contacts surface soil (0-2 ft bgs.) or ditch soil. No COPCs were identified in groundwater at SEAD-121C; therefore groundwater exposure was not evaluated.

## 6.5.3 Quantification of Exposure

Once the EPCs were calculated, each receptor's potential exposures to COPCs were quantified for each of the exposure pathways. A human health intake or the absorbed dose, depending on the exposure route, was calculated based on the EPC and exposure factor assumptions following methods recommended in USEPA guidance documents, such as the RAGS (USEPA 1989). Intakes or doses are normally expressed as the amount of chemical at the environment-human receptor exchange boundary in milligrams per kilogram of body weight per day (mg/kg-day), which represents an exposure normalized for body weight over time. The total exposure was divided by the period of interest to obtain an average exposure. The averaging time is a function of the toxic endpoint: for non-carcinogenic effects, it is the exposure time (specific to the scenario being assessed) and for carcinogenic effects, it is a lifetime (70 years).

The generic equation used to calculate intake for receptors is as follows (USEPA 1989):

# $DI = \frac{EPC \times CR \times EFD}{BW \times AT}$

Where:

DI = Daily intake; the amount of chemical at the exchange boundary (mg/kg body weight-day);

EPC = Exposure point concentration (e.g., mg/L or mg/kg);

CR = Contact rate; the amount of contaminated medium contacted per unit time or event (e.g., L/d or mg/d);

EFD = Exposure frequency and duration; describes how long and how often exposure occurs. Often calculated using two terms (EF and ED):

EF = Exposure frequency (d/y) and ED = Exposure duration (y);

BW = Body weight (kg); and

AT = Averaging time; period over which exposure is averaged (d).

In this section, the methods used to calculate exposures by each pathway are explained. Tables that show the human intake or absorbed dose values calculated for each exposure scenario at each site are presented in **Appendices E** and **F**. The intakes and doses were used to assess overall carcinogenic and non-carcinogenic risks, as discussed later in the risk characterization section (Section 6.6).

## 6.5.3.1 Inhalation of Particulate Matter in Ambient Air

The equation for inhalation of particulate matter in ambient air is as follows (USEPA, 1989):

Intake 
$$(mg/Kg/day) = EPC_{air}x IR x EF x ED$$
  
BW x AT

Where:

 $EPC_{air}$  = Exposure point concentration in air (mg/m<sup>3</sup>)

IR = Inhalation rate  $(m^3/day)$ 

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

BW = Bodyweight (kg)

AT = Averaging Time (days)

As discussed in Section 6.5.1, the EPC in air was calculated based on the soil and ditch soil EPCs and particulate matter less than 10µm aerodynamic diameter (PM<sub>10</sub>). PM<sub>10</sub> represents smaller particles which can be inhaled (particles larger than 10µm diameter typically cannot enter the narrow airways in the lung). Ambient PM<sub>10</sub> concentrations for a construction worker were estimated using an emission and dispersion model. PM<sub>10</sub> concentrations for industrial workers and adolescent trespassers were based on existing site air measurements shown in Table 6-10.

## PM<sub>10</sub> Concentrations for Construction Worker at SEAD-121C

During construction activities, fugitive dusts may be generated from soil by wind erosion, construction vehicle traffic on temporary unpaved roads, excavation, and other construction activities. The dusts would contain the chemicals present in the soil. Construction workers in the construction area would breathe this fugitive dust in the ambient air and therefore may be exposed to chemicals in site soils via inhalation. As current and future subsurface activities (e.g., excavation) could bring subsurface soils to the surface, both surface and subsurface soil (0-6 ft. bgs.) data were used to evaluate the EPC in air associated with the fugitive dust for construction workers. A model presented in the USEPA's

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Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002a), which evaluates the fugitive dust emission from truck traffic on unpaved roads during construction, was used to estimate the EPC in ambient air during the construction. This model was selected since truck traffic on unpaved roads is a common activity at a construction site and, therefore, is considered a significant mechanism to cause dust. According to USEPA (2002a), "emissions from truck traffic on unpaved roads, which typically contribute the majority of dust emissions during construction . . . In the case of particulate matter, traffic on contaminated unpaved roads typically accounts for the majority of emissions, with wind erosion, excavation soil dumping, dozing, grading, and tilling operations contributing lesser emissions." Based on the above discussion, the emissions from truck traffic on unpaved roads were used as a model to represent PM produced by the construction activity.

$$EPC_{air} = EPC_{soil} \times \frac{1}{PEF_{ro}}$$

Where:

 $EPC_{air}$  = Exposure point concentration of chemicals in air associated with fugitive dust (mg/m<sup>3</sup>);

EPC<sub>soil</sub> = Exposure point concentration of chemicals in soil (mg/kg);

 $PEF_{sc}$  = Subchronic road particulate emission factor (m<sup>3</sup>/kg).

$$PEF_{sc} = Q/C_{sr} \times \frac{1}{F_{D}} \times \left[ \frac{T \times A_{R}}{556 \times (W/3)^{0.4} \times \frac{365d/yr - p}{365d/yr} \times \sum VKT} \right]$$

Where:

 $Q/C_{sr}$  = Inverse of the ratio of the 1-h geometric mean air concentration to the emission flux along a straight road segment bisecting a square site (g/m<sup>2</sup>-s per kg/m<sup>3</sup>)

 $F_D$  = Dispersion correction factor (unitless), 0.185

T = Total time over which construction occurs (s)

A<sub>R</sub> = Surface area of contaminated road segment (m<sup>2</sup>)

 $A_R = L_R x W_R x 0.092903 m^2 / ft^2$ 

 $L_R$  = Length of road segment (ft), assumed 511 ft for the sites

 $W_R$  = Width of road segment (ft), assumed 20 ft

W = Mean vehicle weight (tons)

P Number of days with at least 0.01 inches of precipitation (days/year), 120 days/year based on Exhibit 5-2 of the USEPA (2002a) document

 $\Sigma VKT$  = Sum of fleet vehicle kilometers traveled during the exposure duration (km)

$$Q/C_{sr} = A \times \exp\left[\frac{(\ln A_s - B)^2}{C}\right]$$

Where:

A = Constant (unitless), 12.9351

A<sub>s</sub> = Area extent of site surface soil contamination (acres), for SEAD-121C, A<sub>s</sub> was assumed to be the whole site area (5 acres) as a conservative estimate

B = Constant (unitless), 5.7383 C = Constant (unitless), 71.7711

Mean vehicle weight (W) can be estimated by assuming the numbers and weights of different types of vehicles. For SEAD-121C, assuming that the daily unpaved road traffic consists of 20 two-ton cars and 10 twenty-ton trucks, the mean vehicle weight would be:

$$W = \frac{[(20cars \times 2tons / car) + (10trucks \times 20tons / truck)]}{30vehicles} = 8tons$$

The sum of the fleet vehicle kilometers traveled during construction (ΣVKT) can be estimated based on the size of the area of surface soil contamination, assuming the configuration of the unpaved road, and the amount of vehicle traffic on the road. The area of surface soil contamination at SEAD-121C is approximately 5 acres (or 23,000 m²), it was assumed that this area is configured as a square with the unpaved road segment dividing the square evenly, the road length would be equal to the square root of 23,000 m², 146 m (or 0.146 km, or 480 ft). Assuming that each vehicle travels the length of the road once per day, 5 days per week for a total of 6 months, the total fleet vehicle kilometers traveled would be:

$$\sum VKT = 30 vehicles \times 0.146 km / day \times 50 wks / yr \times 5 days / wk = 1096 km$$

The PM<sub>10</sub> concentration estimated for the construction scenario is 954 ug/m³ based on the above assumptions for soil exposure. For ditch soil exposure, the PM<sub>10</sub> concentration calculated for SEAD-121I was used. The ambient air EPC for the construction worker exposed to surface and subsurface soil at SEAD-121C is presented in **Tables 6-7**; and the ambient air EPC for ditch soil is presented in **Table 6-8C**.

# PM<sub>10</sub> Concentrations for Construction Worker at SEAD-121I

During construction activities, construction workers may be exposed to chemicals in site soils via inhalation. Construction activities, such as excavation, have the potential to create dust, or suspended particulate matter (PM), originating from the soils being removed. This dust would contain the chemicals present in the soil. Construction workers in the construction area would breathe the fugitive dust in the ambient air. Access to SEAD-121I is limited to existing paved roads and additional access roads are unlikely to be built since an extensive roadway system is already in place within the warehousing area. However, dust generated from excavation is expected to be produced from

construction activities at SEAD-1211. An excavation scenario was evaluated for SEAD-1211 to assess the risk to construction workers from dust generated by ditch soil in the ambient air.

Concentrations of site COPCs in the air were estimated for this exposure pathway using excavation models recommended in the EPA's "Models for Estimating Air Emission Rates from Superfund Remedial Actions" (EPA 451/R-93-001). Particulate emissions from soil excavation and loading into trucks were estimated with the following equation:

$$E = \frac{k (0.0016) (M) [U/2.2]^{1.3}}{[X/2]^{1.4}}$$

#### Where:

E = emissions(g)

k = particle size multiplier (unitless)

0.0016 = empirical constant (g/Kg)

M = mass of soil handled (Kg)

U = mean wind speed (m/sec)

2.2 = empirical constant (m/sec)

X = percent moisture content (%)

The construction worker receptor is assumed to work at a site for a one-year period. To conservatively estimate potential particulate emissions from construction activities during this period, it was assumed that an area equivalent to the site area (approximately 16 acres, or a 65,000 square meter area) is excavated to a depth of 2 meters over the course of one year as part of the site construction.

This results in the following mass of soil removed:

## Mass = Area x Depth x Soil Bulk Density

- = 65,000 square meters x 2 meters x 1.5 g/cm<sup>3</sup> x  $10^6$  cm<sup>3</sup>/m<sup>3</sup>
- = 2.0 x 10<sup>11</sup> grams
- $= 2.0 \times 10^8 \text{Kg}$

Other parameter values for the model are as follows:

```
k = 0.35 for PM<sub>10</sub> (USEPA 1993c)
```

U = 4.4 m/sec, average wind speed for Syracuse, NY (USEPA 1985)

X = 10%, recommended default (USEPA 1993c)

With these values for M, k, U and X, the emission rate (E) from excavation activities is calculated 29,000 grams of  $PM_{10}$  over the course of a year. This emission rate would be representative if all top two meters of soil at the site were excavated, and if local climatic factors did not suppress emissions. For example, precipitation, snow cover and frozen soil in the winter will minimize emissions. To account for these

climatic/seasonal factors, it was assumed that emissions occur only for half of the construction time. This results in a representative emission rate (E) of 14,500 grams/year. This is equivalent to an average emission rate of 58 g/day, 7.3 g/hr or 2 mg/sec, assuming emissions occur only during work days: 250 days/yr, 8 hr/day.

Much greater short-term emissions are estimated for site grading with a bulldozer or tractor. This type of activity is assumed to occur for 90 work days (8-hour day) over the course of a year. The model equation for grading emissions is:

$$E = \frac{0.094 (s)^{1.5}}{X^{1.4}}$$

Where:

E = emission rate (g/sec)

0.094 = empirical constant (g/sec)

s = percent silt content (%)

X = percent moisture content (%)

Assuming the USEPA-recommended default values of 8% for s, and 10% for X, the emission rate (E) from grading is calculated as 0.085 g/sec. Averaged over the course of a year with 90, 8-hour days of grading emissions, the result is 38 g/hr or 11 mg/sec of PM<sub>10</sub> emissions, assuming all emissions occur during working hours.

Total annual average emissions from excavation and grading are estimated as 2 mg/sec + 11 mg/sec = 13 mg/sec.

Localized exposure concentrations for construction workers are estimated with a simple box model. The model treats a defined surface area as a uniform emission source over the time period of interest. The box, or mixing volume, is defined by this surface area and an assumed mixing height. The emitted  $PM_{10}$  is assumed to mix uniformly throughout the box, with dilution from surface winds.

The general model equation is:

$$C = \frac{E}{(U)(W)(H)}$$

Where:

E = emission rate, mg/sec U = wind speed, m/sec

W = crosswind width of the area source, m

H = mixing height, m

E and U are the same as defined or calculated above. To determine W, the construction activity is assumed to be confined to approximately 260 square meters at any time. This area is assumed to be square, and W is the square root of 260 m<sup>2</sup>, or 16 meters. H is assumed to be the height of the breathing zone, or 1.75 meters.

With these values, the  $PM_{10}$  exposure concentration for a construction worker is calculated as 0.11 mg/m<sup>3</sup>. All of this  $PM_{10}$  was assumed to be airborne soil released from the site as represented by surface soil and ditch soil. This value was also used as an estimate for  $PM_{10}$  associated with SEAD-121C ditch soil.

The ambient air EPCs for surface soil for a construction worker at SEAD-1211 are presented in **Table 6-6C**; and the ambient air EPCs for ditch soil are presented in **Table 6-8D**.

## PM<sub>10</sub> Concentrations for Industrial Workers and Adolescent Trespassers

Ambient air normally contains particulate matter derived from various natural sources, including soil erosion, fuel burning, automobiles, etc. Dust generated from ditch soil may contain particular matter derived from various natural and SEDA activities sources. The PM<sub>10</sub> concentrations were measured at four locations in SEDA over a four-month period (April-July) in 1995. A summary of the data collected in this air sampling program is shown in **Table 6-10**.

For this assessment, the highest 4-month average  $PM_{10}$  concentration measured at any of the four monitoring stations (16.9  $\mu g/m^3$ , rounded to  $17 \mu g/m^3$ ) was assumed to represent ambient air at SEAD-121C and SEAD-121I. The entire particulate loading was assumed to be airborne soil released from the site as represented by the surface soil and ditch soil EPCs for each site.

The concentration of particulate-associated chemicals in ambient air was calculated with the same equation used for the construction worker, above.

$$EPC_{air} = EPC_{soil} \times PM_{10} \times C$$

Where:

EPC<sub>air</sub> = Exposure point concentration of chemicals in air associated with fugitive dust (mg/m³);

EPC<sub>soil</sub> = Exposure point concentration of chemicals in soil (mg/Kg);

 $PM_{10}$  = Concentration of particulate matter less than 10µm aerodynamic diameter in air (µg/m<sup>3</sup>);

C = Conversion factor, 10<sup>-9</sup> Kg/μg.

The ambient air EPCs from surface soil and ditch soil for the industrial worker and adolescent trespasser at SEAD-121C are presented in **Tables 6-6A** and **6-8A**. The ambient air EPCs for surface

soil and ditch soil for the industrial worker and adolescent trespasser at SEAD-1211 are presented in **Tables 6-6B** and **6-8B**.

# 6.5.3.2 Incidental Ingestion of Soil

The equation for intake via incidental ingestion of soil is as follows (adjusted from USEPA 1989):

# Intake (mg/Kg-day) = $\underline{EPC_{soil} \times IR \times CF \times FI \times EF \times ED}$ BW x AT

#### Where:

EPC<sub>soil</sub> = Soil exposure point concentration (mg/Kg)

IR = Soil ingestion rate (mg/day)

CF = Conversion factor  $(1 \text{ Kg/}10^6 \text{ mg})$ 

FI = Fraction ingested from contaminated source (unitless)

EF = Exposure frequency (days/years)

ED = Exposure duration (years)

BW = Body weight (Kg)

AT = Averaging time (period over which exposure is averaged -- days)

## 6.5.3.3 Dermal Contact with Soils

The equation for the absorbed dose from dermal exposure is as follows, based on guidance in USEPA (2004a):

Absorbed Dose (mg/Kg-day) = 
$$\underline{DA_{event} \times EF \times ED \times EV \times SA}$$
  
BW x AT

$$DA_{cont} = EPC_{soil} \times CF \times AF \times ABS_{d}$$

#### Where:

 $DA_{event} = Absorbed dose per event (mg/cm<sup>2</sup>-event)$ 

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

 $EPC_{soil}$  = Exposure point concentration in soil (mg/Kg)

EV = Event frequency (events/day)

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

BW = Body weight (Kg)

AT = Averaging time (period over which exposure is averaged -- days)

CF = Conversion factor  $(10^{-6} \text{ Kg/mg})$ 

AF = Soil to skin adherence factor ( $mg/cm^2$ -event)

 $ABS_d$  = Dermal absorption factor (unitless)

## 6.5.3.4 Groundwater Intake

No COPCs were identified in groundwater from SEAD-121C. However, for the Uncertainty Analysis all receptors were assumed to intake groundwater from SEAD-121C and SEAD-27 (Building 360). The equation for groundwater intake is as follows (USEPA, 1989):

Intake (mg/Kg-day) = 
$$\frac{EPC_{gw} \times IR \times EF \times ED}{BW \times AT}$$

Where:

EPC<sub>gw</sub> = Exposure point concentration in groundwater (mg/liter)

IR = Groundwater intake rate (liters/day)

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

BW = Bodyweight(Kg)

AT = Averaging time (days)

#### 6.5.3.5 Dermal Contact with Groundwater

No COPCs were identified in groundwater from SEAD-121C. However, for the Uncertainty Analysis a construction worker was assumed to have dermal contact to groundwater from SEAD-121C and SEAD-27 (Building 360). The equation for the absorbed dose, according to USEPA (2004a) is as follows:

Absorbed Dose (mg/Kg-day) = 
$$\underline{DA_{event} \times EF \times ED \times EV \times SA}$$
  
BW x AT

Where:

 $DA_{event} = Absorbed dose per event (mg/cm<sup>2</sup> - event)$ 

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

EV = Event frequency (events/day)

SA = Skin surface area available for contact  $(cm^2)$ 

BW = Body weight (Kg)

AT = Averaging time (period over which exposure is averaged -- days)

The absorbed dose per event (DA) was calculated as described in EPA's "Supplemental Guidance for Dermal Risk Assessment," (USEPA, 2004a).

For organics, a parameter, B was first calculated. This value attempts to characterize the relative contribution of each compound's specific permeability coefficient (Kp value) in the stratum corneum and the viable epidermis.

$$B = K_p \frac{\sqrt{MW}}{2.6}$$

Where:

K<sub>p</sub> = Dermal permeability coefficient in water (cm/hr)

MW = Molecular weight (g/mole)

Once calculated, the B value was used to calculate time conditions associated with estimates of compound breakthrough time.

If 
$$B \le 0.6$$
, then  $t^* = 2.4\tau_{event}$   
If  $B > 0.6$ , then  $t^* = 6\tau_{event}(b - \sqrt{b^2 - c^2})$   
 $b = \frac{2(1+B)^2}{\pi} - c$   
 $c = \frac{1+3B+3B^2}{3(1+B)}$   
 $\tau_{event} = 0.105 \times 10^{(0.0056MW)}$ 

Where:

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (dimensionless)

 $t^*$  = Time to reach steady-state (hr)  $\tau_{\text{event}}$  = Lag time per event (hr/event)

b,c = Correlation coefficients which have been fitted to the Flynn's data

The lag time ( $\tau_{\text{event}}$ ), is defined as the time it takes a chemical to penetrate to reach a steady-state condition during a dermal exposure in aqueous media. By properly defining the lag time, the permeability coefficient (Kp) can be more properly used in the risk calculation further reducing uncertainty. Lag time and breakthrough time (t\*) for each organic COPC were from Exhibit B.3 of the USEPA (2004a) Supplemental Guidance for Dermal Risk Assessment, or calculated using the above USEPA recommended equations.

If the exposure time per event  $(t_{event})$  is less than the breakthrough time  $(t^*)$  of steady-state conditions specific to each compound, then the absorbed dose is calculated as follows:

$$DA_{event} = 2FA \times K_p \times EPC_{gw} \times CF \times \sqrt{\frac{6f_{event} \times f_{event}}{\pi}}$$

If the exposure time is longer than t\*, then the absorbed dose is calculated using:

$$\mathbf{DA_{event}} = \mathbf{FA} \times \mathbf{K_p} \times \mathbf{EPC_{gw}} \times \mathbf{CFx} \left[ \frac{t_{event}}{1+B} + 2\tau_{event} \left( \frac{1+3B+3B^2}{(1+B)^2} \right) \right]$$

Where, for both equations:

FA = Fraction absorbed water (dimensionless), assumed as 1

 $K_p$  = Dermal permeability coefficient (cm/hr)

 $EPC_{gw} = EPC$  Concentration in Water (mg/L)

ET = Exposure Time (hours)

CF = Volume Conversion Factor = 0.001L/cm<sup>3</sup>

For inorganics, DA was calculated by:

$$DA = K_p \times EPC_{gw} \times t_{event} \times CF$$

Dermal permeability coefficients for a number of organic inorganic chemicals can be found in the USEPA (2004a) Supplemental Guidance for Dermal Risk Assessment. When no organic  $K_p$  value was available, a value was calculated using the following equation:

$$Log K_p = -2.80 + 0.66 (log K_{ow}) - 0.0056 (MW)$$

Where:

K<sub>OW</sub> = Octanol/water partition coefficient of the non-ionized species (dimensionless)

# 6.5.3.6 Dermal Contact with Surface Water

The construction worker and adolescent trespasser may be exposed to surface water while at the sites. The equation for the absorbed dose, according to USEPA (2004a) is as follows:

Absorbed Dose (mg/Kg-day) = 
$$\underline{DA_{event} \times EF \times ED \times EV \times SA}$$
  
 $\underline{BW \times AT}$ 

Where:

 $DA_{event} = Absorbed dose per event (mg/cm<sup>2</sup> - event)$ 

EF = Exposure frequency (days/year)

ED = Exposure duration (years)

EV = Event frequency (events/day)

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

BW = Body weight (Kg)

AT = Averaging time (period over which exposure is averaged -- days)

The absorbed dose per event (DA) was calculated as described in USEPA's "Supplemental Guidance for Dermal Risk Assessment," (USEPA, 2004a).

## 6.5.3.7 Evaluation of Lead Exposure

Lead was considered to be a COPC in surface soil, subsurface soil, ditch soil, and surface water at SEAD-121C, and in surface water at SEAD-121I. For the industrial worker, risk associated with lead was evaluated using the Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil (USEPA, 2003b). This adult lead model provides an assessment of non-residential exposure by relating soil lead intake to blood lead concentrations in women of childbearing age. Thus, while adult exposure is addressed by USEPA's analysis, the most sensitive receptor (i.e., the fetus) is being protected. The methodology focuses on estimating fetal blood lead levels in women exposed to site soils. The adult lead model was used to evaluate exposure to SEAD-121C surface soil and ditch soil by the industrial worker. It should be noted that the adult lead model is based on the assumption of continuing long term exposure. As construction workers are expected to work at the sites in short-term (i.e., 1 year), risk associated with lead exposure is expected to be minor and therefore not evaluated in this risk assessment.

For an adolescent trespasser, the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) developed by USEPA was used to evaluate receptor lead level via exposure to surface soil and ditch soil at SEAD-121C. The IEUBK model results, based on residential exposure assumptions, were used as a screening tool to evaluate potential risks for adolescent trespasser. The IEUBK windows version software package was developed based on the USEPA (1994) IEUBK Guidance Manual. The model utilizes four interrelated modules (exposure, uptake, biokinetic, and probability distribution) to estimate blood lead (PbB) levels in children exposed to lead-contaminated media.

For both models, the site-specific EPCs and central tendency exposure factors were used along with the default assumptions presented in the models to derive the lead level estimation for the receptors. Surface water at both sites has elevated levels of lead; however quantification of dermal exposure to lead from surface water could not be completed since a model is not available at this time to quantify risk due to contact with surface water. The exposure to surface water is expected to be infrequent and therefore potential risks are expected to be minor.

## 6.6 TOXICITY ASSESSMENT

The objective of the toxicity assessment is to weigh available evidence regarding the potential of the chemicals to cause adverse effects in exposed individuals, and to provide, where possible, an estimate

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of the relationship between the extent of exposure to a chemical and the increased likelihood and/or severity of adverse effects. The types of toxicity information considered in this assessment include the reference dose (RfD) and reference concentration (RfC) used to evaluate non-carcinogenic effects, and the slope factor and unit risk to evaluate carcinogenic potential. The toxicity values for this risk assessment were selected in accordance with the USEPA recommended human health toxicity value hierarchy. In a memorandum issued to Superfund Regions 1-10 National Policy Managers in December 2003, the USEPA Office of Solid Waste and Emergency Response (OSWER) provided a revised recommended human health toxicity value hierarchy as follows:

- Tier 1 USEPA's IRIS
- Tier 2 USEPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) developed by the Office of Research and Development / National Center for Environmental Assessment (NCEA) / Superfund Health Risk Technical Support Center (STSC).
- Tier 3 Other Toxicity Values from additional USEPA and non-EPA sources with priority given
  to those sources of information that are the most current, the basis for which is transparent and
  publicly available, and which have been peer reviewed.

For chemicals without toxicity values, it may be appropriate to generate a value by alternate methods. Such methods may include route-to-route extrapolation or use of toxicity values of chemicals that are related both chemically and toxicologically (e.g., evaluation of structure-activity relationships). For this assessment, no surrogate toxicity values were derived.

For the evaluation of carcinogenic PAHs, toxicity equivalency factors (TEFs) based on the toxicity of benzo(a)pyrene were used (USEPA 1993a). For cPAHs with incomplete toxicity data, slope factors were calculated using TEFs, which are values that compare the carcinogenic potential of a given chemical in a class to the carcinogenic potential of a chemical in the class that has a verified slope factor. USEPA has provided TEFs for cPAHs (USEPA, 1993a). TEF values are as follows:

PAH	TEF
Benzo(a)pyrene	1.0
Benzo(a)anthracene	0.1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Dibenzo(a,h)anthracene	1.0
Chrysene	0.001
Indeno(1,2,3-cd)pyrene	0.1

To calculate a slope factor for a given PAH the appropriate TEF value is multiplied by the slope factor for benzo(a)pyrene.

For the development of dermal toxicity values, information regarding gastrointestinal (GI) absorption efficiency for administered doses was used. Specifically, oral slope factors were converted to dermal slope factors by dividing by the GI absorption efficiency. Oral reference doses were converted to dermal reference doses by multiplying by the GI absorption efficiency. The derivation of the dermal toxicity values for this risk assessment is consistent with the USEPA (2004a) recommendation and the GI absorption efficiency recommended by USEPA in its Supplemental Guidance for Dermal Risk Assessment was used for the COPCs in this risk assessment. In the absence of any information on absorption for the substance or chemically related substances, an oral absorption efficiency of 100 percent was assumed in accordance with USEPA Region 2 guidance (personal communication between A. Schatz of Parsons and M. Maddeloni of EPA Region 2).

RfCs were converted to inhalation reference doses in units of milligrams of chemical per kilogram of body weight per day (mg/kg-day); similarly, inhalation unit risk factors were converted to inhalation slope factor in units of per milligrams of chemical per kilogram of body weight per day ((mg/Kg-day)<sup>-1</sup>). The conversion was made by assuming an inhalation rate of 20 m<sup>3</sup>/day and an adult body weight of 70 Kg. Thus:

Inhalation slope factor (mg/kg-day)<sup>-1</sup> = 
$$UnitRisk \left(\frac{ug}{m^3}\right)^{-1} \times \frac{day}{20m^3} \times 70kg \times \frac{1000ug}{mg}$$

Inhalation Reference Dose (mg/kg/day) = 
$$RfC\left(\frac{mg}{m^3}\right)x\left(\frac{20m^3}{day}\right)x\left(\frac{1}{70kg}\right)$$

Chronic RfDs and RfCs are ideally based on chronic exposure studies in humans or animals. Chronic exposure for humans is considered to be exposure of roughly seven years or more, based on exposure of rodents for one year or more in animal toxicity studies. Construction workers and adolescent trespassers at the sites were assumed to be exposed to the contaminants at the sites for 1 year and 6 years, respectively; therefore, subchronic RfDs and RfCs would be appropriate to evaluate the non-carcinogenic threshold effects. For this risk assessment, chronic RfDs and RfCs were used to conservatively assess risks for these receptors.

The toxicity factors used in this evaluation are summarized in **Tables 6-11A**, **6-11B**, **6-11C**, and **6-11D**.

# 6.7 RISK CHARACTERIZATION

To characterize risk, toxicity and exposure assessments were summarized and integrated into quantitative expressions of risk. To characterize potential non-carcinogenic effects, comparisons were made between estimated intakes of substances and toxicity values. To characterize potential carcinogenic effects, probabilities that an individual will develop cancer over a lifetime of exposure were evaluated from estimated intakes and chemical-specific dose-response information.

# 6.7.1 Non-carcinogenic Effects

The potential for non-carcinogenic effects is evaluated by comparing an exposure level over a specified period with an RfD derived for a similar exposure period. This ratio of exposure to toxicity is called a hazard quotient according to the following equation:

Noncancer Hazard Quotient (HQ) = I/RfD

Where:

I = Intake or Absorbed Dose (mg/Kg-day)

RfD = Reference Dose (mg/Kg-day)

The non-cancer hazard quotient assumes that there is a level of exposure (i.e., an RfD) below which it is unlikely for even sensitive populations to experience adverse health effects. If the intake or absorbed dose exceeds the threshold (i.e., If I/RfD exceeds 1), there may be concern for potential non-cancer effects.

To assess the overall potential for non-carcinogenic effects posed by more than one chemical, a hazard index (HI) approach has been developed by the USEPA. This approach assumes that simultaneous sub-threshold exposures to several chemicals could result in an adverse health effect. It also assumes that the magnitude of the adverse effect will be proportional to the sum of the ratios of the subthreshold exposures to respective acceptable exposures.

This is expressed as:

$$HI = I_1/RfD_1 + I_2/RfD_2 + ... + I_i/RfD_i$$

Where:

I; = the Intake or absorbed dose of the i<sup>th</sup> COPC, and

RfD; = the reference dose for the i<sup>th</sup> COPC.

While any single chemical with an exposure level greater that the toxicity value will cause the HI to exceed one, for multiple chemical exposures, the HI can also exceed one even if no single chemical exposure exceeds its RfD. The assumption of dose additivity reflected in the HI is best applied to compounds that induce the same effects by the same mechanisms. Applying the HI to cases where the known compounds do not induce the same effect may overestimate the potential for effects. To assess the overall potential for non-carcinogenic effects posed by several exposure pathways, the total HI for chronic exposure is the sum of the HI's for each pathway, for each receptor.

# 6.7.2 Carcinogenic Effects

For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen (i.e., excess individual lifetime cancer risk). The slope factor converts estimated daily intakes or absorbed dose averaged over a lifetime of exposure directly to incremental risk of an individual developing cancer. It can generally be assumed that the dose-response relationship will be linear in the low-dose portion of the multistage model dose-response curve. Under this assumption, the slope factor is a constant, and risk will be directly related to intake. Thus, the following linear low-dose equation was used in this assessment:

$$Risk = CDI \times SF$$

Where:

Risk = A unitless probability of an individual developing cancer,

CDI = Chronic Daily Intake over 70 years (mg/Kg-day), and

 $SF = Slope Factor (mg/Kg-day)^{-1}$ 

For simultaneous exposure to several carcinogens, the USEPA assumes that the risks are additive. That is to say:

$$Risk_T = Risk_1 + Risk_2 + ... + Risk_i$$

Where:

Risk<sub>T</sub> = Total cancer risk, expressed as a unitless probability, and

Risk; = Risk estimate for the ith COPC.

Addition of the carcinogenic risks is valid when the following assumptions are met:

- doses are low,
- · no synergistic or antagonistic interactions occur, and
- similar endpoints are evaluated.

According to guidance in the National Contingency Plan, the target overall lifetime carcinogenic risks from exposures for determining clean-up levels should range from 10<sup>-4</sup> to 10<sup>-6</sup>.

# 6.7.3 Risk Characterization for Lead Exposure

Risk characterization for lead exposure was conducted based on a comparison between the estimated blood lead level and the target PbB level of concern. Blood lead level was estimated based on the USEPA IEUBK model or the Adult Lead Model. The target PbB level of concern is 10.0 ug/dL for child (USEPA, 1994, 2003b).

# 6.7.4 Risk Summary

Human health risks were calculated for the construction worker, industrial worker, and adolescent trespasser from exposure to soil, ditch soil, and surface water at SEAD-121C, and from surface soil, ditch soil, and surface water at SEAD-121I. The risks via various exposure routes were summed up to represent the total risks for the receptors for the scenarios in the table below.

	Summary	y of the Exposure Scenarios
Exposure		
Scenarios	Receptor	Exposure Routes
SEAD-121C	Industrial Worker	Ingestion, inhalation, and dermal contact to soil; and intake of
soil and		groundwater
groundwater	Construction Worker	Ingestion, inhalation, and dermal contact to soil; intake of
exposure		groundwater; and dermal contact to groundwater
	Adolescent Trespasser	Ingestion, inhalation, and dermal contact to soil; and intake of
		groundwater
SEAD-121C	Industrial Worker	Ingestion, inhalation, and dermal contact to ditch soil; and intake of
ditch soil, surface		groundwater
water, and	Construction Worker	Ingestion, inhalation, and dermal contact to ditch soil; intake of
groundwater exposure		groundwater; and dermal contact to groundwater and surface water
	Adolescent Trespasser	Ingestion, inhalation, and dermal contact to ditch soil; intake of
		groundwater; and dermal contact to surface water
SEAD-121I	Industrial Worker	Ingestion, inhalation, and dermal contact to soil
soil and groundwater	Construction Worker	Ingestion, inhalation, and dermal contact to soil
exposure	Adolescent Trespasser	Ingestion, inhalation, and dermal contact to soil
SEAD-121I	Industrial Worker	Ingestion, inhalation, and dermal contact to ditch soil
ditch soil, surface	Construction Worker	Ingestion, inhalation, and dermal contact to ditch soil; and dermal
water, and		contact to surface water
groundwater exposure	Adolescent Trespasser	Ingestion, inhalation, and dermal contact to ditch soil; and dermal
		contact to surface water

The risk results for the above scenarios are presented in **Tables 6-12A** and **6-12B**. For each scenario, both the RME and CT values are presented. The risk calculation tables for each exposure route are presented in **Appendix E** for SEAD-121C soil, ditch soil, groundwater, and surface water exposure, and in **Appendix F** SEAD-121I surface soil, ditch soil, and surface water exposure. The following sections summarize the risk characterization results for SEAD-121C, SEAD-121I, and lead exposure.

# 6.7.4.1 SEAD-121C

Human health risks were calculated for the construction worker, industrial worker, and adolescent trespasser from exposure to soil, ditch soil, groundwater, and surface water at SEAD-121C. The

potential risks due to the exposure pathways are summed up for each receptor (shown in **Table 6-12A**). For all receptors, risks were calculated for two exposure scenarios: 1) exposure to soil and groundwater, and 2) exposure to ditch soil, surface water (except industrial worker), and groundwater. The risks calculated for these two scenarios provide a range of potential risks resulted from any combinations of soil and ditch soil exposure at the site. **Table 6-12A** summarizes the cancer and non-cancer risks for all receptors and exposure routes corresponding to SEAD-121C soil, ditch soil, groundwater, and surface water exposure. The results for both the RME and CT scenarios are presented. The risk calculation tables for each exposure route are presented in **Appendix E**.

At the DRMO Yard all total hazard indices calculated are less than 1, and the total cancer risks found for each receptor are less than 10<sup>-4</sup>. The hazard indices and cancer risks are summarized in **Table 6-12A** and in the table below.

SEAD-121C RME Non-Cancer H	lazard Index & C	Cancer Risk
Receptor	Non-Cancer Hazard Index	Cancer Risk
Industrial Worker (Soil)	0.4	3.E-05
Industrial Worker (Ditch Soil)	0.02	1.E-06
Construction Worker (Soil)	0.8	2.E-06
Construction Worker (Ditch Soil)	0.3	7.E-07
Adolescent Trespasser (Soil)	0.03	3.E-07
Adolescent Trespasser (Ditch Soil)	0.03	1.E-07

The cancer risks for all receptors based on the RME scenario are below the USEPA upper limit of  $1\times10^{-4}$ . The cancer risk values for the industrial worker and the construction worker are a result of ingestion of soil and dermal contact to soil, and the major contributors are cPAHs, most significantly benzo(a)pyrene, and arsenic.

Risk due to exposure to groundwater is not expected to be significant, since no COPCs were identified during the screening process.

The total cancer risks and non-cancer hazard indices based on the CT scenario for all receptors are within the EPA target range (i.e., total non-cancer hazard indices below 1 and total cancer risks below  $1 \times 10^{-4}$ ).

# 6.7.4.2 SEAD-121I

**Table 6-12B** summarizes the cancer and non-cancer risks for all receptors and exposure pathways for both the RME and CT scenarios. The risk calculation tables for each exposure route are presented in **Appendix F**.

At SEAD-1211, the total non-cancer risks for the industrial worker and the construction worker are above the EPA limit of 1 as shown in **Table 6-12B** and in the summary table below.

SEAD-1211 RME Non-Cancer Ha	azard Index & C	ancer Risk
	Non-Cancer	
Receptor	Hazard Index	Cancer Risk
Industrial Worker (Soil)	30	7.E-05
Industrial Worker (Ditch Soil)	3	2.E-05
Construction Worker (Soil)	200	8.E-06
Construction Worker (Ditch Soil)	20	1.E-05
Adolescent Trespasser (Soil)	0.6	9.E-07
Adolescent Trespasser (Ditch Soil)	0.08	1.E-06

The cancer risks for the RME scenario are below the USEPA upper limit of 1x10<sup>-4</sup> for all receptors. The hazard indices for the adolescent trespasser are within the USEPA limits. For the industrial worker and construction worker, the RME hazard indices for soil exposure are one order of magnitude greater than the hazard indices for ditch soil exposure, but both are above the USEPA limit.

The elevated hazard indices for the industrial worker were caused by inhalation of dust in ambient air from soil, ingestion of soil, and inhalation of dust in ambient air from ditch soil. For the construction worker the major pathways contributing to the hazard indices were inhalation of dust in ambient air from soil, ingestion of soil, dermal contact to soil, inhalation of dust in ambient air from ditch soil, and ingestion of ditch soil. The significant contributing COPC to all non-cancer risk for all receptors and exposure pathways is manganese. Arsenic also contributed to 27% of the non-cancer risk to the construction worker from ingestion of ditch soil. **Table 6-13** presents the contribution of major COPCs to hazard indices greater than 1.

# 6.7.4.3 Lead Risk Characterization Results

At SEAD-121C, lead was identified as a COPC in surface soil, subsurface soil, ditch soil, and surface water. At SEAD-121I lead was retained as a COPC in surface water. This section presents the results of the quantitative and qualitative assessment of the risk via lead exposure at SEAD-121C and SEAD-121I.

# SEAD-121C Soil

The central tendency exposure factors for industrial workers were used to evaluate potential risks associated with lead in soil. That is, the industrial worker was assumed to accidentally intake 50 mg soil each day while working at the site for 219 days each year. This assumption is consistent with the default assumptions used in the adult lead model (USEPA, 2003b).

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Lead risk characterization results for surface soil exposure for the industrial worker at SEAD-121C are presented in **Table E-8A**. The 95<sup>th</sup> percentile PbB among fetuses of adult industrial workers are 7.8 and 9.8 ug/dL, assuming a homogeneous and a heterogeneous population, respectively. Both estimates are below the USEPA target PbB level of concern (i.e., 10 ug/dL). Therefore, lead in SEAD-121C soil is not expected to pose potential risks to industrial workers or their fetuses, if any. It should be noted that the adult lead model is based on the assumption of continuing long term exposure. As construction workers are expected to work at the site in short-term (i.e., 1 year), risk associated with lead exposure is expected to be minor and therefore not evaluated in this risk assessment.

The IEUBK model results, based on residential child exposure assumptions, were used as a screening tool to evaluate potential risks associated with lead in SEAD-121C soil for adolescent trespassers. The results are presented in **Table E-8B**. It should be noted that the results can only be used as a screening tool as the exposure frequency for the adolescent trespasser is much less than the residential child. In addition, a child receptor is considered more sensitive than an adolescent receptor. As shown in **Table E-8B**, the 95<sup>th</sup> percentile PbB levels among residential children are below the USEPA target PbB level of concern (i.e., 10 ug/dL). Therefore, it is concluded that lead in SEAD-121C surface soil does not pose a health risk to the adolescent trespasser receptor.

# SEAD-121C Ditch Soil

The lead risk characterization results for SEAD-121C ditch soil exposure are presented in **Tables E-9A** for the industrial worker. The 95<sup>th</sup> percentile PbB levels among fetuses of adult industrial worker are 5.2 and 6.8 μg/dL, assuming a homogeneous and a heterogeneous population, respectively. Both estimates are below the USEPA target PbB level of concern (i.e., 10 μg/dL). As the 95<sup>th</sup> percentile PbB levels among the industrial workers are below the USEPA target PbB level of concern (i.e., 10 μg/dL), it is concluded that lead in SEAD-121C ditch soil does not pose a health risk to the industrial worker receptors. Although potential risks from lead in SEAD-121C ditch soil were not evaluated for construction workers, construction workers are expected to work at the site in short-term (i.e., 1 year). Therefore, risk associated with lead exposure is expected to be minor.

The IEUBK model results, based on residential child exposure assumptions, were used as a screening tool to evaluate potential risks associated with lead in SEAD-121C ditch soil for adolescent trespassers. The results are presented in **Table E-9B**. It should be noted that the results can only be used as a screening tool as the exposure frequency for the adolescent trespasser is much less than the residential child. In addition, a child receptor is considered more sensitive than an adolescent receptor. As shown in **Table E-9B**, the 95<sup>th</sup> percentile PbB levels among residential children are below the USEPA target PbB level of concern (i.e., 10 ug/dL). Therefore, it is concluded that lead in SEAD-121C ditch soil does not pose a health risk to the adolescent trespasser receptor.

As mentioned in Section 6.5.3.7, a quantitative evaluation of dermal exposure to lead in surface water at SEAD-121C and SEAD-121I was not conducted as a reliable model is not available at this time to

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quantify risk due to contact with surface water. However, the ditches at the sites are dry most of the time and contact with surface water is not frequent by any receptors; therefore, risk associated with dermal exposure to lead in surface water is expected to be minor.

# 6.8 UNCERTAINTY ANALYSIS

All risk assessments involve the use of assumptions and professional judgments to varying degrees. This results in uncertainty in the final estimates of risk. There are uncertainties associated with each component of the risk assessment from data collection through risk characterization. The uncertainty associated with the four major steps (site characterization and data evaluation, exposure assessment, toxicity assessment, and risk characterization) of the risk assessment is discussed below.

# 6.8.1 Uncertainty in Site Characterization and Data Evaluation

The baseline human health risk assessment was conducted based on total soil, ditch soil, and surface water data available from SEAD-121C and SEAD-121I. Groundwater data collected using low flow sampling techniques at SEAD-121C was used in the human health risk assessment. At SEAD-121C, approximately 70 soil samples, ten ditch soil samples, six groundwater samples, and ten surface water samples were included in the baseline human health risk assessment. At SEAD-121I, over 50 surface soil and ditch soil samples, and eight surface water samples were included in the baseline human health risk assessment. The samples were collected biased toward overestimation of chemical concentrations at the sites. The size of the soil samples and the biased sampling approach indicate the uncertainty associated with site characterization is low.

Uncertainty in contaminant identification is considered low because generally full suite of CLP target compounds including VOCs, SVOCs, PCBs, pesticides, and metals were analyzed for the samples. Reasonable certainty also is assumed because of the sample data validation and quality assurance/quality control (QA/QC) procedures applied to sample analysis and data evaluation.

Chemicals were screened against USEPA Region 9 PRGs or other appropriate screening values and only those with the maximum detected concentrations exceeding the screening values were included in the risk characterization. This practice may slightly underestimate risks but is not expected to significantly impact the results.

# 6.8.2 Uncertainty in Exposure Assessment

Factors that can contribute to uncertainty in the exposure assessment include identification and evaluation of exposure pathways, assumptions for scenario development, intake parameters, and derivation of exposure point concentrations.

The identification of potential exposure pathways and receptors is based on site-specific reasonable current use and foreseeable future land use. To the extent possible, site-specific receptors are identified and exposure parameters tailored to these receptors are identified to minimize uncertainty

in the postulated scenarios and exposure assessments. For example, the future receptors were assumed to drink groundwater. It is extremely unlikely that this will occur, since there is a current acceptable water supply, and the aquifer beneath the sites is not believed to be productive enough to supply the needs of the future land uses. This assumption yields an overestimate of risk for this scenario.

Values assumed for exposure parameters (e.g., soil ingestion rate, inhalation rate, and exposure frequencies) used in calculations for intakes are based primarily on USEPA guidance. These assumptions may result in underestimating or overestimating the intakes calculated for specific receptors, depending on the accuracy of the assumptions relative to actual site conditions and uses. For the scenarios in this risk assessment, upper bound values were selected for each exposure factor for the RME scenario. In the calculations of exposure, these multiple upper-bound exposure factor estimates compound to yield intakes and absorbed doses that overestimate likely exposure levels.

The 95% UCL, or other appropriate UCL recommended by USEPA, of the mean was used to represent exposure point concentrations and to calculate site-related risks. This is a conservative approach which tends to overstate potential risks. The EPCs derived from the measured chemical concentrations are assumed to persist without change for the entire duration of each exposure scenario. It is likely that some degradation would occur over time, particularly for some of the organic compounds, which would reduce the current concentrations. Therefore, this steady state assumption tends to overestimate exposure levels.

To estimate EPCs in ambient air from soil dust for a construction worker, a USEPA recommended model was used to calculate EPCs based on emissions from truck traffic on unpaved roads. The EPCs estimated using this model may overestimate the EPCs caused by wind erosion and other construction activities such as soil excavation and loading.

The USEPA IEUBK model assuming a child resident was used as a screening tool for adolescent trespasser, who is exposed infrequently at the sites. The model results tend to overestimate potential risks for the adolescent trespasser and therefore were only used as a screening tool for the adolescent trespasser.

Default dermal absorption values recommended by USEPA (2004a) were used for this risk assessment. Because various factors affect the efficiency of dermal absorption, there is considerable uncertainty associated with these values. For example, some of the default dermal absorption values are based on studies of dermal absorption of metals in aqueous solutions; dermal uptake of metals in soil is likely to be lower. In addition, many compounds are only absorbed through the skin after a long exposure duration (i.e., >24 hours). Since most individuals bathe at least once each day, washing may remove any soil residues adhering to the skin before absorption can occur. Therefore, dermal absorption rates based on studies with long exposure durations may overestimate actual absorption. As an example, the default dermal absorption value for PAHs may overstate potential risks associated with dermal exposure to soil. In contrast with the default value of 13%, which is based on a single data set, the dermal absorption value of 2%, as recommended by Magee *et al.* (1996), is a point estimate based on four

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different data sets, including the *in vivo* data from Wester *et al.* (1990); human *in vitro* data also from Wester *et al.*; as well as *in vivo* and *in vitro* data in rats, from Yang *et al.*, (1989, as cited in Magee *et al.*, 1996). Because no single study is ideal for estimating dermal absorption, it seems appropriate to base dermal absorption on several data sets, each of which seem equally suited for a deriving dermal absorption factor.

# 6.8.3 Uncertainty in Toxicity Assessment

Uncertainty is inherent in the toxicity values used in characterizing the carcinogenic and noncarcinogenic risks. Such uncertainty is chemical-specific and is incorporated into the toxicity value during its development. For example, an uncertainty factor may be applied for interspecies and intrahuman variability, for extrapolation from subchronic to chronic exposures, and/or for epidemiological data limitations. Most cancer slope factors are calculated using a model that extrapolates low dose effects from high dose animal studies. Because toxicity constants are generally based on the upper limit of the 95th-percentile confidence interval or incorporate safety factors to compensate for uncertainty, chemical-specific risks may be overestimated. In addition, chronic toxicity values were used to evaluate subchronic non-cancer risks in this baseline risk assessment due to the general lack of subchronic toxicity values. This practice will potentially overstate risks for the construction worker and the adolescent trespasser.

Toxicity values may not be available for some COPCs, thereby precluding their inclusion in the quantitative risk estimates. The resulting risk estimates will not include the chemical-specific risks from these chemicals, and, therefore, may underestimate risk. Risks associated with exposure to iron were assessed using the toxicity value (RfD) developed by USEPA National Center for Environmental Assessment (NCEA). The toxicity value has not yet been adopted by USEPA IRIS database or the PPRTV database. Risks associated with exposure to PAHs were assessed using the TEF approach. The potential hazards/risks associated with these chemicals may be uncertain.

Toxicity information was not available for dermal exposure. This is due to the lack of scientific studies available to quantify dermal toxicity and carcinogenic potential for the vast majority of priority pollutants and because chemical specific information needed to convert ingested dose to absorbed dose is not available. In accordance with the USEPA (2004a) guidance, oral toxicity values were used with adjustment to calculate risks from dermal exposure. The dermal toxicity value developed using this approach may result in over or under estimation of potential risks associated with dermal exposure.

# 6.8.4 Uncertainty in Risk Characterization

Some of the procedures used and uncertainties inherent in the human health risk characterization process may tend to underestimate or overestimate potential risk. The summing of hazard quotients (HQs) for all COPCs represents a conservative approach because the reference dose (or the reference concentration) for a given COPC for a given pathway is calculated for a certain toxicological end-

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point (e.g., liver, kidneys, etc.). To calculate an accurate estimate of potential non-carcinogenic health risks, HQs with the same toxicological endpoints should only be summed. Therefore, the risks calculated by summing the HQs for all COPCs are likely overstated. On the other hand, the assumption of additivity does not allow for potential synergistic or antagonistic effects of various chemicals, which may result in an overestimation or underestimation of risk.

On March 29, 2005 the EPA issued two final guidance documents: "Guidelines for Carcinogen Risk Assessment" and "Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens". The new risk guidance reflects the EPA's current procedure for assessing cancer risk. The supplemental document deals specifically with assessing the health impact from early-life exposure. This final guidance document recommends adjusting the potency factor (e.g., cancer slope factor) for carcinogens acting through a mutagenic mode of action to address early-life exposure. A default 10-fold adjustment is proposed to apply for the first 2 years of life and a 3-fold adjustment is proposed to apply for ages after 2 through 16. According to the supplemental guidance, benzo(a)pyrene and dibenz(a,h)anthracene are associated with a mutagenic mode of action for carcinogenesis. For the uncertainty analysis, risks for trespasser (ages 11-16 yr) were evaluated based on the adjusted oral cancer slope factor for benzo(a)pyrene and dibenz(a,h)anthracene (i.e., three times of the value listed in IRIS). The cancer risks for the adolescent trespasser would still be less than 10<sup>-4</sup> if the adjusted cancer slope factor were used. Due to limited information of mode of action, default adjustment was not conducted for the other carcinogens. As benzo(a)pyrene and dibenz(a,h)anthracene are the predominant cancer contributor at the site, the uncertainty associated with not adjusting for early-life exposure is not expected to impact the risk results.

# 6.9 COC IDENTIFICATION

This section presents the COC identification based on the human health risk assessment results.

# 6.9.1 SEAD-121C Soil, Groundwater, and Surface Water

As discussed in **Section 6.7.4.1**, the total cancer risks and non-cancer hazard indices based on the RME and CT scenarios for all receptors with exposure to SEAD-121C surface soil, ditch soil, and surface water are within the USEPA target range (i.e., total non-cancer hazard indices below 1 and total cancer risks below 1x10<sup>-4</sup>). No COPCs were identified in groundwater at the DRMO Yard during the screening process. Therefore, no COCs were identified for any media at SEAD-121C.

Since concentrations detected in the groundwater at the DRMO Yard were below screening levels, risk due to exposure to groundwater is expected to be minimal. Data from SEAD-27 (Building 360), which is adjacent to the DRMO Yard, was collected from three sampling points (two wells and a Tsump) immediately upgradient of the DRMO Yard wells (refer to Figures 4-19). The risks identified at SEAD-27 (Building 360) are covered in a separate document, "Final ROD for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas" (Parsons, 2004) and a groundwater use restriction has been placed on the groundwater at this site. Since SEAD-

27 (Building 360) is in close proximity to the DRMO Yard, the potential risk due to intake of groundwater (for all receptors) and dermal contact to groundwater (for the construction worker) was calculated using the low flow groundwater data at SEAD-121C and SEAD-27 (Building 360). Table 6-14A presents the risk from ingestion of groundwater at SEAD-27 (Building 360) and SEAD-121C. The hazard index for all three receptors is greater than 1 due to the presence of iron in the samples collected from the T-sump in Building 360. Table 6-14C shows that the potential risk due to dermal contact to groundwater has a hazard quotient less than 1 and a cancer risk value of 2 x 10<sup>-9</sup>. While risk from groundwater intake is identified for this combined data set, it is noted that the contaminants leading to this risk were detected at SEAD-27 (Building 360) and were absent from all permanent wells located in the DRMO Yard. This suggests that the contaminants and associated risk are limited to SEAD-27 (Building 360) and have not migrated to downgradient wells. The results of the risk calculation based on SEAD-27 (Building 360) and SEAD-121C low flow data confirms the need for a groundwater use restriction at SEAD-27 (Building 360), which is already in place as a result of the IC ROD (Parsons, 2004). In addition, risk to residential children due to contact with lead in the groundwater was evaluated using the IEUBK model, and the results indicated that there was no risk from lead exposure.

As discussed in Section 6.7.4.4, the lead levels in SEAD-121C surface soil and ditch soil do not pose a health risk to the receptors. Therefore, lead should not be considered as a COC at the site.

As stated previously, ditch soils were treated as surface soil, which assumed that the soils were dry. Site observations indicated that some of the drainage ditches at SEAD-121C was occasionally wet during portions of the year. Wet soils adhere to skin more than dry soil, so the exposure scenario would be different for dermal contact to soil. As a conservative estimate, Parsons reran the risk assessment assuming that all ditch soils were wet in order to evaluate potential risk in this worst-case scenario. At SEAD-121C potential risk due to dermal contact to ditch soils was re-calculated by adjusting the adherence factor to 1. A comparison of hazard quotients and cancer risk values for dermal contact to dry ditch soil and wet ditch soil is presented in **Table 6-15**. The table shows that even using the conservative and unrealistic assumption that all ditch soil is wet does not cause hazard quotients to exceed 1 or cancer risk values to exceed 10<sup>-4</sup>. Therefore, even in an unrealistic scenario where ditch soil at SEAD-121C was always wet, the potential for risk is below USEPA guidance levels.

# 6.9.2 SEAD-1211 Soil and Surface Water

As discussed in Section 6.7.4.2, the total cancer risks based on the RME and CT scenarios are below the USEPA upper target limit  $(1x10^{-4})$  for all the receptors with exposure to SEAD-1211 surface soil, ditch soil, and surface water.

The total non-cancer hazard indices based on the RME for the industrial worker and construction worker are above the USEPA target limit of 1, due to inhalation, intake, and dermal exposure to surface soil or ditch soil. Inhalation of dust generated from surface soil or ditch soils posed the greatest hazard risk for the industrial worker and construction worker.

	SEAD-121I Contributing Path	ways to Risk
		% Contributing to RME Total
Receptor	Pathway	Non-Cancer Hazard Index
Industrial Worker	Inhalation of Dust (Soil)	82%
	Ingestion of Soil	16%
	Inhalation of Dust (Ditch Soil)	94%
Construction Worker	Inhalation of Dust (Soil)	91%
	Ingestion of Soil	9%
	Dermal Contact to Soil	1%
	Inhalation of Dust (Ditch Soil)	86%
	Ingestion of Ditch Soil	13%

Manganese was the major contributor to the non-cancer risk. Strategic stockpiles of ferrous-manganese ore are staged at SEAD-121I. The levels of manganese detected at SEAD-121I are associated with the ore piles, which are strategic materials and are not a waste product subject to regulation under CERCLA. At the time when the Strategic Stockpiles are removed, residues associated with the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles. Therefore, manganese is not considered a COC at SEAD-121I.

# 6.10 COMPARISON OF CHEMICALS DETECTED IN SITE SAMPLES TO ARARS

USEPA (1989) guidance dictates that all chemicals detected in site media be compared to applicable or relevant and appropriate requirements (ARARs) at a site. Although a contaminant may not be identified as a COC from the risk assessment, it may exceed an ARAR and, therefore, should be evaluated in the HHRA. A discussion of the ARARs and TBCs identified for the sites is presented in Section 4. No ARARs were identified for soil and NYSDEC (1998 with addendum) Ambient Water Quality Standards [Technical Operating Guidance (TOGS), 1.1.1, Class GA Standards] were identified as ARARs for groundwater and surface water at the sites. The NYSDEC TAGMs were identified as TBC for soil at the sites. An evaluation of the data compared with the ARARs and TBCs is presented in Section 4 of this report. In brief, PAH concentrations in soil exceeded the TAGM values in various sample locations. Concentrations of various metals in soil were above the TAGM values. Various metals in groundwater had concentrations above the NYS Groundwater Standards. None of these constituents were identified as COCs based on the baseline human health risk assessment. That is, the concentrations of these constituents in soil did not result in a derived risk or hazard greater than the USEPA target limits.

# 6.11 SUMMARY AND CONCLUSIONS

Risks to the three receptors identified for SEAD-121C and SEAD-121I based on the current and future use of the sites (i.e., industrial worker, construction worker, and adolescent trespasser) via exposure to surface soil, subsurface soil, ditch soil, groundwater, and surface water at SEAD-121C; and exposure to surface soil, ditch soil, and surface water at SEAD-121I were evaluated in accordance with the USEPA RAGS. The baseline risk assessment results associated with exposure to the following scenarios are summarized in this section:

# SEAD-121C

- exposure to surface soil (inhalation, ingestion, and dermal contact) for all receptors; and subsurface soil (inhalation, ingestion, and dermal contact) for the construction worker.
- exposure to ditch soil (inhalation, ingestion, and dermal contact) and dermal contact to surface water for the construction worker and adolescent trespasser.
- exposure to surface water via dermal contact was evaluated for the construction worker and adolescent trespasser.
- exposure to groundwater was not evaluated since no COPCs were identified.

# SEAD-121I

- exposure to surface soil (inhalation, ingestion, and dermal contact) for all receptors.
- exposure to ditch soil (inhalation, ingestion, and dermal contact) and dermal contact to surface water for the construction worker and adolescent trespasser.
- exposure to surface water via dermal contact was evaluated for the construction worker and adolescent trespasser.
- exposure to groundwater was not evaluated since no COPCs were identified.

# 6.11.1 SEAD-121C Soil and Surface Water Exposure

A summary of the risk assessment results for exposure to SEAD-121C surface and subsurface soil, ditch soil, and surface water is presented below.

SEAI	Risks Based 0-121C Soil and	on RME Scer d Surface War		
Receptor	1	Ī	Hazard Index for Ditch Soil	1
Industrial Worker	0.4	3.E-05	0.02	1.E-06
Construction Worker	0.8	2.E-06	0.3	7.E-07
Adolescent Trespasser	0.03	3.E-07	0.03	1.E-07

USEPA target limits: cancer risk of  $10^{-6} - 10^{-4}$ ; hazard index of 1

The total cancer risks and non-cancer hazard indices based on the RME and CT scenarios for all receptors were within the USEPA target range (i.e., cancer risks below 10<sup>-4</sup> and hazard indices below 1), summarized in Table 6-12A. In addition, lead in surface soil and ditch soil is not expected to pose significant risks to the receptors at the sites. Therefore, media at SEAD-121C pose no risks to potential human receptors and no COCs were identified for soils, ditch soils, groundwater, or surface water at SEAD-121C.

# 6.11.2 SEAD-121I Soil and Surface Water Exposure

A summary of the risk assessment results for receptors exposed to SEAD-1211 surface soil, ditch soil, and surface water is presented below.

SEA	Risks Based AD-1211 Soil and	on RME Scei I Surface Wat		
Receptor	Hazard Index for Soil	Cancer Risk for Soil	Hazard Index for Ditch Soil	
Industrial Worker	30	7.E-05	3	2.E-05
Construction Worker	200	8.E-06	20	1.E-05
Adolescent Trespasser	0.6	9.E-07	0.08	1.E-06

USEPA target limits: cancer risk of  $10^{-6} - 10^{-4}$ ; hazard index of I

The total cancer risk based on the RME and CT scenarios for all receptors exposed to surface soil, ditch soil, and surface water at SEAD-121I are within the EPA target range. The total non-cancer risk based on the RME and CT scenarios for the industrial worker and construction worker are above the USEPA target range, summarized in Table 6-12B. Exposure to dust generated from either the surface soil or ditch soil may pose a non-cancer hazard to the industrial worker and construction worker. Manganese is the COPC contributing to the elevated hazard index. Table 6-13 summarizes the contributing COPCs and exposure route that generate risk to human health. The manganese detected in the soils was a result of the strategic ferrous-manganese ore piles, which are not a waste covered by CERCLA. Therefore, manganese is not a COC and no other COCs have been identified in the risk assessment for surface soil, ditch soil, groundwater, or surface water at SEAD-1211.

July 2005 P:\PIT\Projects\SENECA\PID Area\Report\Draft Final\Text\Sec6\_DF.doc In addition, lead in SEAD-1211 surface soil or ditch soil does not pose a health risk to the receptors. Therefore, the surface soil and ditch soil do not pose significant risks to potential human receptors.

# 6.11.3 Conclusion

The Army intends to place institutional controls in the form of land use restrictions on the PID parcel and these restrictions would eventually apply to SEAD-121C and SEAD-121I. As described in the Final Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas (Parsons, 2004), signed on September 28, 2004 by USEPA, these restrictions are as follows:

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

Based upon the planned future land use for the sites, no COCs were identified for any affected media at SEAD-121C or SEAD-121I. Chemicals associated with the release at the sites do not pose a health risk to potential receptors at the sites.

At SEAD-121C, the cancer and non-cancer risks are within the USEPA limits. Any contamination causing risk at SEAD-27 is not impacting the DRMO Yard. No actions will be necessary at SEAD-121C based on the baseline human health risk assessment.

At SEAD-121I, the cancer risks are within the USEPA limits, while there is a potential for non-cancer risk due to the presence of manganese in soils and ditch soils. All non-cancer risks are caused by the presence of manganese, which are related to the storage of strategic ore piles. The ferrous-manganese ore piles are not a waste and thus not covered by the CERCLA process. The Army is consolidating the Strategic Stockpiles and the ore piles on site will be removed in the future when any cleanup of the ore pile area will be handled under a different cleanup project.

Based on the above discussion, it is the Army's position that soil, ditch soil, surface water, and groundwater at SEAD-121C and SEAD-121I do not pose a health risk to potential receptors at the sites and no further action is warranted at SEAD-121C or SEAD-121I based on the human health baseline risk assessment.

# TABLE 6-1 SELECTION OF EXPOSURE PATHWAYS SEAD-121C AND SEAD-1211 RI REPORT SENECA ARMY DEPOT ACTIVITY

Modium	Fynogura	FYBOSITE	Recentor	Recentor	Fxpostife	On-Site/	Type of	Rationale for Selection or Exclusion
	Medium	Point	Population	Age	Route	Off-Site	Analysis	of Exposure Pathway
Soil	Soil	SEAD-121C/1211	Construction Worker	Adult	Dermal	On-Site	Quant	Potential construction workers will be exposed to soil at SEAD-121C and SEAD-1211.
					Ingestion	On-Site	Quant	Potential construction workers will be exposed to soil at SEAD-121C and SEAD-1211.
			Industrial Worker	Adult	Dermal	On-Site	Quant	Potential industrial workers will be exposed to soil at SEAD-121C and SEAD-121L.
					Ingestion	On-Site	Quant	Potential industrial workers will be exposed to soil at SEAD-121C and SEAD-1211.
			Trespasser	Adolescent	Dermal	On-Site	Quant	Trespasser may potentially be exposed to soil at SEAD-121C and SEAD-1211.
					Ingestion	On-Site	Quant	Trespasser may potentially be exposed to soil at SEAD-121C and SEAD-1211.
			Resident	Adult	Dermal	On-Site	None	The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-1211.
					Ingestion	On-Site	None	The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-1211.
				Adolescent	Dermal	On-Site	None	The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-1211.
					Ingestion	On-Site	None	The sites are currently not in use and no residents currently reside at SEAD-121C and SFAD-1211.
	Air	SEAD-121C/1211	Construction Worker	Adult	Inhalation	On-Site	Quant	Potential construction workers will be exposed to dust from soil.
			Industrial Worker	Adult	Inhalation	On-Site	Quant	Potential industrial workers will be exposed to dust from soil.
			Trespasser	Adolescent	Inhalation	On-Site	Quant	Potential trespasser receptor will be exposed to dust from soil.
			Resident	Adult	Inhafation	On-Site	None	The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121L.
				Adolescent	ľnhalation	On-Site	None	The sites are currently not in use and no residents currently reside at $SEAD$ -121C and $SEAD$ -121I.
	Produce	SEAD-121C/1211	Construction Worker	Adult	Ingestion	On-Site	None	No produce suitable for consumption is currently grown at SEAD-121C and SEAD-121L.
			Industrial Worker	Adult	Ingestion	On-Site	None	No produce suitable for consumption is currently grown at SEAD-121C and SEAD-1211.
			Тгеѕраѕѕет	Adolescent	Ingestion	On-Site	None	No produce suitable for consumption is currently grown at SEAD-121C and SEAD-1211.
			Resident	Ağult	Ingestion	On-Site	None	No produce suitable for consumption is currently grown at SEAD-121C and SEAD-121I.
				Adolescent	Ingestion	On-Site	None	No produce suitable for consumption is currenly grown at SEAD-121C and SEAD-121I.

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# SELECTION OF EXPOSURE PATHWAYS SEAD-121C AND SEAD-1211 RI REPORT SENECA ARMY DEPOT ACTIVITY

Medium	Ехроѕите	Exposure	Receptor	Receptor	Exposure	On-Site/	Type of	Rationale for Selection or Exclusion
41	Medium	Point	Population	Age	Route	Off-Site	Analysis	of Exposure Pathway
Groundwater	Groundwater	Aquifer Tap Water	Construction Worker	Adult	Dennal	On-Site	Quant	Construction weakers may potentially be exposed to groundwater at SEAD-121C and SEAD-1211.
					Intake	On-Site	None	Groundwater is not currently used as a drinking water source.
			Industrial Worker	Adult	Dermal	On-Site	None	Groundwater is not currently used as a drinking water source.
					Intake	On-Site	None	Groundwater is not currently used as a drinking water source.
			Trespasser	Adolescent	Dermal	On-Site	None	Trespassers are not likely to contact groundwater.
					Intake	On-Site	None	Groundwater is not currently used as a drinking water source.
			Resident	Adult	Dermal	On-Site	None	The sites are currently not in use and no residents currently reside at the sites.
						Off-Site	Nonc	Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyon the Depot is minimal.
					Intake	On-Site	None	The sites are currently not in use and no residents currently reside at the sites.
						Off-Site	None	Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyon the Depot is minimal.
				Adolescent	Dermal	On-Site	None	The sites are currently not in use and no residents currently reside at the sites.
						Off-Site	None	Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyon the Depot is minimal.
					Intake	On-Site	None	The sites are currently not in use and no residents currently reside at the sites.
						Off-Site	None	Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyo the Depot is minimal.
Surface Water	Surface Water	SEAD-121C/1211	Construction Worker	Adult	Dermai	On-Site	Quant	Construction workers may potentially be exposed to surface water at SEAD-121C and SEAD-121L.
			Industriai Worker	Adult	Dermal	On-Site	None	Industrial workers are unlikely to be exposed to surface water at either SEAD-121C and SEAI 1211.
			Trespasser	Adolescent	Dermal	On-Site	Quant	Trespassers may potentially contact surface water.
			Resident	Adult	Dermal	On-Site	None	The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-121I.
				Adolescent	Dermal	On-Site	None	The sites are currently not in use and no residents currently reside at SEAD-121C and SEAD-1211.

# TABLE 6-1 SELECTION OF EXPOSURE PATHWAYS SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

Medium	Exposure	Exposure	Receptor	Receptor	Exposure	On-Site/	Туре об	Rationale for Selection or Exclusion
	Medium	Point	Population	Age	Roufe	Off-Site	Analysis	of Exposure Pathway
Soil	Soil	SEAD-121C/1211	Construction Worker	Adult	Dermal	On-Site	Quant	Potential construction workers will be exposed to soil at SEAD-121C and SEAD-1211.
					Ingestion	On-Site	Quant	Potential construction workers will he exposed to soil at SEAD-121C and SEAD-1211.
			Industrial Worker	Adult	Dermal	On-Site	Quant	Potential industrial workers will be exposed to soil at SEAD-121 C and SEAD-1211.
					Ingestion	On-Site	Quant	Potential industrial workers will he exposed to soil at SEAD-121C and SEAD-1211.
			A dologout Visitor	Adolescent	Dcrmal	On-Site	Quant	Adolescent visitor may potentially be exposed to soil at SEAD-121C and SEAD-121J.
			Adolescent Visitor		Ingestion	On-Site	Quant	Adolescent visitor may potentially he exposed to soil at SEAD-121C and SEAD-1211.
			Child of Day Care	Child	Dermai	On-Site	None	Future land use restricts development of residential honses, primary/secondary schools, and playgrounds/child-care facilities.
- <u>-</u>			Called at Day Calls Cellied		Ingestion	On-Site	None	Foture land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.
			Resident	Adult	Dermal	On-Site	None	Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.
					Ingestion	On-Site	None	Future land use restricts development of residential hones, primary/secondary schools, and playgrounds/child-care facilities.
				Adolescent	Dermal	On-Site	None	Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.
					Ingestion	On-Site	None	Future land use restricts development of residential bonies, primary/secondary schools, and playgrounds/child-care facilities.
	Air	SEAD-121C/1211	Construction Worker	Adult	Inhalation	On-Site	Quant	Potential construction workers will be exposed to dust from soil.
			Industrial Worker	Adult	Inhalation	On-Site	Quant	Potential industrial workers may be exposed to dust from soil.
			Adolescent Visitor	Adolescent	Inhalation	On-Site	Quant	Adolescent visitor may potentially be exposed to soil at SEAD-121C and SEAD-1211.
			Child at Day Care Center	Child	Іпћавайол	On-Site	None	Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.
			Resident	Adult	Inhalation	On-Site	Nonc	Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.
				Adolescent	inhalation	On-Site	None	Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.
	Produce	SEAD-121C/1211	Construction Worker	Adult	Ingestion	On-Site	None	Produce suitable for consumption is unlikely to grow at the sites based on the future use.
			Industrial Worker	Adult	Ingestion	On-Site	None	Produce suitable for consumption is unlikely to grow at the sites based on the future use.
			Adolescent Visitor	Adolescent	Ingestion	On-Site	None	Produce suitable for consumption is unlikely to grow at the sites based on the future use.
<del></del>			Child at Day Care Center	Child	Ingestion	On-Site	None	Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.
			Resident	Adult	Ingestion	On-Site	None	Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.
				Adolescent	Ingestion	On-Site	Nonc	Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.

# TABLE 6-1 SELECTION OF EXPOSURE PATHWAYS SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

									1
Future land use resnicts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.	None	On-Site	Dermal	Adolescent					
Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.	Nonc	On-Site	Dermal	Adult	Resident				
Future land use restricts development of residential houtes, primary/secondary schools, and playgrounds/child-care facilities.	None	On-Site	Dermal	Child	Child at Day Care Center				
Adolescent visitor may potentially contact surface water.	Quant	On-Site	Dermal	Adolescent	Adolescent Visitor				
Industrial workers are unlikely to be exposed to surface water at either SEAD-121C and SEA $1211$ .	None	On-Site	Dermal	Adult	Industrial Worker				
Potential construction workers maybe exposed to surface water at SEAD-121C and SEAD-13	Quant	On-Site	Dermal	Adult	Construction Worker	SEAD-121C/1211	Surface Water	Surface Water	
Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyn the Depot is minimal.	Nonc	Off-Site	AND THE PROPERTY OF THE PROPER						
Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.	None	On-Site	Intake						
Groundwater at SEDA is not used as a drinking water source and impact to groundwater beyone the Depot is minional.	None	Off-Site							
Future land use restriets development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.	None	On-Site	Dermal	Adolescent					
Groundwater at SEDA is not used as a drinking water source and impact to groundwater beye the Depot is minimal.	None	Off-Site							
Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.	None	On-Site	Intake			-2-3-2-4			
Groundwater at SEDA is not used as a drinking water source and impact to groundwater beye the Depot is minimal.	None	Off-Site							
Funre land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.	None	On-Site	Dermal	Adult	Resident				
Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-care facilities.	None	On-Site	Intake		Child at Day Care Center				
Future land use restricts development of residential homes, primary/secondary schools, and playgrounds/child-eare facilities.	None	On-Site	Dermal	Child					
Croundwater is not currently used as a drinking water source. However, as no institutional cort is available to prevent future use of groundwater, groundwater is assumed to be used as tap with as a conservative step.	Quant	On-Site	Intake		Adolescent Visitor				
Adolescent visitors are unlikely to contact groundwater at the sites.	None	On-Site	Dermal	Adolescent	Proprietary and the contract of the contract o				
Groundwater is not currently used as a drinking water source. However, as no institutional cor is available to prevent future use of groundwater, groundwater is assumed to be used as tap was a conservative step.	Quant	On-Site	Intake						
Industrial workers are not assumed to shower.	None	On-Site	Dermal	Adult	Industrial Worker				
Groundwater is not currently used as a drinking water source. However, as no institutional con is available to prevent future use of groundwater, groundwater is assumed to be used as tap wa as a conservative step.	Quant	On-Site	Intake						
Potential construction workers are not likely to be exposed to groundwater at SEAD-121C and SEAD-121I.	Quant	On-Site	Dermal	Adult	Construction Worker	Aquifer Tap Water	Groundwater	Groundwater	II.
of Exposure Pathway	Analysis	Off-Site	Route	Age	Population	Point	Medium		ري
Rationale for Selection or Exclusion	Type of	On-Site/	Exposure	Receptor	Receptor	Exposure	Exposure	Medium	
				-				The state of the s	á

# Table 6-2A OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Scenario Timeframe	Cuurent/Future
Medium	Soil
Exposure Medium	Soil
Exposure Point:	SEAD-121C

CAS Number	Chemical	Minimum Detected Concentration	ò	Maximum Detected Concentration	0	Location of Maximum Concentration	Detection Frequency	Range of Reporting Concentration Limits' Used for (rag/kg) Screening 2 (mg/kg)	Concentration Used for Screening <sup>2</sup> (mg/kg)	Maximum Background Value <sup>3</sup> (mg/kg)	Screening Value ( (mg/kg)	ARAR / TBC Value 5 (mg/kg)	COPC Flag	Screening Potential COPC Rationale for Value ARAR Flag Contaminant (mg/kg) TBC Deletion or (mg/kg) Selection
Volatile Or	Volatile Organic Compounds		L		-		200000000000000000000000000000000000000							
67-64-1	Acetone	0.0032	-	0.028	5	SB121C-4	22 / 67	0.0022 - 0.03	0.028		14,000	0.2	NO NO	BST
71-43-2	Benzene	0.002	5	1.8	-	SBDRMO-9	3 / 68	0.0022 - 0.012	1.8		0.64	90.0	YES	ASL
75-15-0	Carbon disulfide	0 0022	5	0.0047		SBDRMO-9	2 / 68	0.0022 - 0.012	0.0047		360	2.7	8	BST
				0000	b	SB121C-4		***************************************	0000		2	ć	Ş	190
0/-00-3	Chloroform	ł	٠.	0.0048	٠,	(dnp)	٠Į٠		0.0048		0.22	0.0	2	DOL
100-41-4	Ethyl benzene	0.001005		24	٦,	SBDRMO-9	۰ļ۰	0.0022 - 0.012	24		400	2.5	000	BST
SA0078	Meta/Para Xylene	0.002		130	-	SBDRMO-9	4 / 56		130		270		2 5	BST
75 00 2	Methyl ethyl ketone	0.0032	- -	0.0076	-	SBDKMO-14	3 / 69	0.0022 - 0.012	0.00/0		22,000	5.0	2 2	BSL
7-00-01	Memyene chombe	0.0020		20000	1-	SEDEMONO	00 / 6	0.0004 - 0.012	0.000		270		2 2	500
100.42.5	Sharme	20000	=	70000	-	SHURWO.0	200	0.0022 - 0.0035	72000	-	1 700		2	RSI
108 88 3	Toluene	0000	-	0.002		SEDEMO-9	13 / 68	0.002 - 0.005	0.084		\$20	1.5	2	RSI
Semivolatil	Semivolatile Organic Compounds			100.0			. )	2000			2	and the same of th		
121-14-2	2.4-Dinitrotoluene	0.045	-	0.045	_	SB121C-2	89 / 1	0.069 - 1.8	0.045		120		NO	BSL
91-57-6	2-Methylnaphthalene	0.0055	5	2.5	_	SBDRMO-12	13 / 68	0.069 - 1.8	2.5		310	36.4	ON N	BSL
83-32-9	Acenaphihene	0 0065	-	2.6	1	SSDRMO-12	1~	0.0715 - 1.8	2.6		3,700	20	ON N	BSL
208-96-8	Acenaphthylene	0.042	-	2.5		SBDRMO-24	12 / 68	0.069 - 1.8	2.5			41	NO	NSV
120-12-7	Anthracene	0.0065	-	7.1		SSDRMO-12	23 / 68	0.0715 - 1.8	7.1		22,000	20	ON	BSL
56-55-3	Benzo(a)antivacene	0.0046	-	10	-	SSDRMO-12	_	0.072 - 1.8	10		0.62	0.224	YES	ASE
50-32-8	Benzo(a)pyrene	0.006	m	8.7	-	SSDRMO-12	30 / 66	0.0715 - 0.43	8,7		0.062	0.061	YES	ASL
205-99-2	Benzo(b)fluoranthene	0.0058	,-,	12	-	SSDRMO-12	38 / 66	0.072 - 0.43	12		0.62	=	YES	ASL
C XC 101		67000				SSDRMO-7	33 / 66	0.0715	,			9	2	ASIA
7-47-161	Defizal grillperyleffe	0.0002	,	2.5	-	CENDAGO 12	20 / 20	0.0715 - 0.45	7.6		62	200	Sec.	VCV
117.81.7	Die/2 Erheilherrillniste	6,000	,	50	1	SS171C-3		0.073 - 0.45	200		3.5	200	3 5	RCI
85-68-7	Butvibenzviohthalate	0.0064	-	0.12	-	SSDRMO-14		0.0715 - 1.8	0.12		12.000	20	92	BSL
86-74-8	Carbazole	0.014	-	4.2	1	SSDRMO-12	-	0.0715 - 1.8	4.2		24		9N	BSL
218-01-9	Chrysene	0.0055	-	9.1	-	SSDRMO-12	32 / 67	0.072 - 1.8	9.1		62	4.0	YES	CSG
				!		SSDRMO-7							į	
53-70-3	Dibenz(a,h)anthracene	0.0076	٦.	0.47	5	(dmp)	- 1	0.0715 - 0.43	0.47		0.062	0.014	YES	ASL
64 66 7	Discharge	0.008	-	1.7	-	SHURMO-12	11 / 68	0.009 - 1.8	0.35		40,000	7.0	2 2	BSL
84-74-2	Di-p-barylphthalare	0.0053	-	0.13	, _	SSDRMO-7	.} ~	81 - 6900	0.13		6.100		9	BSL
117.84.0	Di mootulohthalate	0.0038	-	0.032	-	SB121C-1		0.0775	0.003		2 400	S	5	ISG
206.44.0	Finomohome	0.0048		27		SCORMO.12		0.077	7.5		2,200	S	02	BCI
96 73 7	Distraction	2000	, -	2 5		SCHEMO 12		0.0715 1.0	2.5		2 700	8	QN.	Pel
118-74-1	Hexachlorobenzene	0.0085	-	0 0085	_	SB121C-2	-1-	0.069 - 1.8	0.0085		0.3	0.41	ON N	BSL
						SSDRMO-7			THE PARTY OF THE P					
193-39-5	Indeno(1,2,3-ed)pyrene	0.0059	-	0.97	1-3	(dnb)		0.0715 - 1.8	0.97		0.62	3.2	YES	ASL
91-20-3	Naphthalene	0.004	~	1.9	-	SBDRMO-12	13 / 68	0.0715 - 1.8	1.9		26	13	NO N	BSL

# Table 6-2A OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO	
mario Timeframe:	Cuurent/Future
edium:	Soil
posure Medium	Soil
posure Point:	SEAD-121C

CAS Number	Chemical	Minimum Detected Concentration	<u> </u>	Maximum Detected Concentration	0	Location of Maximum Concentration	Detection Frequency	Range of Reporting Concentration Limits Used for (mg/kg) Screening 2	Concentration Used for Screening 2	Maximum Background Value	Screening Value ( (mg/kg)	Potential ARAR / TBC	COPC Flag	Rationale for Contaminant Deletion or
		i (mg/kg)		1 (mg/kg)		-		ò	(mg/kg)	(mg/kg)		Value 5 (mg/kg)		Selection
86-30-6	N-Nitrosodiphenylamine	0.0048		0 0048	5	SB121C-2	1 / 68	0.069 - 1.8	0.0048		66		ON	BSL
85-01-8	Phenanthrene	0.0059	5	29		SSDRMO-12	33 / 68	0.072 - 1.8	29			20	NO.	NSV
129-00-0	Pyrene	0.0047	-	34	_	SSDRMO-12	40 / 68	0.072 - 1.8	34		2,300	50	8	BSL
1														
1469-21-9	53469-21-9 Aroclor-1242	0.058	_	0.058		SS121C-4	1 / 68	0.0024 - 0.038	0.058		0.22		YES	CSG
1097-69-1	11097-69-1 Aroclor-1254	0.044	3-0	0.93		SBDRMO-18	89 / 6	0.011 - 0.038	0.93		0.22	10	YES	ASL
1096-82-5	11096-82-5 Aroctor-1260	600.0	_	0.20		SB121C-2	89 / 8	0.0021 - 0.038	0.20		0.22	10	YES	CSG
Pesticides														
72-54-8	4,4'-DDD	0.0019	,	0.044	-	SBDRMO-18	5 / 39	0 00022 - 0.0039	0.044		2.4	2.9	8	BSL
72-55-9	4,4'-DDE	0.0025	_	0.069	_	SS121C-3	18 / 67	0.00022 - 0.0038	690 0		1.7	2.1	NO	BSL
50-29-3	4,4'-DDT	0.0021	-	0.1	-	SS121C-3	16 / 67	0.00022 - 0.0038	0.10		1.7	2.1	ON.	BSL
Į.						SBDRMO-16								
309-00-2	Aldrin	0.0045		0.014	-	(dnp)	4 / 68	0.00011 - 0.0022	0.014		0.029	0.041	2	BSL
5103-71-9	Alpha-Chlordane	0.001		0.063		SBDRMO-16 (dub)	4 / 68	0.00032 - 0.0022	0.063		16		8	BSL
319-86-8		15	_	0 002	-	SS121C-4		0 00022 - 0 0022	0.002		60.0	0.3	ON N	BSL
		600		***************************************	-	SBDRMO-16		00000	1000		0500	440	25	134
00-21-1	Lieidrin	0.039	,	0.041	1	SSDRMO-7	10/7	0.00011 - 0.0058	2.041		0.030	20.5	1 00	Yer
8-86-656	Endosulfan I	0.0058		0.19	, m	(dnp)	19 / 68	0.00054 - 0.0022	0.19		370	6.0	NO.	BST
213-65-9	33213-65-9 Endosulfan II	0.009	_	0.009		SBDRMO-24	17 67	0.00034 - 0.0038	600.0		370	6.0	00	BST
72-20-8	Endrin	0.022	-	0.023	_	SBDRMO-16	2 / 67	0.00086 - 0.0038	0.023		18	0.1	ON.	BSI.
494-70-5	53494-70-5 Endrin ketone	0.0034	Ż	0.0097	Z	SBDRMO-16	4 / 68	0 00011 - 0.0038	0.0097		18		00	BST
5103-74-2	Gamma-Chlordane	0.0012	ī	0.0012	-	SS121C-4	1 / 68	0.00032 - 0.0022	0.0012		1.6	0.54	0 N	BSL
76-44-8	Heptachlor	0.0021	7	0.014	_	SBDRMO-18	2 / 67		0.014		0.11	0.1	02	BSL
1024-57-3	Heptachfor epoxide	0.0011	5	0.0028	_	SS121C-3	3 / 65	0.00032 - 0.0022	0.0028		0.053	0.02	ON.	BSL
Metals		İ					j.	And the same of th	THE PARTY OF THE P					
		1,730		17,600	1	SBDRMO-13	~l·		17,600	20,500	76,000	19,300	2	BSL
7440-36-0	Antimony	0.32	<u>.</u>	236	1	SSDRMO-24 43	_ -	0.26 - 1.2	236	6.55	31	2.0	YES	ASL
	Arsenic	6.4	-	11.0		SSDRING-24	00 / 00	The state of the s	0.11	C17	0.39	7.0	3	ASE
7440-39-3	Barum	10.1		1.2		SEDEMO-24			7,030	139	3,400	300	2 2	BCI
7440.43.0	Cadmin	900	-	201		SSDRMO-14	./~	0.06 - 0.16	201	20	17	2.5	S	RSI
7440-70-2	Calcium	2.100		296.000		SS121C-4			296.000	293.000	2.500.000	121.000		NUT
7440-47-3	Chromium	3.8		74.8		SBDRMO-18	1~		74.8	32.7	210	29.6	202	BSL
7440-48-4	Cobalt	3.5		19.7		SB121C-4	-		19.7	29.1	006	38	0X	BSL
7440-50-8	Copper	80,00	-	9,750	_	SB121C-2	-		9,750	62.8	3,100	33	YES	ASL
7439-89-6	Iron	4,230		54,100		SB121C-2	89 / 89		54,100	38,600	23,000	36,500	YES	ASL
7439-92-1	Lead	6.2	-	18,900		SSDRMO-24	89 / 89		18,900	366	400	24.8	YBS	ASL
7439-95-4	Magnesium	3,610		24,900	-	SBDRMO-23	89 / 89		24,900	29,100	400,000	21,500	00	TON
7439-96-5	Manganese	213		858		SSDRMO-11	~1		858	2,380	1,800	1,060	0N	BSL
7439-97-6	Mercury	0.01		0.47		SBDRMO-18	~1	0.04 - 0.06	0.47	0.13	23	0.1	8	BSL
7440-02-0	Nickel	11.6		224	1	SS121C-2	89 / 89	Auritinopolitica (4000)	224	62.3	1,600		2	BSL
7440-09-7	Potassium	787	_	1.990		SB121C-2	68 / 68		1,990	3,160	2,000,000	2,380	2	2

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL

# SEAD-121C AND SEAD-1211 RI REPORT SEAD-121C

# Sencea Army Depot Activity

Cuurent/Future	Soil	Soil	SEAD-121C
Scenario Timeframe	Medium:	Exposure Medium.	Exposure Point:

Chemical	Minimum Q	Maxim	Li a	2 Locati	jo uoi	Detection	Maximum Q Location of Detection Range of Reporting Concentration	Concentration		Screening	Potential	COPC	Screening Potential COPC Rationale for
	Detected	Detect	þ	Maxin	шпш	Frequency	Limits 1	Used for	Background		ARAR/	Flag	Contaminant
	Concentration	Concentration	ation	Сонсен	Concentration	-	(mg/kg)	Screening 2	Value 3	(mg/kg)	TBC		Deletion or
	-			_		_		(mg/kg)	(mg/kg)		Value 5		Selection
	(mg/kg)	(mg/kg)	- F								(mg/kg)		
	0.49	1.3		SSDRA	SSDRMO-14		0.36 - 1.1	1.3	1.7	390	2	NO	BSL
	0.34	21.8		SS12	SS121C-1	20 / 68	0.28 - 0.49	21.8	0.87	390	0.75	ON	BST
	58.2	478		SSDRA	MO-14	26 /	106 - 141	478	269	1,125,000	172	8	NCT
	0.5	1.8	_	SBDRA	SBDRMO-24	12 / 68	0.32 - 1.5	1.8	1.2	5.2	0.7	ON	BSL
	5.1	27	_	SBDRA	SBDRMO-13	89 / 89		27	32.7	78	150	NO	BSL
	29.8	3,610		SBDRA	SBDRMO-15	89 / 89		3,610	126	23,000	110	NO	BSL
Total Organic Carbon	2800	9,500		SBDRMO-7		56 / 56		-70.00				ON.	NSV
Fotal Petroleum Hydrocarbons	43	7 600		SBDRA		14 / 56	42.5.53					CZ	ICE

Noted duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration was detected in a duplicate pair. The maximum concentration was used for screening.

2. The maximum detected concentration was used for screening.

3. Background value is the maximum detected concentration of the Sentea background dataset.

4. Each Region 9 Preliminary Permediation Coaste (PRGS) for residentials of Or-line resources available at http://www.cpa.goo/fo/wase/sfunding/flex-prepable2004 xis Last upcaded December 2004.

1. Taget Cancer Risk = 1E-6; Target Hazard Quotiem = 1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs. PRG for spincars was used as screening value for residential soil was used as screening value for adapta a yellows and ortho sylven.

ERA Region 11 Risk Based Concentration (RBC) for residential soil was used as screening value for Anoled 1260.

PRG for Anoled 1254 was used as screening value for Anoled 1260.

PRG for parama-chloridone was used as screening value for Anoled 1260.

PRG for endostilan was used as screening value for adapta—the Cancer risk of 1E-6 and a target hazard quotient of 1.

PRG for endostilan was used as screening value for endostilfan in and endostilfan and endostilfan was used as screening value for endostilfan and endostilfan and endostilfan and endostilfan and endostilfan and endostilfan and magnesium) and minimum requirements for 1 yr children (2012) Detary Reference Intakes for 1-3 yr children (1500 mg/day and 80 mg/day and 80 mg/day for calcium, magnesium) and minimum requirements for 1 yr children (12012) petary Reference Intakes for 1-3 yr children (1300 mg/day and 80 mg/day and 80 mg/day was used as screening value for niskel

PRG for other avalues are from NYSDEC Technical and Administrative Guidance Memorandum (140M) #4046. No ARARs were identified (on-

Deletion Reason

Chemicals in the Same Group were retained as COPC (CSG)
Essential Nutrient (NUT)
Below Screening Level (BSL)
No Screening Value or Toxicity Value (NSV)
Individual Chemicals Evaluated (ICE)

Definitions:

COPC = Chemical of Potential Concern
ARAD/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
Q = Qualifer
Q = Qualifer
J = Estimated Value
NJ = Persence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration

# Table 6-2B OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE SOUL SEAD-121C SEAD-121C AND SEAD-121C

# Seneca Army Depot Activity

٠	CuurentFuture			CEAD, 171C
	ario Timeframe: Cuu	ium: Soil	osure Medium: Soil	SEA STATE

CAS	Chemical	Minimum Detected Concentration (mg/kg)	~	Maximum Detected Concentration (mg/kg)	Q Location of Maximum Concentration	/// J _ J / _ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Detection Range of Reporting Concentration Frequency Limits Used for (mg/kg) Screening (mg/kg)	Concentration Used for Screening 2 (mg/kg)	Maximum Background Value <sup>3</sup> (mg/kg)	Screening Value ( (mg/kg)	Potential ARAR / TBC Value <sup>5</sup> (mg/kg)	COPC	COPC Rationale for Flag Contaminant Deletion or Selection
Volatile Or	Volatile Organic Compounds												
67-64-1	Acetone	0.0032		0.013	SBDRMO-19	19 13 / 47	0.0025 - 0.021	0.013		14,000	0.2	NO	BSL
71-43-2	Вепzепе	0,041		0.041	SBDRMO-9	9 1 / 48	0,0025 - 0.012	0.041		0.64	90'0	ON O	BSL
75-15-0	Carbon disulfide	0.0022	-	0,0047	SBDRMO-9	2/	0.0025 - 0.012	0.0047	Winds to the same of the same	360	2.7	ON N	BST
67-66-3	Chloroform	0.004		0.0048	SB123C-4 (dup)	2 / 48	0.0025 - 0.012	0.0048		0.22	0.3	02	BSE
100414	Ethyl benzene	0.00101	-	3.3	SBDRMO-9	2/	0.0025 - 0.012	3.3		400	5.5	0X	BSL
SA0078	Meta/Para Xvlene	0.002	_	4.4	-		0.0025 - 0.0033	4.4	-	270		0N	BSL
75-09-2	Methylene chloride	0.0026	-	0.0026	SSDRMO-21	21 1 / 48	0.00084 - 0.012	0.0026		9.1	0.1	8	BSL
95-47-6	Ortho Xylene	0.016		0.016	SBDRMO-9	9 17 40	0.0025 - 0.0033	0.016		270		ON	BSL
108-88-3	Toluene	0.002	_	0.028	SS121C-2	9 / 48	0.0025 - 0.0033	0.028		520	1.5	NO	BSL
Semivolati	Semivolatile Organic Compounds				,,,,								
121-14-2	2,4-Dinitrotoluene	0.045	_	0.045	SB121C-2	2 1/48	0.069 - 1.8	0.05		120		ON	BST
91-57-6	2-Methylnaphthalcue	0.0055	_	0.61	SSDRMO-12	12 9 / 48	0.069 - 1.8	0.61		310	36.4	8	BSL
83-32-9	Acenaphthene	0.0065	-	2.6	SSDRMO-12	12 11 / 48	0.0715 - 1.8	2.6		3,700	50	NO	BSL
208-96-8	Acenaphthylene	0.042	-	2.5	SBDRMO-24	<u> </u>	0.069 - 1.8	2.5			4	0X	NSN
120-12-7	Anthracene		5	7.1	SSDRMO-12	<del> </del>	0.0715 - 1.8	7.1		22,000	50	NO	BSL
56-55-3	Benzo(a)anthracene	0.00545	7	10	SSDRMO-12	⊢	0.072 - 1.8	10		0.62	0.224	YES	ASL
50-32-8	Benzo(a)pyrene	0.0081	-	8.7 J	SSDRMO-12	12 24 / 47	0.0715 - 0.43	8.7		0.062	0.061	YES	ASL
205-99-2	Benzo(b)fluoranthene	0.013	٠,	12 J	SSDRMO-12	12 30 / 47	0.072 - 0.43	12		0.62	1.1	YES	ASL
0.70.101	,				SSDRMO-7		0.0715	,			Ç	Ş	MCV
7-17-161	Denzo(gin)peryiene		2 -	7.6	COUDIAN 13	13 23 7 47	0,0715	7.5		5		ZEC .	YCY
117-81-7	District School Substitute District Dis	0,000	, -	00	CC171C.3	7′′′	0.073 - 0.45	200		35	5	CN	DOL
85.68.7	Buttlhenmenthethelete	0.0078	-	610	SSDRWO-14	- <del> </del>	0.0715 1.8	0.12		12,000	202	CZ	RCI
86-74-8	Carbasole		, -	4.2	SSDRMO-12	117	0.0715 - 1.8	4.2		24		Ç	RSI
218-01-9	Chrysene		L	9.1	SSDRMO-12	25 /	0.072 - 1.8	9.1		62	0.4	YES	CSG
L'airteanna			I		SSDRMO-7	_			-				
53-70-3	Dibenz(a,h)anthracene	0,0076	~	0.47	(dnp)	12 / 47	0,0715 - 0.43	0.47		0,062	0.014	YES	ASL
132-64-9	Dibenzofuran		'n	1.7	SSDRMO-12	12 10 / 48	0.069 - 1.8	1.7		150	6.2	8	BSL
84-66-2	Diethylphthalate	0.0085	ъ	0.021	SB121C-1 (dup)	6 / 48	0.073 - 1.8	0.021		49,000	7.7	02	BSL
84-74-2	Di-n-hutvinhthalate	0.0082	-	0 132	SSDRMO-7		0.059 - 1.8	0.132		001.9	~	S	RCI
					SB121C-1	_							
117-84-0	Di-n-octylphthalate	0.0038	_	0.0232 J	(dnp)	****	0.0715 - 1.8	0.0232		2,400	20	2	BSL
206-44-0	Fluoranthene	0.0087	5	27	SSDRMO-12		0.072 - 1.8	27		2,300	80	ON	BSL
86-73-7	Fluorene	0.005	-	3.5	SSDRMO-12		0.0715 - 1.8	3.5		2,700	20	ON	BSL
118-74-1	Hexachlorobenzenc	0.0085		0.0085	SB121C- (dup)	1 / 48	0.069 - 1.8	0.0085	w*************************************	0.3	0.41	N N	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	0,0086		L 76.0	SSDRMO-7 (dup)	-7 22 / 48	0.0715 - 1.8	76.0		0.62	3.2	YES	ASE
91-20-3	Naphthalene	0.004	-	0.4	SSDRMO-12		0.0715 - 1.8	0.4		56	13	NO	BSL
86-30-6	N-Nitrosodiphenylamine	0.0048	-	0.0048	r SB121C-2	2 1 / 48	0.069 - 1.8	0.0048		66	13	S S	BSL
My a Annahamban April 1988.	The Party State of the Party of		-										1000

# Table 6-2B OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE SOIL SEAD-121C

# SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

CunrentFuture	Soil	Soil	SEAD-121C
Scenario Timefranc:	Medium:	Exposure Medium:	Exposure Point:

CAS	Chemical	Minimum Detected	0	Maximum	~	Location of Maximum	Detection Frequency	Detection Range of Reporting Concentration	Concentration Used for	Maximum	Screening Value	Potential ARAR/	COPC	Screening Potential COPC Rationale for Value ARAR / Flag Contaminant
		Concentration	<u> </u>	Concentration	Ÿ	Concentration	-		Screening 2 (mg/kg)	Value <sup>3</sup> (mg/kg)	(mg/kg)		1	Deletion or Selection
85-01-8	Phenanthrene	0 0037	1.	20	1	SSDRMO-12	25 / 48	0.077 - 1.8	29			50	CN	VSV
	Pyrene	001115		34	2	SSDRMO-12	۰.	0.072 - 1.8	34		2.300	200	NO	BSI
T	ALCT I					1	·							200
469-71-0	53469_71_0 Aroclor_1242	0.058	>=	0.058	-	SS1210-4	1 / 48	0.0024 - 0.038	0.058		0.22		YES	USG
1-69-200	11097-69-1 Aroclor-1254	0.044	,	0.93		SRDRMO-18		0.011 - 0.038	0.03		0.22	10	YES	ASI
096-82-5	11096-82-5 Aroclor-1260	0.009	, ,	0.085		SS121C-3	5 / 48	0.0021 - 0.037	0.085		0.22	10	YES	CSG
Pesticides					-		4							
1	4.4DDD	0.0019	-	0.044	J	SBDRMO-18	5 / 43	0.00022 - 0.0039	0.044		2.4	2.9	NO	BSL
Γ	4.4'-DDE	0.00415		0.069	5	SS121C-3	15 / 47	0.00022 - 0.0036	690.0		1.7	2.1	NO.	BSL
50-29-3	4,4'-DDT	0.0021	7	0.1	ы	SS121C-3	13 / 47	0.00022 - 0.0036	0.1		1.7	2.1	NO	BST
					S.	SBDRMO-16					000		9	6
3-00-505	Aldrin	0.0040	+	410.0	_	(dnp)	3 / 48	0.00011 - 0.0022	0.014		0.029	0.041	2	BSL
5103-71-9	Alpha-Chlordane	0.001		0.063	n -	(dup)	4 / 48	0.00032 - 0.0022	0.063		1.6		ON.	BST
1	Delta-BHC	0.000975	-	ĺ	-	SS121C-4			0.002		0.09	0.3	NO	BSF
60-57-1	Dieldrin	0.039	,	0.041	S	SBDRMO-16 (dup)	2 / 48	0,00011 - 0,0038	0.041		0.030	0.044	YES	ASE
	Endosulfan I	0.0058		0.19		SSDRMO-7 (dup)	18 / 48	0.00054 - 0.0022	0.19		370	6.0	NO	BSL
213-65-9	33213-65-9 Endosulfan II	0000		600.0	S	SBDRMO-24	1 / 47	0.00034 - 0.0038	0.000		370	6'0	NO	BSL
					S	SBDRMO-16								
72-20-8	Endrin	0.022	_	0.0215		(dnp)	1 / 47	0.00086 - 0.0038	0.0215		20	0.1	20	BSL
494-70-5	53494-70-5 Endrin ketone	0.0034	ž	0.0075		(dup)	3 / 48	0.00011 - 0.0038	0.0075		81		NO	BST
5103-74-2	Gamma-Chlordane	0.0012	5	0.0012	-	SS121C-4	1 / 48	0.00032 - 0.0022	0.0012		1.6	0.54	ON	BST
	Heptachlor	0.0021	-	0.014	J. S	SBDRMO-18	2 / 47	0.0011 - 0.0022	0.014		0.11	0.1	ON	BSL
1024-57-3	Heptachlor epoxide	0.0014	l-s	0.0028	'n	SS121C-3	2 / 46	0.00032 - 0.0022	0.0028		0.053	0.05	NO	BSL
_							- 1-						-	
	Aluminum	1,730		17,000	0	SBDRMO-13	48 / 48		17,000	20,500	76,000	19,300	ON.	BSL
7440-30-0	Andmony	0.32	-	007	,,,,,,	SSURWIC-24		7.1 - 1	230	0.30	200	6.0	V CO	ASL
- 1	Barrium	181	1	2.030	1	SCUPMOLIA	. -		2.030	150	2 400	102	2	DCI
	Beryllium	0.21		1.2		SBDRMO-8	. ~		1.2	4.1	150	=	NO	BSL
1	Cadmium	0.13	5	29.1	3	SSDRMO-14	29 / 48	0.06 - 0.16	29.1	2.9	37	2.3	ON.	BSL
	Calcium	2,100	_	296,000		SS121C-4	48 / 48		296,000	293,000	2,500,000	121,000	NO NO	NUT
7440-47-3	Chromium	3.8		74.8	S	SBDRMO-18	48 / 48		74.8	32.7	210	29.6	ON	BSE
7440-48-4	Cobalt	3.5		17		SBDRMO-8	35 / 35		17	29.1	006	30	ON	BSL
1	Copper	8.8	,,	9,750	-	SB121C-2			9,750	62.8	3,100	33	YES	ASL
- 1	Iron	4,230		51,700		SB121C-18		The same of the sa	51,700	38,600	23,000	36,500	YES	ASL
	Lead	7.3	1	18,900	~1	SSDRMO-24	_		18,900	266	400	24.8	YES	ASI
	Magnesium	3,610	1	20,700		SSDRMO-5	_	The state of the s	20,700	29,100	400,000	21,500	0N	NUT
	Manganese	213	1	858	37	SSDRMO-11	<Ι.		858	2,380	1,800	1,060	2	BSL
7439-97-6	Mercury	0.03		0.47	//	SBDRMO-18	_[.	0.04 - 0.055	0.47	0.13	23	0.1	2	BSL
/440-02-0 Nickel	Nickel	9.1		224		SS121C-2	48 / 48		224	62.3	1,600	49	2	BSL

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE SOIL SEAD-121C

# SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Cuurent/Future	Soil	Soil	SEAD-121C
Scenario Timestame:	Medium:	Exposure Medium:	Exposure Point:

CAS	Chemical	Minimum	0	Maximum	0	Location of	Detection	Range of Reporting	Concentration	Maximum	Screening	Potential	COPC	Rationale for
Number		Detected		Detected		Maximum	Frequency	Maximum Frequency Limits 1 Used for	Used for	Ä	Value	ARAR/	Flag	Value ARAR   Flag   Contaminant
		Concentration		Concentration		Concentration	-	(mg/kg)	Screening 2	Value 3	(mg/kg)	TBC		Deletion or
		-		••		-			(mg/kg)			Value 5		Selection
		(mg/kg)										(mg/kg)		
7440-09-7	Potassium	787		1,990		SB121C-2   48 / 48	48 / 48		1,990	3,160		2,380	ł	TON
7782-49-2	Selenium	0.49	-	1.3		SSDRMO-14 10 /	10 / 48	0.36 - 1.01	1.3	1.7	390	2	ON	BSL
7440-22-4	1	0.34		21.8		SS121C-1 18 /	18 / 48	0.28 - 0.46	21.8	0.87	390	0.75	NO	BSL
7440-23-5		58.2		478	-	SSDRMO-14 42 / 48	42 / 48	106 - 132	478	269	1,125,000	172	NO	NUT
7440-28-0	Thallium	0.5			5	SBDRMO-24	10 / 48	0.32 - 1.4		1.2	5.2	0.7	NO	BST
7440-62-2	Vanadium	5.1		25.4		SBDRMO-8 48 / 48	48 / 48		25.4	32.7	78	150	ON	BSL
7440-66-6	7440-66-6 Zinc	29.8		3,610		SBDRMO-15	48 / 48		3,610	126	23,000	110	ON O	BSL
Other Analytes	lytes		-											
SA0019	Total Organic Carbon	2,800		000.6		SBDRMO-13 40 / 40	40 / 40						NO.	NSN
00000		65	-	000	5	בו טונתעםט	10 / 40						OIX	101

- Lab duplicates were not included in the assessment.

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and ist duplicate. Range of reporting limits were presented for nondetects only.

  4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-lime resources available at http://www.epa.gov/region/09/waste/Stind/pre/files/prgable2004.xis. Last updated December 2004.

  Target Cancer Risk = 1E-6; Target Hazard Quotient =1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs. PRG for rylenes, was usued as excreming value for retarghas and othor sylene.

  EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for retarghas and othor way applience.

  EPA Region 12 standard based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1. PRG for Anctor 12 standard say as screening value for delta-BHC.

  PRG for Anctor 12 standard based as screening value for delta-BHC.

  PRG for endosulfan was used as screening value for delta-BHC.

  PRG for endosulfan was used as screening value for delta-BHC.

  PRG for endosulfan was used as screening value for endiral aldehyde and endrin ketone.

  PRG for endosulfan was used as screening value for endiral aldehyde and endrin ketone.

  PRG for endosulfan was used as screening value for endrin aldehyde and endrin ketone.

  PRG for endosulfan was used as screening value for endrin aldehyde and endrin ketone.

  PRG for endosulfan was used as screening value for endrin aldehyde and endrin ketone.

  PRG for endosulfan values for solicitum, magnesium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended diseary allowances and adequate intakes for 1-3 yr childere (500 mg/day and 80 mg/day sor calcium and ma
- from Marilyn Wright (2001) Dictary Reference Intakes.

  PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.

  PRG for nickel (soluble salts) was used as screening value for nickel.

  S. Potenial IBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified.

  (on-line resources available at http://www.dcc.state.ny.us/website/der/lagmns/prg4046.html)

  Above Screening Levels (ASL)

  6. Rationale codes
- Above Screening Levels (ASL) Chemicals in the Same Group were retained as COPC (CSG)
  - Essential Nutrient (NUT) Deletion Reason:

  - Below Screening Level (BSL)
    No Screening Value or Toxicity Value (NSV)
    Individual Chemicals Evaluated (ICE)
- COPC  $^{\rm cc}$  Chemical of Potential Concern ARAR/TBC = Applicable or Relevant and Appropriate Requirement To Be Considered Q = Qualifier

Definitions:

- = Estimated Value NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL SEAD-121C SEAD-121C SEAD-121C SEAD-121I RI REPORT Table 6-2C

# Seneca Army Depot Activity

Cuurent/Future Ditch Soil Ditch Soil SEAD-121C Scenario Timefrane: Medium: Exposure Medium: Exposure Point:

CAS	Chemical	Minimum	0	Maximum Detected	0	Location of Maximum	Detection Frequency	Detection Range of Frequency Reporting Limits	Concentration Used for	Maximum Backeround	Screening Value 4	Potential COPC		Rationale for Contaminant
		Concentration		Concentration			_	-		Value 3	(mg/kg)	TBC		Deletion or
		-		-		-		(माष्ट्र/पट्ट)	(mg/kg)	(mg/kg)	1	Value 5		Selection
		(тв/кв)		(mg/kg)								(क्रह/दिह)	,	
Volatile Or	Volatile Organic Compounds													
67-64-1	Acetone	0.012	-	0.15	'n	SDDRMO-3	7 / 10	0.0029 - 0.01	0.15		14,000	0.2	NO	BSL
	Carbon disulfide	0.005	_	0.012		SDDRMO-6	2 / 10	0.0028 - 0.03	0.012		360	2.7	NO	BST
78-93-3	Methyl ethyl ketone	0.0036	-	0.13	-	SDDRMO-4	3 / 10	0.0029 - 0.03	0.13		22,000	0.3	ON	BST
Semivolatile	Semivolatile Organic Compounds													
108.39.4	3 or 4-Methylphenol	0.79		0.70		SDDRMO.3	1 / 10	0.36 - 1.6	0.79		180		02	ASN
120-12-7	Anthracene		-	0.25	,	SDDRMO-2	2 / 10	0.36 1.7	0.25		22,000	50	NO	BSL
56-55-3	Benzo(a)anthracene	0.23	-	1.1	5	SDDRMO-2	2 / 10	0.36 - 1.7	1.1		0.62	0.224	YES	ASL
50-32-8	Benzo(a)pyrene	0.17	_	6.0	_	SDDRMO-2	2 / 10	0.36 - 1.7	6.0		0.062	0.061	YES	ASL
205-99-2	Benzo(b)fluoranthene	0.18	_	1.1	5	SDDRMO-2	2 / 10	0.36 - 1.7	1.1		0.62	1.1	YES	ASI
191-24-2	Benzo(ghi)perylene	0.29	7	0.29	-	SDDRMO-2	1 / 10	0.36 - 1.7	0.29			50	ON.	NSV
207-08-9	Benzo(k)fluoranthene	0.58		0.58	-	SDDRMO-2	1 / 10	0.36 - 1.7	0.58		6.2	1.3	YES	CSG
218-01-9	Сhrysene	0.24	_	1.2	J	SDDRMO-2	2 / 10	0.36 - 1.7	1.2		62	6.4	YES	CSG
	Fluoranthene	0.52	_	2.1	'n	SDDRMO-2	2 / 10	0.36 - 1.7	2.1		2,300	20	NO NO	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	0.27	_	0.27	,	SDDRMO-2	1 / 10	0.36 - 1.7	0.27		0.62	3.2	YES	CSG
85-01-8	Phenanthrene	0.41	1	1.1	'n	SDDRMO-2	2 / 10	0.36 - 1.7	1.1			50	NO	NSN
129-00-0	Pyrene	0.44	_	2.1	-	SDDRMO-2	2 / 10	0.36 - 1.7	2.1		2,300	50	00 O	BSE
Inorganics														
7429-90-5 Aluminum	Aluminum	2,850		21,500		SDDRMO-9	10 / 10		21,500	20,500	76,000	19,300	ON.	BSF
7440-36-0 Antimony	Antimony	0.97	J	4.9	-	SDDRMO-9	5 / 10	1.2 - 4.3	4.9	6.55	31	5.9	NO NO	BSL
7440-38-2	Arsenic	1.1		6.1	۳.	SDDRMO-2	10 / 10		6.1	21.5	0.39	8.2	YES	ASL
7440-39-3	Barium	36.6	-	291		SDDRMO-9	10 / 10		291	159	5,400	300	NO NO	BSL
2440.41-7   Rervillum	Rervilium	00		80		SDDRMO-8	8 / 10	0.64 - 0.68	×	14	150	=	Ç.	BSI
7440-43-9 Cadmium	Cadmium			14.3		SDDRMO-9	5 / 10	0.13 - 0.33	14.3	2.9	37	2.3	0N	BSL
7440-70-2	Calcium	13,200		161,000		SDDRMO-9	10 / 10		161,000	293,000	2,500,000	121,000	NO	NUT
	Chromium	7.3		29.8	-	SDDRMO-2	10 / 10		29.8	32.7	210	29.6	NO	BSL
						SDDRMO-8			1					i
7440-48-4	Cobalt	3		15.8	_	(dnp)	10 / 10		15.8	29.1	906	30	2	BSL
7440-50-8 Copper	Copper	16.2				SDDRMO-9	10 / 10		1,190	62.8	3,100	33	2	BSL
PA0002	Cyanide, Amenable	2,36	_	2.36	,	SDDRMO-4	1 / 10	0.55 - 2.63	2.36		11		0N	BSL
SA0008	Cyanide, Total	2.36	_	2.36	-	SDDRMO-4	1 / 10	0.552 - 2.63	2.36		=		8	BSL
7430 00 ¢ Iron	Tron	2 6 60		37 200		SDDRMO-8	01		37 300	38 600	33 000	36 500	YES	124
- 1	LI VIII	0000	1	000,72	1	(dan)	27		200,7	20000	200,00	2000	315	104
1459-92-1	Lead	13.3		430	1	SUNDAMO-9	01 / 01		430	207	200	21,500	3	TITT
1439-934	Magnestum	0,340	1			SUDKWO-9	01 / 01		000,71	29.100	400,000	21,500	2	100
7439-96-5	7439-96-5 Manganese	126		918		SDDRMO-5	10 / 10		918	2,380	1,800	1,060	S	BSL

# Table 6-2C

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL. SEAD-121C

# SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Scenario Timeframe:	Cuurent/Future
Medium:	Ditch Soil
Exposure Medium:	Ditch Soil
Exposure Point:	SEAD-121C

CAS	Chemical	_	0	Maximum	0	Q Maximum Q Location of Detection	Detection	Range of	Concentration	Maximum	Screening	Potential	COPC	Rationale for
Number		Detected Concentration	0	Concentration	<u> </u>	Maximum	r requency	Maximum rrequency Reporting Lights oncentration	Used for Screening 2	Background Value	Value (mg/kg)	TBC	r ag	Contaminant Deletion or
			*******	-				(mg/kg)	(தி/திற)	(g://gm)		Value 5		Sclection
		(mg/kg)		(म्बर/इड)								(mg/kg)		
7439-97-6	'Mercury	0.04		0.3	1	SDDRMO-2	10 / 10		0.3	0.13	23	0.1	S S	BSL
7440-02-0	Nicke]	8.2		42.7		SDDRMO-5	10 / 10		42.7	62.3	1,600	49	NO	BSL
7440-09-7	Potassium	368		1,410		SDDRMO-5	10 / 10		1,410	3,160	5,000,000	2,380	NO	TIN
7782-49-2	Selenium	0,73	-	2.5	-	SDDRMO-4	4 / 10	0.55 - 2.1	2.5	1.7	390	2	NO	BSL
7440-22-4 Silver	Silver	0.83	-	2.6	'n	SDDRMO-5	5 / 10	0.35 - 1.4	2.6	0.87	390	0.75	ON	BSL
7440-23-5 Sodium	Sodium	167		1,120	-	SDDRMO-4	10 / 10		1,120	269	1,125,000	172	NO	NUT
7440-62-2	7440-62-2 Vanadium	9.8		29.1	-	SDDRMO-2	10 / 10		29.1	32.7	78	150	0N	BSL
7440-66-6 Zinc	Zinc	51.4		566		SDDRMO-5	10 / 10		566	126	23,000	110	NO NO	BSL
Other Analytes					_									
SA0019	Total Organic Carbon	4,200		9,100	_	SDDRMO-10	10 / 10						NO.	NSV
SA0020	Total Petroleum Hydrocarbons	1,000		2,600	_	SDDRMO-2	2 / 10	53 - 211					ÇŅ	HUY

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Lab duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
  - 2. The maximum detected concentration was used for screening.

- 1. The maximum detected concentration of the Seneca background dataset.
  2. Background value is the maximum detected concentration of the Seneca background dataset.
  3. Background value is the maximum detected concentration of the Seneca background dataset.
  4. EPA Region 9 Petliminary Remediation Goals (PRGs) for residential soil. Cn-line resources available at http://www.epa.gov/repion09/waste/sfund/pry/files/prgtable2004.xls. Last updated October 2004.

  Target Cancer Risk = 1E-6; Target Hazard Quotient =1. Direct contact exposure (ingestion, demail contact, and inhalation) is evaluated to derive the PRGs. PR Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene as no Region 19 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/rep3/humdrisk/humar/rbc/rbc1004.XLS, was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

  Screening values for calcium, magnesium, and sodium were calculated based on an assumption of 200 mg/day for calcium and magnesium) and minimum requirements for 1 y children (225 mg/day and 1000 mg/day for sodium and potassium) from Marilyn Wright (2001) Dietary Reference Intakes.

  PRG for total chromium (1:6 ratio Cf VI: Cr III) was used as screening value for chromium.

  PRG for rickel (soluble salts) was used as screening value for nickel.

  PRG for nickel (soluble salts) was used as screening value for nickel.

  Scleening rature was used as screening value for nickel.

  Gon-line resources available at http://www.dec.state.ny.us/website/der/ragms/pr184046.html)

  Gon-line resources available at http://www.dec.state.ny.us/website/der/ragms/pr184046.html)

  Above Screening Levels.

- Chemicals in the Same Group were retained as COPC (CSG) Essential Nutrient (NUT) Deletion Reason:

  - Below Screening Level (BSL)
    No Screening Value or Toxicity Value (NSV)
    - Individual Chemicals Evaluated (ICE)
- COPC = Chemical of Potential Concern ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered Q = Qualifier J ~ Estimated Value

Definitions:

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C GROUNDWATER SEAD-121C

# SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

o Timefranse:	Current/Future
1;	Groundwater
re Medium:	Groundwater
re Point:	Aquifer Tap Water

CAS Chemical	Mininium	Ø	_	0	Location of	Detection	Range of	Concentration	Screening	Potential	Potential	COPC	Rationale for
Number	Detected		Detected		Maximum	Frequency '	Reporting	Lised for	Value 3	ARAR /TBC	ARAR/TBC	Flag	Contaminant
And py	Concentration t	Con	Concentration 1		Concentration		Limits 1	Screening 2	(ug/L)	Value	Source *		Deletion or
	(ug/L)		(ng/L)		No.		(ug/L)	(ng/L)		(ng/L)			Selection 5
• t t. = 0					-								
afile Organic Compounds													
17-81-7 Bis(2-Ethylhexyl)phthalate	1.4	-	4.1	J	MW121C-4	1 / 6	1 - 1.1	1.4	8.4	5	GA	ON ON	BSL
14-74-2 Di-n-butylphthalate	1.6	_	1.6		MW121C-6	1 / 6	1.2 - 1.3	1.6	3,600	50	GA	9	BSL
norganics.		 											
429-90-5 : Aluminum	6.61	5	588	Σ	MW121C-4 (dup)	9 / 9		588	36,000	50	SEC	9	BSF
440-36-0 Antimony	7.3	5	8.4	_	MW121C-6	2 / 6	3.8 - 7.5	8.4	15	3	GA	02	BSL
440-39-3 Barium	18.2		73.7		MW121C-3	9 /9		73.7	2,600	1,000	ζ5	ON ON	BSL
7440-41-7 Beryllium	0.24		0.24	1	MW121C-4	1 / 6	0.1 - 0.9	0.24	73	4	MCL	8	
440-43-9 Cadmium	1.1	-		_	MW121C-6	9 / 1	0.8 - 0.8		81	5	GA	S S	BSL
440-70-2 Calcium	114,000		558,000		MW121C-6	9 / 9		\$58,000	250,000			000	NUT
440-47-3 Chromium	1.5	-	21.4		MW121C-6	9 / 9	1.4 - 1.4	21.4	110	50	GA	ON	BSL
7440-48-4  Cobalı	1.5	_	3.0	×	MW121C-4 (dup)	3 / 6	0.7 - 2.3	3.0	730			ON ON	BSL
7440-50-8 Copper	6.2	ì	17.7	-	MW121C-6	3/6	2 - 2	17.7	1,500	200	GA	S S	BSL
439-89-6 Iron	516		698	J.	W121C-4 (dup)	3 / 6	22.2 - 34.9	869	11,000	300	Ϋ́S	02	BSL
'439-92-1   Lead	3.8		10.5		MW121C-6	5 / 6	3 - 3	10.5	15	15	MCL	NO	BSL
7439-95-4   Magnesium	27,700		000,601		MW121C-6	9 / 9		109,000	40.000			ON	NUT
5-5 Manganese	135	-	297		MW121C-6	9 / 9		297	880	50	SEC	2	BSL
439-97-6 Mercury	0.2		0.2		MW121C-3	2/6	0.2 - 0.2	0.2	-	0.7	GA	000	BSL
440-02-0 Nickel	2.1		2.1	Σ	MW121C-4 (dup)	1 / 6	2 - 2	2.1	730	001	GA	S S	BSL
440-09-7 Potassium	1,790	l l	9,400		MW121C-4	9 / 9	THE RESERVE THE PROPERTY OF TH	9,400	700,000			S S	BSL
782-49-2 Selenium	1.9	-	8.9		MW121C-6	2 / 6	1.3 - 4.2	6.8	180	10	GA	ON.	BSL
440-23-5 Sodium	17,600		58,400	Σ	MW121C-4 (dup)	9 / 9		58,400	1,200,000	20,000	G.A	NO NO	BSL
7440-66-6 Zinc	12.6		5.96		MW121C-6	9 / 9	.,	96.2	11,000	2,000	SEC	8	BSL

- Fig. 48 dublicates were averaced and recarded as one entery. Half the reporting limits were assumed for non-detects for the averace calculation. Lab duplicates were not included in the assessment. (dun) indicates that the maximum concentration was detected in a duplicate pair. The maximum enconcentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.

  To ensure a reliable dataset, only groundwater samples at the DRMO Yard collected from permanent wells using low flow sampling techniques were included in the screening process.

  The maximum detected concentration was used for screening.

  EPA Region 9 Preliminary Remediation Goals (PRGs) for tap water. On-line resources available at http://www.cpa.gov/region/9/waste/sfund/prg/fles/prgable2004.xls. Last updated December 2004.

  Target Cancer Risk = 1E-6; Target Hazard Quotient =1. Ingestion from drinking and inhalation of volatiles showering are evaluated to derive the PRGs.

  MCL for lead was used as screening value for lead as no Region 9 PRG is available.

  MCL for lead was used as screening value for lead as no Region 9 PRG is available.

  For sodium, an upper limit intake of 2,400 ng/day (http://www.mcalformation.com/dailyval.html) was used.

  For sodium, an upper limit intake of 2,400 ng/day (http://www.mcalformation.com/dailyval.html) was used.

  Above Screening Levels (ASC).

  Above Screening Levels (ASC).

  Below Screening Levels (BSL)

  Below Screening Levels (BSL)

Q = Qualifier J = Estimated Value

Definitions:

COPC = Chemical of Potential Concern
ARARATBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL = Federal Maximum Contaminant Level
GA = New York State Class GA Groundwater Standard (TOGS 1.1.1, June 1998 with updates)
SEC = USEPA Secondary Drinking Water Regulation, non-enforceable (EPA 822-B-00-001, Summer 2000)

ENECAVID Area/Report/Draft Final/Risk Assessment/Human Health Risk Tables/121C-DMRO/Screening\_121C.x/s/GW

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE WATER SEAD-121C

# SEAD-121C AND SEAD-1211 RI REPORT SENECA ARMY DEPOT ACTIVITY

Current/Future	Surface Water	Surface Water	SEAD-121C
Scenario Timefrane:	Medium	Exposure Medium	Exposure Point

CAS	Chemical	Minimum	O Maximum	O Location of Detection	Detection	Range of	Concentration	Maximum	Screening	Potential	Potential	COPC	Rationale for
Number		=	Detected Concentration		Frequency	Reporting Limits	Used for Sereening <sup>2</sup>	Background Value 3	Value (ue/L)	ARAR	ARAR/TBC Source <sup>5</sup>	FIRE	Contaminant Deletion or
		, (III)	1 (1/611)			(ug/L)	(ug/L)	(ug/L)	î Î	Value (ug/L)		. —	Selection 6
		(1/2/27)	(7/8n)				200				W. C.	-	
Semivolati	Semivolatile Organic Compounds		AVI. (1917)									1	
117-81-7	Bis(2-Ethylhexyl)phthafate	4.2	1 4.2	J SWDRMO-2	1 / 10	10 - 10	4.2		4.8	90	Class C	2	BSL
Inorganics													
7429-90-5 Aluminum	Aluminum	14.4	8,760	SWDRMO-2	10 / 10		8.760		36,000	100	Class C	NO.	BSL
7440-38-2	7440-38-2 Arsenic	50.3	50.3	SWDRMO-2	1 / 10	2.8 - 2.8	50.3		0.045	150	Class C	YES	ASL
7440-39-3 Barium	Barium	37.2	423	SWDRMO-2	10 / 10	The state of the s	423		2.600			NO NO	BSL
7440-41-7 Beryllium	Beryllium	0.12	0.86	J SWDRMO-2	9 / 10	0.1 - 0.1	0.86		73	1100	Class C	NO NO	BSL
7440-43-9	7440-43-9 Cadmium	0.46	19.5	SWDRMO-2	4 / 10	0.4 - 0.4	19.5		8	3.84	Class C	YES	ASL
7440-70-2 Calcium	Calcium	66,700	166,000	SWDRMO-3	10 / 10		166,000		250,000			ON N	r)z
7440-47-3	7440-47-3 Chromaum	0.69	129	SWDRMO-2	01 / 8	9.6 - 0.6	129		110	139.45	Class C	YES	ASL
7440-48-4 Cobalt		9.0	47	SWDRMO-2	7 / 10	9.0 - 9.0	47		730	2	Class C	02	BSL
7440-50-8   Copper	Copper	17	1,160	SWDRMO-2	10 / 10		1,160		1,500	17.32	Class C	 02	BSL
7439-89-6	Iron	26.6	110,000	SWDRMO-2	01 / 8	17.3 - 17.3	110,000		11.000	300	Class C	YES	ASL
7439-92-1 Lead	Lead	4.4	J 839	SWDRMO-2	10 / 10		839		15	1,46246	Class C	YES	ASL
7439-95-4	7439-95-4 Magnesium	11,100	26,200	SWDRMO-2			26,200		40,000			ON N	FE
7439-96-5	7439-96-5   Manganese	3.2	2,380	SWDRMO-2	10 / 10		2,380		880			YES	ASL
7439-97-6 Mercun		0.26	2.5	SWDRMO-2	2 / 10	0.2 - 0.2	2.1		=	0.0007	Class C	02	BSL
7440-02-0 Nickel	Nickel	10.6	154	SWDRMO-2	3 / 10	1.8 - 1.8	154		730	99.92	Class C	00	BSL
7440-09-7 Potassium	Potassium	2,070	J 5,350	J SWDRMO-3	10 / 10		5,350		700,000			Q	15Z
7782-49-2	Selenium	4.6	J 46	J SWDRMO-2	1 / 10	3 - 3	4.6		180	4.6	Class C	NO	BSI.
7440-22-4 Silver	Silver	1.7	œ	SWDRMO-2	2 / 10	1	so		182	0.1	Class C	ON.	BSL
7440-23-5 Sodium	Sodium	4,490	123,000	J SWDRMO-1	01 / 01		123,000		1,200,000			 02	NUT
7440-28-0 Thallium	Thallium	5.5	1 6.3	SWDRMO-4	2 / 10	5.4 - 5.4	6.3		2.4	8	Class C	YES	ASL
7440-62-2	7440-62-2 Vanadium	0.89	233	SWDRMO-2	5 / 10	0.7 - 0.7	233		36	14	Class C	YES	ASE
7440-66-6 Zinc	Zinc	15.4	6,910	SWDRMO-2	10 / 10		6,910		11,000	159.25	Class C	NO	BSL
Other Analytes	lytes												
SA0020	SA0020 Total Petroleum Hydrocarbons	8,080	8,080	SWDRMO-2	1/9	1000 - 1000	8,080					0N	ICE

- Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. Lab duplicates were not included in the assessment.

  Range of reporting limits were presented for nondetects only.

  The maximum detected concentration was used for sercening.

  No backeround data are available.

  EPA Region 9 Preliminary Remediation Goals (PRGs) for tap water. On-line resources available at http://www.epa.gov/region09/waste/sfund/rig/fles/mgtable2004 x/s. Last updated December 2004.

  Tagget Cancer Risk = 1E-6: Target Hazard Quotient =1 Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs.

  Maximum Contaminant Level (ACL) for lead was used as sercening value for lead as no Region 9 PRG for endring was an 80 mg/ds/sulm and minimum requirements for 2.2 for soldium, an upper limit intake of 2.4 400 mg/ds/sulm an expression, and soldium were calculanted based on an assumption of 2L/dsy water intake and recommended dietary allowances and adequate intakes for 1-3 yr children (SOO mg/dsy for ording values for ethornium.)

  Screening values for ealcium, an upper limit intake of 2.4 400 mg/dsy (http://www.mealformation cont/dailyval html) was used.

  For sodium, an upper limit intake of 2.4 400 mg/dsy (http://www.mealformation cont/dailyval html) was used.

  Selection Reason:

  Essential Nutrient (NUT)

  Below Screening Level (BSL)

  Below Screening Level (BSL)

  Definitions

  COPC = Chemical of Potential Concern.

ement/To Be Considered and Appropriate Requir COPC = Chemical of Potential Concern
ARARTBC \* Applicable or Relevant an
Q \* Qualifier
J = Estimated Value

Definitions

NECANTD ArealReport/Draft FinaliRisk Assessment/Human Health Risk Tables/121C-DMRO/Screening\_121C.xls/SW

# Table 6-3A OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE SOIL SEAD-1211 SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Current/Future	Soil	Soil	SEAD-1211
Scenario Timeframe:	Medium:	Exposure Medium:	Exposure Point:

CAS	Chemical	Minimum Detected Concentration	0	Maximum Detected Concentration	0	Location of Maximum Concentration	Detection Frequency	Detection Range of Frequency Reporting Limits 1 (mg/kg)	Concentration Used for Screening 2	~ ¤	Screening Value (mg/kg)	Potential ARAR/ TBC	COPC Flag	Screening Potential COPC Rationale for Value ARAR/ Flag Contaminant (mg/Rg) TBC Deletion or value 5
	- y sprádak	(प्रकृ/kg)		(mg/kg)					(тд/кд)	(mg/kg)		value (mg/kg)		
Volatile O	Volatile Organic Compounds													
67-64-1	Acetone	0.0022	5	0.11	_	SS1211-15	26 / 35	0.003 - 0.0715	0.11		14,000	0.2	ON.	BST
71-43-2	Benzene	0.0046	-	0.041	5	SS1211-29 (dup)	6/35	0.0023 - 0.0034	0.041		0.64	90.0	NO	BSL
100414	Ethyl benzene	0,0021	5	0.0078		SS1211-15	5 / 35	0.0023 - 0.0034	0.0078		400	5.5	ON.	BSL
	Meta/Para Xvlene	0.0021	5	0.0063	=	SS1211-29 (dup)	5 / 35		0.0063		270		ON N	BSL
78-93-3	Methyl ethyl ketone	0.0036		0.07		SS1211-15	l	0.0023 - 0.0034	0.07		22,000	0.3	NO	BSL
75-09-2	Methylene chloride	0.0016	_	0.0028	-	SB1211-4	9 / 35	0.0023 - 0.0034	0.0028		9.1	0.1	ON	BSL
95-47-6	Ortho Xylene	0.0013	5	0.0036	1	SS1211-29 (dup)	5 / 35	0.0023 - 0.0034	0.0036		270		NO NO	BSL
108-88-3	Toluene	0.0028	7	0.031	,-	SS1211-29 (dup)	6 / 35	0.0023 - 0.0034	0.031		520	1.5	NO	BSL
Semivolat	Semivolatile Organic Compounds													
91-57-6	2-Methylnaphthalenc	0.054	-	0.26	-	SS1211-20	3 / 39	0.35 - 7.4	0.26		310	36,4	NO	BSL
83-32-9	Acenaphthene	0.053	'n	6.1		SS1211-20	17 / 39	0.36 - 2.2	6.1		3,700	50	ON	BSL
208-96-8	Acenaphthylene	0.064	_	0.56	-	SS1211-21	2 / 39	0.34 - 7.4	0.56			41	NO	NSV
120-12-7	Anthracene	0.069	7	12		SS1211-20		0.36 - 1.8	12		22,000	50	NO	BSL
56-55-3	Benzo(a)anthracene	0.043	7	28	Ь	SS1211-20	36 / 39	0.37 - 0.38	28	-0/	0.62	0.224	YES	ASE
50-32-8	Benzo(a)pyrene	0.061	5	23	_	SS1211-20	36 / 39	0.37 - 0.39	23		0.062	0.061	YES	ASF
205-99-2	Benzo(b) fluoranthene	0.052	-	29		SS1211-20	37 / 39	0.37 - 0.38	29		0.62	1.1	YES	ASL
191-24-2	Benzo(ghi)perylene	0.05	<b>,</b>	29	-	SS1211-20		0.36 - 0.39	29			20	NO	NSV
207-08-9	Benzo(k)fluoranthene	0.095	7	21	_	SS1211-20	28 / 38	0.36 - 0.4	21		6.2	1.1	YES	ASL
117-81-7	Bis(2-Ethylhexyl)phthalate	0.038	~	1.6		SS1211-31	14 / 39	0.13 - 8.8	1.6		35	50	NO	BST
85-68-7	Butylbenzylphthalate	0.055	7	0.13	-	SB1211-1	2 / 36	0.35 - 8.8	0.13		12,000	20	NO	BSL
86-74-8	Carbazole	90.0	-	8.9		SS1211-20	20 / 39	0.36 - 1.8	6.8		24		ô	BSL
218-01-9	Chrysene	0.063	٠,	32	773	SS1211-20	35 / 39	0.37 - 0.39	32		62	0.4	YES	CSG
53-70-3	Dibenz(a,h)anthracene	0.072	-	4.6	1-3	SS1211-2	10 / 32	0.36 - 2.1	4.6		0.062	0.014	YES	ASL
132-64-9	Dibenzofuran	0.029	_	7		SS1211-20	9 / 39	0.35 - 2.2	2		150	6.2	ON.	BSL
84-66-2	Diethylphthalate	0.64	2	0.64	-	SS1211-29 (dup)	1 / 39	0.34 - 7.4	0.64		49,000	7.1	ON	BSL
84-74-2	Di-n-butylphthalate	0.045	-	0.045	J	SS1211-1	1 / 38	0.34 - 7.4	0.045		6,100	8.1	ON.	BSL
206-44-0	Fluoranthene	0.08	-	62		SS1211-20	37 / 39	0.37 - 0.38	62		2,300	50	Q	BSL
86-73-7	Fluorene	0.043	٦.	4.2		SS1211-20	13 / 39	0.35 - 2.2	4.2		2,700	50	00	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	0.061	-	8.1	5	SS1211-20	26 / 37	0.36 - 2.1	8.1		0.62	3.2	YES	ASL
91-20-3	Naphthalene	0.051	_	0.63	-	SS1211-21		0.35 - 7.4	0.63		56	13	02	BST
85-01-8	Phenanthrene	0.052	-	52		SS1211-20	37 / 39	0.37 - 0.38	52			50	8	NSV
129-00-0	Pyrenc	0,072		64	e-mg	SS1211-23	37 / 39	0.37 - 0.38	64	The state of the s	2,300	20	NO	BSL
PCBs					_				editable a backete a non-room rate as it is a single and				-	
11097-69-	11097-69-1 Aroclor-1254	0.03	_	0.03	ī	SS1211-22	1 / 35	0.018 - 0.022	0.03		0.22	10	NO	BSL
11096-82-	11096-82-5 Aroclor-1260	0.0083	'n	0.046	J	SS1211-14	2 / 35	0.018 - 0.022	0.046		0.22	10	NO	BSL
Pesticides		2000						4 700 150 150 150 150 150 150 150 150 150 1						
72-55-9	4,4'-DDE	0.011	Z	0.034	2	SS1211-23	4 / 35	0.0018 - 0.0023	0.034		1.7	2.1	0N	BST
50-29-3	4,4'-DDT	0.024	Ξ	0.039	1	SS1211-21	2 / 34	0.0018 - 0.0023	0.039		1.7	2.1	ON	BST
309-00-2	Aldria	0.0032		0.012		SS1211-20		0.0018 - 0.0045	0.012		0.029	0.041	NO NO	BST
60-57-1	Dieldrin	0.016	-	0.034	٠-,	SS1211-21	2 / 35	0.0018 - 0.0023	0.034		0.030	0.044	YES	ASL

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE SOIL SEAD-1211 Table 6-3A

# SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Current/Future	Soil	Soil	SEAD-1211
Scenario Timeframe:	Medium:	Exposure Medium:	Exposure Point:

CAS	Chemical	Minimum	0	Maximum	0	Location of	Detection	Range of	Concentration	Maximum	Screening	Potential	COPC	Screening Potential COPC Rationale for
Number		Concentration		Detected Concentration		Concentration	r requency	requency Reporting Limits	Sereening 2	Value 3	(mo/ko)	TBC	1.148	Deletion or
18:50		-		1					(mg/kg)	(тд/кд)	(9, 0, 1)	Value 5		Selection
		(mg/kg)		(mg/kg)								(mg/kg)		
959-98-8	Endosulfan I	0.0026		0.095	-	SS1211-20	24 / 35	0.0018 - 0.002	0,095		370	6.0	ON	BST
72-20-8 E	Endrin	0.0065	5	0.03	-	SS1211-21	2 / 35	0.0018 - 0.0023	0.03		18	0.1	ON	BSL
m	Heptachlor epoxide	0,0061		0.055	-	SS1211-21	8 / 33	0.0018 - 0.0023	0.055		0.053	0.02	YES	ASL
	The state of the s			THE RESIDENCE AND ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY OF THE										
7429-90-5 /	Aluminum	1,510		13,200		SB1211-5	35 / 35		13,200	20,500	76,000	19,300	0N	BSL
7440-36-0 4	Antimony	0.99		7.5		SS1211-28	14 / 35	0.96 - 7.3	7.5	6.55	31	5.9	8	BSL
7440-38-2 A	Arsenic	3.5		32.1	ь,	SB1211-2 (dnp)	24 / 24		32.1	21.5	0.39	8.2	YES	ASL
7440-39-3 Barium	Sarium	38.2		207	_	SS1211-26	35 / 35		207	159	5,400	300	000	BSL
7440-41-7 Beryllium	Servllium	0.16		0.68		SB1211-5	34 / 35	0.17 - 0.17	0.68	1.4	150	1.1	NO	BSL
7440-43-9 Cadmium	Jadroium	0.15	-	9.9	_	SB1211-3	13 / 35	0.13 - 0.61	9.9	2.9	37	2.3	ON.	BSL
7440-70-2	Calcium	5,370	'n	298,000	J	SS1211-26	35 / 35		298,000	293,000	2,500,000	121,000	ON	NUT
_	Chromium	3.9	-	439		SS1211-29 (dup)	35 / 35		439	32.7	210	29.6	YES	ASL
7440-48-4 C	Cobalt	4.6		205.5	-	SS1211-29 (dup)	35 / 35		205.5	1.62	006	30	N N	BSL
7440-50-8	Соррег	10.4	5	209		SS1211-29 (dup)	30 / 30		209	62.8	3,100	33	NO	BSL
	Cyanide, Total	0.559	_	2.00		SS1211-29 (dup)	3 / 35	0.526 - 0.61	2.00		1,200		8	BSL
7439-89-6	Iron	5,720		58,400		SS1211-29 (dnp)	35 / 35		58,400	38,600	23,000	36,500	YES	ASL
7439-92-1	Lead	8.6	-	122		SS1211-25	35 / 35		122	266	400	24.8	NO	BSL
7439-95-4	Magnesium	4,430	-	22,300	-	SS1211-27	35 / 35		22,300	29,100	400,000	21,500	ON	TUN
7439-96-5 Manganese	Manganese	377	_	310,500		SS1211-29 (dup)	35 / 35		310,500	2,380	1,800	1,060	YES	ASF
7439-97-6	Mercury	0.01		0.07		SB1211-1	35 / 35		0.07	0.13	23	0,1	NO	BSL
						SS1211-29 (dup),								
7440-02-0 Nickel	Vickel	11.1		342	13	SS1211-33	35 / 35		342	62.3	1,600	46	0 2	BSL
7440-09-7 Potassium	Potassium	634		1,300		SS1211-30	35 / 35		1,300	3,160	5,000,000	2,380	00	NUT
7782-49-2	Selenium	0.48	_	146	-	SS1211-29 (dub)	20 / 35	0.43 - 0.61	146	1.7	390	7	8	BSL
7440-22-4	Silver	0.29		3.1	-	SB121I-2 (dup)	4 / 24	0.3 - 1.2	3.1	0.87	390	0.75	8	BSL
7440-23-5	Sodium	117		372		SB121I-1	29 / 35	106 - 595	372	269	1,125,000	172	ON N	NCT
7440-28-0	Thallium	0.38		163	-	SS1211-29 (dup)	7 / 35	0.32 - 1.2	163	1.2	5.2	0.7	YES	ASL
7440-62-2 Vanadium	Vanadium	5.9		182	'n	SS1211-29 (dup)	35 / 35		182	32.7	78	150	YES	ASL
7440-66-6 Zinc	Zinc	42.75	1	329		SS121I-33	35 / 35		329	126	23,000	110	NO	BSL
Other Analytes	tes									3				
-	Total Organic Carbon	3,000		8,900		SS1211-6	35 / 35						0N	NSV
	Total Petroleum Hydrocarbons	100	-	2,200	<b></b>	SS1211-27	10/35	43 - 48					0N	CE

- Notes:

  1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.

  Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was defected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.

  2. The maximum detected concentration was used for servering.

  3. Background value is the maximum detected concentration of the Senera background dataset.

  4. EPA Region 9 Pretiminary Remediation Goals (PRGs) for residential soil. On-line resources available at http://www.epa.gov/region09/waste/sfund/prg/files/prglable2004.xls. Last updated December 2004.

# Table 6-3A

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE SOIL

# SEAD-1211

# SEAD-121C AND SEAD-1211 RI REPORT

Seneca Army Depot Activity

Current/Future	Soil	Soil	SEAD-1211
Scenario Timeframe:	Medium:	Exposure Medium:	Exposure Point:

CAS	Chemical	Minimum	0	Maximum	0	Location of	Detection	Range of	Concentration	Maximum	Screening	Potential 1	OPC R	ationale for
Number		Detected		Detected		Maximum	Frequency	Reporting Limits 1	Used for	Background	Value 4	ARAR/ F	Flag C	ontaminant
		Concentration		Concentration		Concentration	-	(mg/kg)	Screening 2	Value 3	(mg/kg)	TBC		Deletion or
		-		-			******		(mg/kg)	(mg/kg)		Value 5		Selection
		(me/ke)		(mr/kr)								(mo/ko)	-	

Target Cancer Risk = 1E-6; Target Hazard Quorient -1. Direct contact exposure (ingestion, dermal contact, and inhalation) is evaluated to derive the PRGs. PRG for xylenes was used as screening value for meta-para xylenes and ortho xylene.

EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene as no Region 9 PRG is available. EPA Region III RBC, available on line at http://www.epa.gov/reg/shwmd/risk/human/rbc/rbc1004.XLS, was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.

PRG for Aroclor 1254 was used as screening value for Arocho 1260.

PRG for endosulfan was used as screening value for Arocho 1260.

PRG for endosulfan was used as screening value for Arocho 1260.

PRG for endosulfan was used as screening value for holon myday for sodium and potassium) and magnesium) and minimum requirements for 1 yr children (225 myday and 1000 myday for sodium and potassium)

from Marilyn Wright (2001) Dictary Reference Intakes.

PRG for total chromium (1:6 ratio CY VI: Cr III) was used as screening value for chromium.

PRG for total chromium (1:6 ratio CY VI: Cr III) was used as screening value for chromium.

PRG for total chromium (1:6 ratio CY VI: Cr III) was used as screening value for chromium.

PRG for total chromium (1:6 ratio CY VI: Cr III) was used as screening value for chromium.

PRG for total chromium (1:6 ratio CN VI: Cr III) was used as screening value for chromium.

PRG for total chromium (1:6 ratio CN VI: Cr III) was used as screening value for chromium.

PRG for total chromium (1:6 ratio CN VI: Cr III) was used as screening value for chromium.

PRG for used safts was used for total cyanide.

S. Potential TBC values are from NYSDEC Technical and Administrative Quidance Memorandum (TAGM) #4046. No ARARs were identified. (on-tine resources available at http://www.dec.state.my.us/website/der/tagms/prrg4046.html)

Deletion Reason:

Above Screening Levels (ASL)
Chemicals in the Same Group were retained as COPC (CSG)
Essential Nutrient (NUT)
Below Screening Level (BSL)
No Screening Value or Toxicity Value (NSV)
Individual Chemicals Evaluated (ICE)

Definitions:

COPC = Chemical of Potential Concem

ARARTBC = Applicable or Relevant and Appropriate Requirement/To Be Considered

Q = Oualifier

J = Estimated Value

N = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 6-3B
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 DITCH SOIL
SEAD-1211
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity

Scenario Timeframe	
CONTROL A THE CONTROL	Current/Future
Medium:	Ditch Soil
Exposure Medium:	Ditch Soil
Exposure Point:	SEAD-121I

CAS Number	Chemical	Minimum Detected Concentration	0	Maximum Detected Concentration	<b>⊘</b>	Location of Maximum Concentration	Detection Frequency	Range of Reporting Limits 1 (mg/kg)	Concentration Used for Screening 2	~ ×	Screening Value <sup>4</sup> (mg/kg)	Potential ARAR/ TBC Value 5	COPC	Screening Potential COPC Rationale for Value ARAR/ Flag Contaminant (mg/kg) TBC Deletion or Value 5
		(mg/kg)		(mg/kg)					(3v/9w)	(Su Sim)		(mg/kg)		
Volatile Or	Volatile Organic Compounds					V41,								
67-64-1	Acetone	0.008		0.15	-	SD1211-8	10 / 10		0.15		14,000	0.2	NO	BSL
71-43-2	Benzene	0.0012	5	0.039		SD121I-8	3 / 10	0.0032 - 0.0037	0.039		0.64	90.0	NO	BSL
100-41-4	Ethyl benzene	0.0052		0.0052		SD121I-8	-	0.0027 - 0.0044	0.0052		400	5.5	NO	BSL
SA0078	Meta/Para Xylene	0.0048	-	0.0048		SD1211-8	1 / 10		0.0048		270		NO	BSL
78-93-3	Methyl ethyl ketone	0.0072		0.078	L	SD1211-8	2 / 10	0.0031 - 0.0044	0.078		22,000	0.3	02	BSL
95-47-6	Ortho Xylene	0.003		0.003		SD121I-8	1 / 10	0.0027 - 0.0044	0.003		270		ON ON	BSL
108-88-3	Toluene	0.0017	-	0.026	-	SD121I-8	2 / 10	0.0031 - 0.0044	0.026		520	1.5	NO NO	BST
Semivolati	Semivolatile Organic Compounds													
91-57-6	2-Methylnaphthalene	0.033	-	0.17	J	SD1211-7 (dup)	2 / 12	0.38 - 4.4	0.17		310	36.4	ON	BSL
91-94-1	3,3'-Dichlorobenzidine	0.315	_	0.315	-	SD1211-7 (dup)	1 / 12	0.38 - 4.4	0.315		1.1		ON	BSL
83-32-9	Acenaphthene	0.066	~		5	SD1211-7 (dup)	9 / 12	0.38 - 0.46	0.74		3,700	20	SN SN	BSL
208-96-8	Acenaphthylene	9/0.0	5	0.42	-	SD1211-2EBS	4 / 12	0.38 - 0.53	0.42			41	S S	NSV
120-12-7	Anthracene	0.11	<u></u>	8.1	~	SD1211-2EBS	9 / 12	0.38 - 0.46	1.8		22,000	50	NO	BSL
56-55-3	Benzo(a)anthracene	0.049	'n	14		SD1211-2EBS	10 / 12	0.38 - 0.46	14		0.62	0.224	YES	ASL
50-32-8	Benzo(a)pyrene	0.29	5	16		SD1211-2EBS	9 / 12	0.38 - 0.46	16		0.062	0.061	YES	ASL
205-99-2	Benzo(b)fluoranthene	0.044	,	22	Ė	SD1211-ZEBS	11 / 12	0.46 - 0.46	22		0.62	1.1	YES	ASI.
191-24-2	Benzo(ghi)perylene	0.11	_	12		SD1211-2EBS	9 / 12	0.38 - 0.46	12			20	NO	NSV
207-08-9	Benzo(k) fluoranthene	0.14	-	23		SD1211-2EBS	9 / 12	0.38 - 0.46	23		6.2	1.1	YES	ASL
117-81-7	Bis(2-Ethylhexyl)phthalate	0.025	ŗ	_	,	SD1211-7 (dup)	3 / 12	0.38 - 4.4	0.093		3.5	50	NO	BSL
85-68-7	Butylbenzylphthalate	0.42		0.42	ī	SD1211-7 (dup)	1 / 12	0.38 - 4.4	0.42		12,000	20	NO	BSL
86-74-8	Carbazole	0.1	···		_	SD1211-2EBS	9 / 12	0.38 - 0.46	1.6		24		ON O	BSL
218-01-9	Chrysene	0.34	7	25		SD1211-2EBS	9 / 12	0.38 - 0.46	25		62	0.4	YES	CSG
53-70-3	Dibenz(a,h)anthracene	0.086	5		'n	SD1211-2EBS	5 / 12	0.38 - 0.53	5		0.062	0.014	YES	ASL
132-64-9	Dibenzofuran	0.058	-		-	SD1211-7 (dup)	5 / 12	0.38 - 4.4	0.356		150	6.2	ON	BSL
117-84-0	Di-n-octylphthalate	0.42	-	0.42	5	SD1211-7 (dup)	1 / 12	0.38 - 4.4	0.42		2,400	20	2	BSL
206-44-0	Fluoranthene	0.099	-	24	1	SD1211-2EBS	~	0.46 - 0.46	24		2,300	20	0 2	BSL
86-73-7	Fluorene	0.053	_	0.645	_	SD1211-7 (dup)	9 / 12	0.38 - 0.46	0.645		2,700	20	ON ON	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	0.098	-	12	-	SD1211-2EBS	9 / 12	0.38 - 0.46	12		0.62	3.2	YES	ASL
78-59-1	Isophorone	0,315	_	0.315	1-0	SD1211-7 (dup)	1 / 12	0.38 - 4.4	0.315		510	4.4	ON	BSL
91-20-3	Naphthalenc	0.065	-	0.35	ь,	SD1211-7 (dup)	2 / 12	0.38 - 4.4	0.35		56	13	ON ON	BSL
98-95-3	Nitrobenzene	0.315	-	0.315	<u>-</u>	SD1211-7 (dup)	1 / 12	0.38 - 4.4	0.315		20	0.2	ON	BSL
85-01-8	Phenanthrene	0.05	7	6.25	_	SD1211-7 (dup)	11 / 12	0.46 - 0.46	6.25			50	NO	NSV
108-95-2	Phenol	0.315	-	0.315	-	SD1211-7 (dup)	1 / 12	0.39 - 4.4	0.315		18,000	0.03	NO	BSL
129-00-0	Pyrene	0.078	-	17		SD1211-2EBS	11 / 12	0.46 - 0.46	17		2,300	50	ON	BSL
PCBs														
11097-69-	1097-69-1 Aroclor-1254	0.067		0.067		SD1211-5	1 / 10	0.012 - 0.022	0.067		0.22	10	ON N	BSL
11096-82-	11096-82-5 Aroclor-1260	0.014		0.014	-	SD1211-7 (dup)	1 / 10	0.0023 - 0.0033	0.014		0.22	01	8	BSL
Pesticides														
72-55-9	4,4'-DDE	9.000	-	0.0076	-	SD1211-7 (dup)	1 / 10	0.00024 - 0.00033	0.0076		1.7	2.1	2	BSL

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 DITCH SOIL SEAD-1211 Table 6-3B

# SEAD-121C AND SEAD-1211 RI REPORT

Seneca Army Depot Activity

Current/Future	Ditch Soil	Ditch Soil	SEAD-1211
Scenario Timeframe: Cu	Medium: Di	Exposure Medium: Dir	Exposure Point: SE

CAS	Chemical	_	o	Maximum	ø	Location of	Detection	Detection Range of Reporting Concentration	Concentration	Maximum	Screening	Potential	COPC	Screening Potential COPC Rationale for
Number		Detected		Detected		Maximum	Frequency	Limits 1	Used for	Background	Value 4	ARAR/	Flag	Contaminant
		Concentration		Concentration	# 20 Too	Concentration	-	(mg/kg)	Screening 2	Value 3	(mg/kg)	TBC		Deletion or
		-		-					(mg/kg)	(mg/kg)		Value 5		Selection
		(mg/kg)		(mg/kg)								(mg/kg)		
Inorganics					-									
7429-90-5	429-90-5 Aluminum	4,180		10,300		SD1211-6	10 / 10		10,300	20,500	76,000	19,300	NO NO	BSL
7440-38-2	Arsenic	2.6		104		SD1211-8	10 / 10		104	21.5	0.39	8.2	YES	ASL
7440-39-3 Barium	Barium	44.1	 1	91.1	ĭ	SD121I-8	10 / 10		91.1	159	5,400	300	NO	BST
7440-41-7	7440-41-7 Beryllium	0.3		99.0	-	SD1211-6	10 / 10		99.0	1.4	150	1.1	NO	BSL
7440-43-9	Cadmium	8.0		8.0		SD121I-7 (dup)	1 / 10	0.14 - 0.19	0.8	2.9	37	2.3	8	BSL
7440-70-2   Calcium	Calcium	8,990		127,500		SD1211-7 (dup)	10 / 10		127,500	293,000	2,500,000	121,000	NO NO	10x
7440-47-3	7440-47-3  Chromium	9.8		83.9		SD1211-8	10 / 10		83.9	32.7	210	29.6	NO	BSL
7440-48-4 Cobali	Cobalt	5.9		616		SD1211-8	10 / 10		91.9	29.1	006	30	9	BST
7440-50-8	Copper	17.1		130	-	SD1211-4	01 / 01		130	62.8	3,100	33	NO NO	BSL
7439-89-6 Iron	Iron	10,100		30,400		SD1211-8	10 / 10		30,400	38,600	23,000	36,500	YES	ASL
7439-92-1 Lead	Lead		-	93.3		SD121I-6	10 / 10		93.3	266	400	24.8	NO	BSL
7439-95-4	439-95-4 Magnesium	2,150		11,300		SD1211-5	10 / 10		11,300	29,100	400,000	21,500	NO	NUT
7439-96-5	7439-96-5 Manganese	303		14,900		SD1211-8	10 / 10		14,900	2,380	1,800	1,060	YES	ASL
7439-97-6 Mercury	Mercury	0.02		0.18		SD1211-3	9 / 10	0.12 - 0.12	0.18	0.13	23	0.1	NO	BSL
7440-02-0 Nickel	Nickel	16.4		153		SD1211-8	01 / 01		153	62.3	1,600	49	NO	BSL
7440-09-7	Potassium	541		1,450	-	SD1211-6	10 / 10		1,450	3,160	5,000,000	2,380	NO	NUT
7782-49-2	7782-49-2 Selenium	18		18		SD1211-8	1 / 10	0.48 - 0.68	18	1.7	390	2	NO	BST
7440-22-4 Silver	Silver	2.5		10.5		SD1211-8	2 / 10	0.31 - 0.44	10.5	0.87	390	0.75	NO	BSL
7440-23-5 Sodium	Sodium	162		266		SD121I-10	8 / 10	118 - 132	266	269	1,125,000	172	NO	NUT
7440-28-0	Thallium	0.44	ĭ	21.5		SD1211-8	2 / 10	0,36 - 0,5	21.5	1,2	5.2	0.7	YES	ASL
7440-62-2	7440-62-2 Vanadium	8.1		69.4		SD1211-8	10 / 10		69.4	32.7	78	150	NO	BST
7440-66-6 Zinc	Zinc	\$7.3	r	532		SD121I-6	10 / 10		532	126	23,000	110	ON	BSL
Other Analytes	lytes													
SA0019	Total Organic Carbon	2,800		7,200	7	SD1211-1	10 / 10		7,200				NO	NSN
SA0020	Total Petroleum Hydrocarbons	150		016		SD1211-9	5 / 10	52 - 66					NO	ICE

- 1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.

  Lab duplicates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.

  2. The maximum detected concentration was used for screening.

- The maximum detected concentration was used for screening.

  3. Background value is the maximum detected concentration of the Seneca background dataset.

  4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at http://www.epa.gov/region09/waste/shnd/prg/files/prgtable2004.xis. Last updated December 2004.

  Target Cancer 18 kils = 1E-6; Target Hazard Goudient -1. Direct contact exposure (incestion, dermal contact, and inhalation) is evaluated to derive the PRGs. Target Hazard Goudient -1. Direct contact exposure (incestion, dermal contact, and inhalation) is evaluated to derive the PRG for xylencs and ontho xylene.

  FRG for xylencs was used as screening value for metalpara xylenes and ontho xylene.

  EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS, was calculated based on soil ingestion exposure and a target cancer risk of 1 E-6 and a target bazard quotient of 1. http://www.epa.gov/region09/waste/sfind/prg/files/prgtable2004.xis. Last updated December 2004.

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 DITCH SOIL Table 6-3B

## SEAD-1211

SEAD-121C AND SEAD-1211 RI REPORT

Seneca Army Depot Activity

Current/Future Ditch Soil Ditch Soil SEAD-1211

Scenario Timefrane: Medium: Exposure Medium: Exposure Point:

-	and an	Minimum	2	MANIMUM	c	Toontion	Dollarion	Denne of Denember	Concention	Marine	Course	Detendent	Sacr	Dationals for
רוצ	HUCZI	THE PROPERTY OF THE PARTY OF TH	<u>ر</u>	III MILITARIA	>	LOCATION 01	Defection	Range or reporting	Concentiation	WALIBUILL	Serecoung	I OICIIII A	7	Cattoliaic 104
		Detected		Detected		Maximum	Frequency	Limits 1	Used for B	sackground	Value 4	ARAR/	Flag	Contaminant
		Concentration		Concentration		Concentration	-	(mg/kg)	Screening 2	Value 3	(mg/kg)	TBC		Deletion or
				-					(mg/kg)	(mg/kg)		Value 5		Selection
		(mg/kg)		(mg/kg)							. ,	(mg/kg)		

(mg/kg)

Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dictary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium)

from Marilyn Wright (2001) Dictary Reference Intakes.

PRG for total chromium (1:6 ratio or VT/C rUII) was used as sereening value for chromium.

PRG for nickel (soluble salts) was used as sereening value for inckel.

5. Potential TBC values are from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046. No ARARs were identified. (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)

6. Rationale codes

Above Screening Levels (ASL) Chemicals in the Same Group were retained as COPC (CSG) Deletion Reason:

Essential Nutrient (NUT)
Below Screening Level (BSL)
No Screening Value or Toxicity Value (NSV)
Individual Chemicals Evaluated (ICE)

Definitions:

COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement To Be Considered
Q = Qualifier
J = Estimated Value

## OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE WATER SEAD-1211

## SEAD-121C AND SEAD-1211 RI REPORT

Seneca Army Depot Activity Current/Future Surface Water Surface Water SEAD-1211

Scenario Timeframe: Medium: Exposure Medium: Exposure Point:

CAS	Chemical	1_	Q Maximum	Q Location o		Range of	Concentration Maximum	Maximum	Screening	Potential	COPC	Potential COPC Rationale for
Number		Detected	Detected	Maximum		Frequency Reporting Limits	Used for	Background	Value	AKAK	r lag	Contaminant
		Concentration	Concentration	Concentration	. uo	(ug/L)	Screening	Value	(ng/L)	7187		Deletion or
		-	(ug/L)				(ng/L)	(ng/L)		Value		Selection "
		(ng/L)								(ug/L)		
Semivolatile C	Semivolatile Organic Compounds									***************************************		
85-68-7 Bu	Butylbenzylphthalate	1.	1.1	J SW1211-10	0 1/7	10 - 10	1.1		7,300		0	BSL
206-44-0 Fh	Fluoranthene		1.1	J SW1213-6	11/7	01 - 01	1.1		1,500		02	BSL
Inorganics		-										
7429-90-5 Aluninum	ແດນຄຸກນາກ	23.9	2,050	SW1211-6	5 7/7		2,050		36,000	100	ON.	BSL
7440-39-3 Ba	mim	22.5	49.2	SW1211-	1 6/7	6.6 - 6.6	49.2		2,600		NO NO	BSL
7440-41-7 Beryllium	ryllium	0.14	0.28	SW1211-6	5 617	0.1 - 0.1	0.28		73	1,100	02	BSL
7440-43-9 Cadmium	ıdmium	0.54	0.54	SW1211-10	0 1/7	0.4 - 0.8	0.54		8		0 2	BSI.
7440-70-2 Calcium	licium	18,000	74,200	SW1211-1	717		74,200		250,000		02	NUT
7440-47-3 Chromium	romium	==	9	SW1211-6	5 5/7	0.6 - 1.4	9		110	139.45	ON ON	BSL
7440-48-4 Coball	balt	2.8	3	SW1211-6	5 217	0.6 - 0.7	3		730	Š	2	BSL
7440-50-8 Cc	opper	1.2	11.2	SW1211-6	5 617	3.6 - 3.6	11.2		1,500	17.32	02	BSL
7439-89-6 Iron	T.	32.3	3,410	SWIZIL	5 ( 5 / 7	17.3 - 17.3	3,410		11,000	300	02	BSL
7439-92-1 Lead	pe	4.3	26.3	SW1211-6	5 4/7	2.1 - 3	26.3		15	1.46	YES	ASL
7439-95-4 Magnesium	agnesium	3,635	11,100	SW1211-	7/7		11,100		40,000		000	NUT
7439-96-5 Manganese	anganese	8.0	206	SW1211-6	5 117		206		880		ON.	BSL
7440-02-0 Nickel	ckel	3.5	3.6	SW1211-	5 217	1.8 - 2	3.6		730	99.92	NO	BSL
7440-09-7 Potassium	Massium	645	4,640	J SW1211-6	5 717		4,640		700,000		02	NUT
				SW1211-7								
7782-49-2 Selenium	lenium	2.5	1 2.5	J (dub)	117	3 - 3	2.5		180	4.6	8	BSL
7440-23-5 Sodium	dium	2,240	38,500	J SW1211-10	7 / 7		38,500		1,200,000		SN N	NUT
7440-62-2 Vanadium	anadium	2.1	3.9	SW1211-6	5 317	0.7 - 1.4	3.9		36	14	9 2	BST
7440-66-6 :Zinc	יטכ	12.5	190	SW121I-6	5 7/7		190		11,000	159.25	9	BSL

- | Field dublicates were averated and retarded as one entry. Half the reportine limits were assumed for non-detects for the averate calculation. Lab duplicates were not included in the assessment.

  Range of reporting limits were presented for nondetects only.

  2. The maximum detected concentration was ed for sterening.

  3. No background values available for surface water.

  4. EPA Region 9 Preliminary Remediation Goals (PRGS) for tawater. On-line resources available at they/www.exp. agov/region/gwaste/sfluid/py/files/prgable2004.xis. Last updated December 2004.

  Target Cancer Risk # El-6: Target Hazard Quotient # L. Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs.

  Maximum Contaminant Level (MCL) for lead was used as screening values for relation and sognitum and some and ecommended dispances and adequate inflascs for 1-3 ye children (500 mg/day and 80 mg/day for relation and magnesium) and adequate inflascs for 1-3 ye children (500 mg/day for potassium) from Marityn Wright (2001) Dietary Reference intakes.

  For sodium, an upper limit intake of 2-400 mg/day for potassium) from Marityn Water (AS)

  For sodium, an upper limit intake of 2-400 mg/day for potassium) from Marityn Water (AS)

  Resonant Reson:

  Selection Reason:

  Essential Nutrient (NUT)

  Below Screening Level (BSL)

COPC = Chemical of Potential Concern ARAR/TBC = Applicable or Relevant and Appropriate Requirement To Be Considered Q = Q nalifier I = Q is Estimated Value

SENECAPID Arca/Report/Draft FinaPRisk Assessment/Juman Health Risk Tables/1211. Cosmoline/Screening\_1211.x1s/Surface Water

# Table 6-4A SOIL EXPOSURE POINT CONCENTRATION SUMMARY - TOTAL SOIL AT SEAD-121C SEAD-121C

## SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Γ			
Current/Future	Soil	Soil	SEAD-121C
Scenario Timefranse:	Medium	Exposure Medium:	Exposure Point:

								Total Soil			Total Soil	
Chemical	Units	Arithmetic	Arithmetic 95% UCL of	Maximum	0	EPC	-	Reasonable Maximum Exposure (2)	xposure (2)		Central Tendency (2)	(2)
Jo		Mean	Normal	Detected		Units					;	:
Potential		Ξ	Data	Concentration			Medium	Medium	Mediuni	Medium	Medium	Medium
Солест				<u>(1)</u>			EPC	EPC	EPC	EPC	EPC	EPC
							Value	Statistic	Rationale	Value	Statistic	Rationale
tile Organic Compounds	ands											
cnc	mg/kg	0.029	0.073	1.8	ר	mg/kg	0.19	97.5% Chebyshev	Non-parametric, MH	0.19	97.5% Chebyshev	Non-parametric, MH
volatile Organic Compounds	mpounds											
o(a)anthracenc	mg/kg	0.58	06'0	10	-	mg/kg	8.1	97.5% Chebyshev	Non-parametric, MH	1.8	97.5% Chebyshev	Non-parametric, MH
о(а)рутепе	ng/kg	0.61	0.93	8.7	_	mg/kg	1.8	97.5% Chebyshev	Non-parametric, MH	1.8	97.5% Chebyshev	Non-parametric, MH
o(b)fluoranthene	mg/kg	0.84	1.2	12	ь.	mg/kg	2.4	97.5% Chebyshev	Non-parametric, MH	2.4	97.5% Chebyshev	Non-parametric, MH
o(k)fluoranthene	mg/kg	0.46	89.0	7.5	-	mg/kg	1.3	97.5% Chebyshev	Non-parametric, MH	1.3	97.5% Chebyshev	Non-parametric, MH
senc	mg/kg	0.58	0.87	9.1	-	mg/kg	1.7	97.5% Chebyshev	Non-parametric, MH	1.7	97.5% Chebyshev	Non-parametric, MH
nz(a,h)anthracene	ng/kg	0.17	0.18	0.47	-	mg/kg	0.21	95% Chebyshev	Non-parametric, MO	0.21	95% Chebyshev	Non-parametric, MO
10(1,2,3-cd)pyrene	mg/kg	0.20	0.24	0.97		mg/kg	0.30	95% Chebyshev	Non-parametric, MO	0.30	95% Chebyshev	Non-parametric, MO
cides/PCBs												
uri	mg/kg	0.0021	0.0035	0.041	_	mg/kg	0.0073	97.5% Chebyshev	Non-parametric, MH	0.0073	97.5% Chebyshev	Non-parametric, MH
lor-1242	mg/kg	0.010	0.012	0.058	'n	mg/kg	0.014	95% Chebyshev	Non-parametric, MO	0.014	95% Chebyshev	Non-parametric, MO
lor-1254	mg/kg	0.042	0.069	0.93		mg/kg	0.14	97.5% Chebyshev	Non-parametric, MH	0.14	97.5% Chebyshev	Non-parametric, MH
lor-1260	те/кв	0.014	0.019	0.20		mg/kg	0.033	97.5% Chebyshev	Non-parametric, MH	0.033	97.5% Chebyshev	Non-parametric, MH
els												
youy	mg/kgm	7.52	13.5	236		mg/kg	29.9	97.5% Chebyshev	Non-parametric, MH	29.9	97.5% Chebyshev	Non-parametric, MH
								95% Approximate	Approximate Gamma,		95% Approximate	Approximate Gamma,
nic	mg/kg	5.45	5.73	11.6		mg/kg	5.73	Garmua	Lognormal	5.73	Ganma	Lognormal
er	mg/kg	408	694	9,750		mg/kg	1,477	97.5% Chebyshev	Non-parametric, MH	1,477	97.5% Chebyshev	Non-parametric, MH
								Mod-t UCL (Adjusted			Mod-t UCL (Adjusted	
	mg/kg	25,557	27,489	54,100		mg/kg	27,507	for skewness)	Non-parametric, M	27,507	for skewness)	Non-parametric, M
	nıg/kg	550	1,033	18,900		mg/kg	550	Mean	See Note	550	Mean	See Note

defiding the regarded as one sample cntry. Lab duplicates were not included in the assessment.

Directects were assumed to be half the reporting limit.

EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004)

The average lead concentration was used as the lead EPCs were selected in accordance with the User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows® Version - 32 bit Version (USEPA, 2002).

HE - highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0) data set.

MO - moderately so highly skewed (standard deviation of log-transformed data in the interval (0.5,1) data set.

M - mildly skewed (standard deviation of log-transformed data in the interval (0.5,1) data set.

stimated Value qualifier

SENECAIPID ArealReportDraft FinalNRisk AssessmentHuman Health Risk Tables\121C-DMRO\EPC\_121C.xIs\total soil

# SOIL EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE SOIL AT SEAD-121C SEAD-121C

## SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

scenario Timeframe:	Current/Future
vfedium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-121C

Medium         Medium         Medium         Medium           EPC         EPC         EPC         EPC           Value         Statistic         Rationale         Value           3.1         99% Chebyshev         Non-parametric, MH         3.1           4.5         99% Chebyshev         Non-parametric, MH         2.4           2.9         99% Chebyshev         Non-parametric, MH         2.4           2.9         99% Chebyshev         Non-parametric, MH         2.9           0.22         95% Chebyshev         Non-parametric, MH         2.9           0.24         99% Chebyshev         Non-parametric, MH         0.014           0.014         99% Chebyshev         Non-parametric, MH         0.016           0.016         95% Chebyshev         Non-parametric, MH         0.016           0.028         99% Chebyshev         Non-parametric, MH         0.016           0.030         99% Chebyshev         Non-parametric, MH         0.016           0.030         99% Chebyshev         Non-parametric, MH         60.4           60.4         99% Chebyshev         Non-parametric, MH         60.4           60.4         99% Chebyshev         Non-parametric, MH         60.4							- Control of the Cont		Surface Soil (0-2 ft bgs	bgs)		Surface Soil (0-2 ft hgs)	hgs)
Mean   Normal   Detected   Units   Medium   Me	mical	Units	Arithmetic	95% UCL. of		0	EPC		Reasonable Maximum E	xposure (2)		Central Tendency (2)	(2)
11   Data   Concentration   Medium   EPC	of		Mean	Normal			Units						
Part	ential		Ξ	Data	Concentration			Medium	Medium	Medium	Mcdium	Medium	Mcdium
Compounds         Compounds         Statistic         Rationale         Value           mg/kg         0.64         1.1         10         1         mg/kg         3.1         99% Chebyshev         Non-parametric, MH         3.1           mg/kg         0.78         1.2         8.7         1         mg/kg         2.4         99% Chebyshev         Non-parametric, MH         3.4           mg/kg         0.57         0.88         7.5         1         mg/kg         2.9         99% Chebyshev         Non-parametric, MH         2.4           mg/kg         0.64         1.0         9.1         1         mg/kg         2.9         99% Chebyshev         Non-parametric, MH         2.9           mg/kg         0.17         0.19         0.47         1         mg/kg         0.22         99% Chebyshev         Non-parametric, MH         2.9           mg/kg         0.010         0.02         0.97         1         mg/kg         0.22         95% Chebyshev         Non-parametric, MH         0.01           mg/kg         0.010         0.012         0.03         1         mg/kg         0.26         95% Chebyshev         Non-parametric, MH         0.01           mg/kg         0.010         0.012	псеги				ε			EPC	EPC	EPC	EPC	EPC	EPC
mg/kg         0.64         1.1         10         1         mg/kg         3.1         99% Chebyshev         Non-parametric, MH         3.1           mg/kg         0.03         1.2         8.7         1         mg/kg         3.4         99% Chebyshev         Non-parametric, MH         3.1           mg/kg         1.0         1.6         1.2         1         mg/kg         2.4         99% Chebyshev         Non-parametric, MH         4.5           mg/kg         0.67         0.88         7.5         1         mg/kg         2.4         99% Chebyshev         Non-parametric, MH         2.4           mg/kg         0.67         0.19         0.47         1         mg/kg         2.2         99% Chebyshev         Non-parametric, MH         2.4           mg/kg         0.17         0.19         0.47         1         mg/kg         0.20         95% Chebyshev         Non-parametric, MH         0.01           mg/kg         0.002         0.0026         0.0047         1         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.014           mg/kg         0.010         0.012         0.041         1         mg/kg         0.016         95% Chebyshev         Non-parametric, MH </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Value</td> <td>Statistic</td> <td>Rationale</td> <td>Value</td> <td>Statistic</td> <td>Rationale</td>								Value	Statistic	Rationale	Value	Statistic	Rationale
тизука         0.64         1.1         10         J         тизука         3.1         99% Chebyshev         Non-parametric, MH         3.1           тизука         0.78         1.2         8.7         J         тизука         3.4         99% Chebyshev         Non-parametric, MH         3.4           тизука         0.57         0.88         7.5         J         тизука         2.4         99% Chebyshev         Non-parametric, MH         4.5           тизука         0.64         1.0         9.1         J         тизука         2.2         99% Chebyshev         Non-parametric, MH         2.4           тизука         0.64         1.0         9.7         J         тизука         0.22         99% Chebyshev         Non-parametric, MH         2.4           тизука         0.17         0.19         0.47         J         тизука         0.22         95% Chebyshev         Non-parametric, MH         2.4           тизука         0.002         0.0045         0.041         J         тизука         0.36         95% Chebyshev         Non-parametric, MH         0.014           тизука         0.012         0.0045         J         тизука         0.016         95% Chebyshev         Non-parametric, MH	e Organic Co	mnounds											
mg/kg         0.78         1.2         8.7         1         mg/kg         3.4         99% Chebyshev         Non-parametric, MH         3.4           mg/kg         1.0         1.6         1.2         1         mg/kg         4.5         99% Chebyshev         Non-parametric, MH         4.5           mg/kg         0.64         1.0         9.1         1         mg/kg         2.9         99% Chebyshev         Non-parametric, MH         2.9           mg/kg         0.64         1.0         9.1         1         mg/kg         0.20         99% Chebyshev         Non-parametric, MH         2.9           mg/kg         0.10         0.019         0.97         1         mg/kg         0.36         95% Chebyshev         Non-parametric, MH         2.9           mg/kg         0.010         0.012         0.047         1         mg/kg         0.014         99% Chebyshev         Non-parametric, MH         0.014           mg/kg         0.010         0.012         0.058         1         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.010         0.015         0.033         1         mg/kg         0.016         95% Chebyshev         Non-parametri	hracene	те/ке	0.64		10	7	mg/kg	3.1	99% Chebyshev	Non-parametric, MH	3.1	99% Chebyshev	Non-parametric, N
mgkg         1.0         1.6         1.2         1         mgkg         4.5         99% Chebyshev         Non-parametric, MH         4.5           mgkg         0.57         0.88         7.5         1         mgkg         2.4         99% Chebyshev         Non-parametric, MH         2.4           mgkg         0.17         0.19         0.47         1         mgkg         0.22         99% Chebyshev         Non-parametric, MH         2.9           mgkg         0.012         0.047         1         mgkg         0.022         99% Chebyshev         Non-parametric, MH         0.022           mgkg         0.010         0.012         0.043         1         mgkg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mgkg         0.010         0.012         0.058         1         mgkg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mgkg         0.010         0.012         0.058         1         mgkg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mgkg         0.012         0.058         1         mgkg         0.016         95% Chebyshev         Non-parametric, MH         0.016	cene	mg/kg	0.78	1.2	8.7	~	mg/kg	3.4	99% Chebyshev	Non-parametric, MH	3.4	99% Chebyshev	Non-parametric, M
mg/kg         0.57         0.88         7.5         1         mg/kg         2.4         99% Chebyshev         Non-parametric, MH         2.4           mg/kg         0.64         1.0         9.1         1         mg/kg         2.9         99% Chebyshev         Non-parametric, MH         2.9           mg/kg         0.17         0.19         0.47         1         mg/kg         0.22         95% Chebyshev         Non-parametric, MH         2.9           mg/kg         0.012         0.095         1         mg/kg         0.014         99% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.002         0.0045         0.041         1         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.010         0.012         0.033         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.012         0.018         1         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.012         0.018         1         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.030           mg/kg	oranthene	mg/kg	1.0	9.1	12	5	mg/kg	4.5	99% Chebyshev	Non-parametric, MH	4.5	99% Chebyshev	Non-parametric, N
mg/kg         0.64         1.0         9.1         1         mg/kg         2.9         99% Chebyshev         Non-parametric, MH         2.9           e         mg/kg         0.17         0.19         0.47         1         mg/kg         0.22         95% Chebyshev         Non-parametric, MH         0.22           e         mg/kg         0.02         0.047         1         mg/kg         0.06         Non-parametric, MH         0.02           mg/kg         0.012         0.041         1         mg/kg         0.014         99% Chebyshev         Non-parametric, MH         0.014           mg/kg         0.010         0.012         0.058         1         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.015         0.033         1         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.015         0.015         0.083         1         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.016           mg/kg         1.02         187         2.36         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.030           <	oranthene	mg/kg	0.57	0.88	7.5	-	mg/kg	2.4	99% Chebyshev	Non-parametric, MH	2.4	99% Chebyshev	Non-parametric, N
e         mg/kg         0.17         0.19         0.47         1         mg/kg         0.22         95% Chebyshev         Non-parametric, MO         0.22           e         mg/kg         0.22         0.28         0.97         1         mg/kg         0.014         99% Chebyshev         Non-parametric, MO         0.014           mg/kg         0.010         0.012         0.038         1         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.014           mg/kg         0.010         0.012         0.038         1         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.012         0.033         0.93         mg/kg         0.016         99% Chebyshev         Non-parametric, MH         0.036           mg/kg         0.012         0.035         1         mg/kg         0.036         99% Chebyshev         Non-parametric, MH         0.036           mg/kg         1.02         18.7         2.36         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.036           mg/kg         5.46         5.81         mg/kg         5.79         mg/kg         5.79         mg/kg         5.79		mg/kg	0.64	1.0	1.6	-	mg/kg	2.9	99% Chebyshev	Non-parametric, MH	2.9	99% Chebyshev	Non-parametric, N
nyrene         mg/kg         0.22         0.28         0.97         J         mg/kg         0.36         95% Chebyshev         Non-parametric, MH         0.014           mg/kg         0.0026         0.0045         0.041         J         mg/kg         0.014         99% Chebyshev         Non-parametric, MH         0.014           mg/kg         0.010         0.012         0.058         J         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.012         0.058         J         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.012         0.015         0.085         J         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.036           mg/kg         10.2         1.8.7         2.36         mg/kg         60.4         99% Chebyshev         Non-parametric, MH         60.4           mg/kg         5.81         11.6         mg/kg         5.79         Gamma         Lognormal         5.79           mg/kg         5.81         11.6         mg/kg         2.868         99% Chebyshev         Non-parametric, MH         60.4           mg/kg         5.81	anthracene	mg/kg	0.17	0.19	0.47	_	mg/kg	0.22	95% Chebyshev	Non-parametric, MO	0.22	95% Chebyshev	Non-parametric, N
mg/kg         0.0026         0.0045         0.041         J         mg/kg         0.014         99% Chebyshev         Non-parametric, MH         0.014           mg/kg         0.010         0.012         0.058         J         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.012         0.058         J         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.018           mg/kg         0.012         0.015         0.085         J         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.036           mg/kg         10.2         18.7         236         mg/kg         60.4         99% Chebyshev         Non-parametric, MH         60.4           mg/kg         5.81         11.6         mg/kg         5.79         Gamma         Lognormal         5.79           mg/kg         24.51         912         9,750         mg/kg         2,868         99% Chebyshev         Non-parametric, MH         60.4           mg/kg         51.700         mg/kg         2,868         99% Chebyshev         Non-parametric, MH         5.868           mg/kg         13.5         Mod-t UCL (Adjusted         Non-para	3-cd)pyrene	те⁄кв	0.22	0.28	0.97	_	mg/kg	0.36	95% Chebyshev	Non-parametric, MO	0.36	95% Chebyshev	Non-parametric, N
mg/kg         0.0045         0.041         J         mg/kg         0.014         99% Chebyshev         Non-parametric, MH         0.014           mg/kg         0.010         0.012         0.058         J         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           mg/kg         0.012         0.058         J         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.018           mg/kg         0.012         0.015         0.085         J         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.030           mg/kg         10.2         18.7         2.36         mg/kg         60.4         99% Chebyshev         Non-parametric, MH         60.4           mg/kg         5.81         11.6         mg/kg         5.79         Gamma         Lognormal         5.79           mg/kg         5.15         0.750         mg/kg         2.868         99% Chebyshev         Non-parametric, MH         60.4           mg/kg         5.81         912         9,750         mg/kg         2.868         99% Chebyshev         Non-parametric, MH         2.868           mg/kg         26,818         26,875         51,700 <t< td=""><td>CBs</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	CBs												
0.010         0.012         0.058         J         mg/kg         0.016         95% Chebyshev         Non-parametric, MH         0.016           0.055         0.093         0.93         mg/kg         0.28         99% Chebyshev         Non-parametric, MH         0.28           0.012         0.015         0.085         J         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.030           10.2         18.7         236         mg/kg         60.4         99% Chebyshev         Non-parametric, MH         60.4           5.46         5.81         11.6         mg/kg         5.79         Gamma         Lognormal         5.79           515         912         9,750         mg/kg         2.868         99% Chebyshev         Non-parametric, MI         2.868           24,518         26,875         51,700         mg/kg         26,903         for skewness)         Non-parametric, MI         26,903           735         1,417         18,900         mg/kg         735         Mean         See Note         735		mg/kg	0.0026	0.0045	0.041	7	mg/kg	0.014	99% Chebyshev	Non-parametric, MH	0.014	99% Chebyshev	Non-parametric, N
0.055         0.093         0.93         mg/kg         0.28         99% Chebyshev         Non-parametric, MH         0.28           0.012         0.015         0.085         J         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.030           10.2         18.7         23.6         mg/kg         60.4         99% Chebyshev         Non-parametric, MH         60.4           5.46         5.81         11.6         mg/kg         5.79         Gamma         Lognomal         5.79           515         912         9,750         mg/kg         2.868         99% Chebyshev         Non-parametric, MH         60.4           24,518         26,875         51,700         mg/kg         26,903         for skewness)         Non-parametric, MI         26,903           735         1,417         18,900         mg/kg         735         Mean         See Note         735	12	mg/kg	0.010	0.012	0.058	-	mg/kg	0.016	95% Chebyshev	Non-parametric, MO	0.016	95% Chebyshev	Non-parametric, N
0.012         0.015         0.085         J         mg/kg         0.030         99% Chebyshev         Non-parametric, MH         0.030           10.2         18.7         236         mg/kg         60.4         99% Chebyshev         Non-parametric, MH         60.4           5.46         5.81         11.6         mg/kg         5.79         Mod-t UCL Chebyshev         Non-parametric, MH         5.79           515         912         9,750         mg/kg         2.868         99% Chebyshev         Non-parametric, MI         2.868           24,518         26,875         51,700         mg/kg         26,903         for skewness)         Non-parametric, MI         26,903           735         1,417         18,900         mg/kg         735         Mean         See Note         735	4	mg/kg	0.055	0.093	0.93		mg/kg	0.28	99% Chebyshev	Non-parametric, MH	0.28	99% Chebyshev	Non-parametric, N
10.2         18.7         23.6         mg/kg         60.4         99% Chebyshev         Non-parametric, MH         60.4           5.46         5.81         11.6         mg/kg         5.79         Gamma         Lognomal         5.79           515         912         9,750         mg/kg         2.868         99% Chebyshev         Non-parametric, MI         2.868           24,518         26,875         51,700         mg/kg         26,903         for skewness)         Non-parametric, M         26,903           735         1,417         18,900         mg/kg         735         Mean         See Note         735	0.0	те∕кв	0.012	0.015	0.085		mg/kg	0.030	99% Chebyshev	Non-parametric, MH	0.030	99% Chebyshev	Non-parametric, N
10.2         18.7         236         mg/kg         60.4         99% Chebyshev         Non-parametric, MH         60.4           5.46         5.81         11.6         mg/kg         5.79         Gamma         Lognomal         5.79           515         912         9,750         mg/kg         2,868         99% Chebyshev         Non-parametric, MI         2,868           24,518         26,875         51,700         mg/kg         26,903         for skewness)         Non-parametric, M         26,903           735         1,417         18,900         mg/kg         735         Mean         See Note         735													
5.46         5.81         11.6         mg/kg         5.79         Gamma Gamma, Gamma, Lognormal         5.79           515         912         9,750         mg/kg         2,868         99% Chebyshev         Non-parametric, MI         2,868           24,518         26,875         51,700         mg/kg         26,903         for skewness)         Non-parametric, M         26,903           735         1,417         18,900         mg/kg         735         Mean         See Note         735	***************************************	mg/kg	10.2	18.7	236		mg/kg	60.4	99% Chebyshev	Non-parametric, MH	60.4	99% Chebyshev	Non-parametric, N
5.46         5.81         11.6         mg/kg         5.79         Gamma         Lognormal         5.79           515         912         9,750         mg/kg         2,868         99% Chebyshev         Non-parametric, MI         2,868           24,518         26,875         51,700         mg/kg         26,903         for skewness)         Non-parametric, M         26,903           735         1,417         18,900         mg/kg         735         Mean         See Note         735									95% Approximate	Approximate Gamma,		95% Approximate	Approximate Gami
515         912         9,750         mg/kg         2,868         99% Chebyshev         Non-parametric, MI         2,868           24,518         26,875         51,700         mg/kg         26,903         for skewness)         Non-parametric, MI         26,903           735         1,417         18,900         mg/kg         735         Mean         See Note         735		mg/kg	5.46	5.81	11.6		mg/kg	5.79	Gamma	Lognormal	5.79	Gamma	Lognormal
24,518         26,875         51,700         mg/kg         26,903         for skewness         Non-parametric, M         26,903           735         1,417         18,900         mg/kg         735         Mean         See Note         735		mg/kg	515	912	9,750		mg/kg	2,868	99% Chebyshev	Non-parametric, MII	2,868	99% Chebyshev	Non-parametric, N
24,518         26,875         51,700         mg/kg         26,903         for skewness)         Non-parametric, M         26,903           735         1,417         18,900         mg/kg         735         Mean         Sec Note         735									Mod-t UCL (Adjusted			Mod-t UCI. (Adjusted	
735 1,417 18,900 mg/kg 735 Mean Sec Note 735		mg/kg	24,518	26,875	51,700		mg/kg	26,903	for skewness)	Non-parametric, M	26,903	for skewness)	Non-parametric,
The second secon		mg/kg	735	1,417	18,900		mg/kg	735	Mean	See Note	735	Mean	See Note

alculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002). The average lead concentration was used as the lead EPC mice with the User's Guide for the Integrated Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002). The average lead concentration was used as the lead EPC HE, so the Integrated Exposure Uptake Biokincitic Model for Lead in Children (IEUBK) Windows® Version – 32 bit Version (USEPA, 2002). HE - highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0) data set.

MO - moderately skewed (standard deviation of log-transformed data in the interval (0.5,1) data set.

M - middly skewed (standard deviation of log-transformed data in the original set.) licates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment. ets were assumed to be half the reporting limit.

were calculated using the ProUCL (Version 3.00.02) and the EPC's were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004)

ed Value

ENECAPID Area/Report/Draft Final/Risk Assessment/Human Health Risk Tables/121C-DMROVEPC\_121C-xIs/surface soil

## SOIL EXPOSURE POINT CONCENTRATION SUMMARY - DITCH SOIL AT SEAD-121C SEAD-121C Table 6-4C

## SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium	Soil
Exposite Medium:	Soil
Exposure Point:	SEAD-121C

								Ditch Soil			Ditch Soil	
ical	Units	Arithmetic	Arithmetic 95% UCL of		0	EPC	R	Reasonable Maximum Exposure (2)	xposure (2)		Central Tendency (2)	,(2)
l		Mean	Normal	Detected		Units						
ıtial		Ξ	Data	Concentration			Medium	Medium	Medium	Medium	Medium	Medium
em				Ξ			EPC	EPC	EPC	EPC	EPC	EPC
							Value	Statistic	Rationale	Value	Statistic	Rationale
Organic Compounds	mpounds											
acenc	mg/kg	0.49	89.0	1.1	7	mg/kg	89.0	95% Student's-t	Normal	89.0	95% Student's-t	Normal
10	mg/kg	0.47	0.63	6.0	-	mg/kg	0.63	95% Student's-t	Normal	0.63	95% Student's-t	Normal
anthene	mg/kg	0.49	0.67	1.1	-	mg/kg	0.67	95% Student's-t	Normal	0.67	95% Student's-t	Normal
anthene	mg/kg	0.44	0.58	0.58	-	mg/kg	0.58	95% Student's-t	Normal	0.58	95% Student's-t	Normal
The second second	mg/kg	0.50	0.70	1.2	2	mg/kg	0.70	95% Student's-t	Normal	0.70	95% Student's-t	Normal
	-							95% Approximate	Approximate Gamma,		95% Approximate	Approximate G
ed)pyrene	mg/kg	0.41	0.55	0.27	٦	mg/kg	0.58	Gamma	Lognormal	0.58	Gamma	Lognorm
	mg/kg	3.3	4.3	6.1	ı	mg/kg	4.3	95% Student's-t	Normal	4.3	95% Student's-t	Normal
	mg/kg	18,305	21,728	27.300	J	mg/kg	21,728	95% Student's-t	Normal	21,728	95% Student's-t	Normal
	mg/kg	144	218	436		mg/kg	144	Mean	See Note	144	Mean	See Note

ates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.

\*\*were assumed to be half the reporting limit.

\*\*ere calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004)

\*\*ere calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004).

\*\*ere calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004).

\*\*He - highly skewed to Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows® Version — 32 bit Version (USEPA, 2002).

\*\*HE - highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0) data set.

\*\*MO - moderately skewed (standard deviation of log-transformed data in the interval (0.5, 1) data set.

\*\*M - mildly skewed (standard deviation of log-transformed data in the interval (0.5, 1) data set.

Value

## ф,

# Table 6-4D GROUNDWATER EXPOSURE POINT CONCENTRATION SUMMARY - GROUNDWATER AT SEAD-121C SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

No COPCs were identified based on the screening process (refer to Table 6-1d).

## Раg 7/7

## EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE WATER AT SEAD-121C SEAD-121C Table 6-4E

## SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposite Medium:	Surface water
Dancoura Doint	CEAD-171C
Exposure roun.	3EM2-1210

Chemical	Units	Arithmetic Mean	Maximum Detected	Maximum Qualifier	EPC Units	Reasonable	Reasonable Maximum Exposure (2)	sposure (2)	Centra	Central Tendency (2)	(2)
Potential		(3)	Concentration	,		Medium	Medium	Medium	Medium	Medium	Medium
Сопсет						EPC	EPC Statistic	EPC Pationala	EPC	EPC	EPC Pationale
						Vaine	Clatistic	rationar	anin		Y THE STATE OF THE
Metals											
Arsenic	ng/L	6.3	50.3		ng/L	50.3	MDC	See note	50.3	MDC	See note
Cadmium	ng/L	2.7	19.5		ng/L	19.5	MDC	See note	19.5	MDC	See note
Chromium	ng/L	15.3	129		ng/L	129	MDC	Sec note	129	MDC	See note
Iron	ng/L	13,136	110,000		ng/L	110,000	MDC	See note	110,000		See note
Lead	l ug/L	116	839		ng/L	839	MDC	See note	839		See note
Manganese	ng/L	394	2,380		ng/L	2,380	MDC	See note	2,380	MDC	See note
Thallium	ng/L	3.34	6.3		ug/L	6.3	MDC	See note	6.3	MDC	See note
Vanadium	ug/L	25.4	233		ng/L	233	MDC	See note	233	MDC	See note

## Notes:

- Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.
   Concentrations for non-detects were assumed to be half the detection limit.
   The maximum detected concentration was used as EPC for the RME and CT scenarios. Since the sample size was small (10 samples), the
- maximum detected concentration was used as the EPC as a conservative estimate.

EPC = Exposure Point Concentration

MDC = Maximum Detected Concentration

RME = Reasonable Maximum Exposure

CT = Central Tendency

# TABLE 6-5A SOIL EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE SOIL AT SEAD-1211 SEAD-1211

## SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

cenario Timeframe:	Current/Future
fedium:	Soil
xposure Medium:	Soil
xposure Point:	SEAD-1211

											- Company (1997)	
								Surface Soil			Surface Soil	
cai	Arithmetic	Arithmetic	Arithmetic Arithmetic 95% UCL of	Maximum	0	EPC	Ŗ	Reasonable Maximum Exposure (2)	xposure (2)		Central Tendency (2)	(2)
	Mean	Mean	Normal	Detected		Units						
al	Units	Ξ	Data	Concentration	-,		Medium	Medium	Medium	Medium	Medium	Medium
ш				<u>=</u>			EPC	EPC	EPC	EPC	EPC	EPC
							Value	Statistic	Rationale	Valuc	Statistic	Rationale
rganic Co	ganic Compounds											
cene	mg/kg	1.9	3.3	28	1	mg/kg	10	99% Chebyshev	Non-parametric, MH	10	99% Chebyshev	Non-parametri
	mg/kg	1.7	2.9	23		mg/kg	8.5	99% Chebyshev	Non-parametric, MH	8.5	99% Chebyshev	Non-parametri
nthene	mg/kg	1.9	3.3	29		mg/kg	10	99% Chebyshev	Non-parametric, MH	10	99% Chebyshev	Non-parametri
nthene	mg/kg	1.9	3.0	21	ī	mg/kg	8.7	99% Chebyshev	Non-parametric, MH	8.7	99% Chebyshev	Non-parametri
	mg/kg	2.4	4.0	32	'n	mg/kg	12	99% Chebyshev	Non-parametric, MH	12	99% Chebyshev	Non-parametri
racene	mg/kg	0.50	0.75	4.6	ſ	mg/kg	1.2	95% Chebyshev	Non-parametric, MO	1.2	95% Chebyshev	Non-parametri
і)рутспе	тв/кв	0.88	1.4	8.1	J	mg/kg	3.9	99% Chebyshev	Non-parametric, MH	3.9	99% Chebyshev	Non-parametri
	mg/kg	0.0023	0.0041	0.034	J	mg/kg	0.0068	95% Chebyshev	Non-parametric, MO	0.0068	95% Chebyshev	Non-parametri
xide	mg/kg	0.0050	0.0081	0.055	-	mg/kg	0.023	99% Chebyshev	Non-parametric, MH	0.023	99% Chebyshev	Non-parametri
-	mg/kg	8.33	10.9	32.1	J	mg/kg	14.9	95% Chebyshev	Non-parametric, MO	14.9	95% Chebyshev	Non-parametri
	mg/kg	29.3	50.0	439		mg/kg	82.7	95% Chebyshev	Non-parametric, MO	82.7	95% Chebyshev	Non-parametri
								95% Approximate	Approximate Gamma,		95% Approximate	Approximate C
	mg/kg	18,569	21,554	58,400		mg/kg	21,627	Gamma	Lognormal	21,627	Сатта	Lognorm
	mg/kg	15,037	30,559	310,500		mg/kg	106,375	99% Chebyshev	Non-parametric, MH	106,375	99% Chebyshev	Non-parametri
	mg/kg	6.51	14.5	163	7	mg/kg	53.4	99% Chebyshev	Non-parametric, MH	53.4	99% Chebyshev	Non-parametr
	mg/kg	20.6	29.1	182		mg/kg	42.7	95% Chebyshev	Non-parametric, MO	42.7	95% Chebyshev	Non-parametr
					-	***************************************	Control of the Contro					

tes were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.

were assumed to be half the reporting limit.

re calculated using the ProUCL (Version 3.00.02) and the EPCS were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) lating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).

HE - highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0) data set.

MO - moderately skewed (standard deviation of log-transformed data in the interval (1.0, 2.0) data set.

MO - moderately skewed (standard deviation of log-transformed data in the interval (0.5,1) data set.

M - mildly skewed (standard deviation of log-transformed data in the interval (0.5,1) data set.

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## SOIL EXPOSURE POINT CONCENTRATION SUMMARY - DITCH SOIL AT SEAD-1211 SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity TABLE 6-5B

Current/Future Soil Soil SEAD-1211 Scenario Timeframe: Medium: Exposure Medium: Exposure Point:

						-		Ditch Soil			Ditch Soil	
cal	Arithmetic	Arithmetic	Arithmetic Arithmetic 95% UCL of	Maximum	0	EPC	-	Reasonable Maximum Exposure (2)	posure (2)		Central Tendency (2)	(2)
	Mean	Mean	Normal	Detected		Units						
tial	Units	Ξ	Data	Concentration		_	Medium	Medium	Medium	Medium	Medium	Medium
Ш				Ξ			EPC	EPC	EPC	EPC	EPC	EPC
	-			,		$\neg$	Value	Statistic	Rationale	Value	Statistic	Rational
Organic Compounds	spunodu											
				44.	-			95% Approximate	Approximate Gamma,		95% Approximate	Approximate C
acene	mg/kg	2.5	4.6	4	=	mg/kg	6.5	Gamma	Lognormal	5.9	Gamma	Lognorm
						_		95% Approximate	Approximate Gamma,		95% Approximate	Approximate C
9	mg/kg	2.7	5.1	16	Ē	mg/kg	6.2	Сатта	Lognormal	6.2	Gamma	Lognorm
									Adjusted Gamma,			Adjusted Gar
anthene	mg/kg	3.8	7.0	22	_=	mg/kg	11	95% Adjusted Gamma	Lognormal	11	95% Adjusted Gamma	Lognorm
									Adjusted Gamma,			Adjusted Ga
inthene	mg/kg	3.0	6.3	23	<u></u>	mg/kg	8.9	95% Adjusted Gamma	Lognormal	8.9	95% Adjusted Gamma	Lognorm
								95% Approximate	Approximate Gamma,		95% Approximate	Approximate (
	mg/kg	3.6	7.2	25	12	mg/kg	8.6	Gamma	Lognormal	8.6	Gamma	Lognorm
thracene	mg/kg	0.62	1.3	5.0	J	mg/kg	2.4	95% Chebyshev	Non-parametric, MO	2.4	95% Chebyshev	Non-parametr
d)pyrene	mg/kg	1.3	3.1	12	J	mg/kg	=	99% Chebyshev	Non-parametric, MH	11.0	99% Chebyshev	Non-parametr
	mg/kg	17.7	35.7	104	1	mg/kg	9.09	95% Chebyshev	Non-parametric, MH	9.09	95% Chebyshev	Non-parametr
	mg/kg	17,415	21,110	30,400	-	mg/kg	21,110	95% Student's-t	Normal	21,110	95% Student's-t	Norma
	mg/kg	3,195	6,398	14,900		mg/kg	10,811	95% Chebyshev	Non-parametric, MH	10,811	95% Chebyshev	Non-parametr
	mg/kg	2.36	6.26	21.5	-	mg/kg	11.6	95% Chebyshev	Non-parametric,MH	11.6	, 95% (hebyshev	Non-parametr

ates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.

were assumed to be half the reporting limit.

ere calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) ulating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).

HE - highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0) data set.

MM - moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0) data set.

MO - moderately skewed (standard deviation of log-transformed data in the interval (0.5,1) data set.

M - mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set.

Value

# TABLE 6-5C SURFACE WATER EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE WATER AT SEAD-1211 SEAD-1211 SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Lead is the only COPC identified based on the screening. Risks associated with dermal exposure to lead were not quantitatively assessed in this risk assessment.

Therefore, a quantitative evaluation was not conducted for surface water exposure.

TABLE 6-6A
AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - SURFACE SOIL AT SEAD-121C
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity

elrame:	Current/Future
	Soil
dium:	Air
112	SEAD-121C

Air EPC from Surface Soil (mg/m³) =	CSsurf'x PM10 x CF
mical Concentration in Surface Soil, from EPC data (mg/kg) rage Measured PM10 Concentration = 17 ug/m³ ion Factor = 1E-9 kg/ug	

			***************************************	
	Reasonable Max	Reasonable Maximum Exposure	Central Tend	Central Tendency Exposure
Chemical of Potential Concern	EPC Data for Surface Soil	Calculated Air EPC Surface Soil	EPC Data for Surface Soil	Calculated Air EPC Surface Soil
A CONTRACTOR OF THE PROPERTY O	(mg/kg)	(mg/m³)	(mg/kg)	(mg/m³)
Organic Compounds				
acene	3.1	5.2E-08	3.1	5.2E-08
16	3.4	5.8E-08	3.4	5.8E-08
anthene	4,5	7.7E-08	4.5	7.7E-08
anthene	2.4	4.1E-08	2.4	4.1E-08
William Control of the Control of th	2.9	5.0E-08	2.9	5.0E-08
ıthracene	0.22	3.8E-09	0.22	3.8E-09
cd)pyrene	0.36	6.1E-09	0.36	6.1E-09
Bs				
The state of the s	0.014	2.4E-10	0.014	2.4E-10
	0.016	2.7E-10	0.016	2.7E-10
	0.28	4.8E-09	0.28	4.8E-09
	0.030	5.1E-10	0.030	5.1E-10
***************************************	60.4	1.0E-06	60.4	1.0E-06
The market of the first of the	5.79	9.9E-08	5.79	9.9E-08
THE RESERVE AND THE RESERVE AN	2,868	4.9E-05	2,868	4.9E-05
1111 1111 1111 1111 1111 1111 1111 1111 1111	26 903	4 6F04	26.903	4.6E-04

TABLE 6-6B
AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - SURFACE SOIL AT SEAD-1211
SEAD-1211 RI REPORT
Seneca Army Depot Activity

	School Action Actions
frame:	Current/Future
	Soil
ium:	Air
	SEAD-1211

nical Concentration in Surface Soil, from EPC data (mg/kg)	age Measured PM10 Concentration = 17 ug/m³	on Factor = 1E-9 kg/ug	

CSsurf x PM10 x CF

Air EPC from Surface Soil (mg/m3)

	Reasonable May	Reasonable Maximum Exposure	Central Tende	Central Tendency Exposure
	EPC Data for	Calculated Air EPC	EPC Data for	Calculated Air EPC
C nentical 01 Potential Concern	Surface Soil	Surface Soil	Surface Soil	Surface Soil
and the second s	(mg/kg)	(mg/m³)	(mg/kg)	(mg/m³)
Organic Compounds				
acene	10	1.7E-07	10	1.7E-07
3	8.5	1.4E-07	8.5	1.4E-07
anthene	10	1.7E-07	10	1.7E-07
anthene	8.7	1.5E-07	8.7	1.5E-07
	12	2.0E-07	12	2.0E-07
thracene	1.2	2.0E-08	1.2	2.0E-08
d)pyrene	3.9	6.6E-08	3.9	6.6E-08
		The state of the s		
	0.0068	1.2E-10	0.0068	1.2E-10
oxide	0.023	4.0E-10	0.023	4.0E-10
A STATE OF THE STA	14.9	2.5E-07	14.9	2.5E-07
	83	1.4E-06	83	1.4E-06
	21627.1	3.7E-04	21627.1	3.7E-04
	106,375	1.8E-03	106,375	1.8E-03
	53.4	9.1E-07	53.4	9.1E-07
	42.7	7.3E-07	42.7	7.3E-07

# TABLE 6-6C AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - SURFACE SOIL AT SEAD-1211

## SEAD-1211 SEAD-121C AND SEAD-1211 RI REPORT Sencea Army Depot Activity

frame:		Current/Future
		Soil
ium:	- T	Air
ŢŢ.	o	SEAD-1211
Air EPC from Surface Soil (mg/m³) =		CSsurf x PM10 x CF

CSsurf x PM10		
	from EPC data (mg/kg)	
Air EPC from Surface Soil (mg/m3)	iical Concentration in Surface Soil, from EPC data (mg/kg)	
Air EP(	iical Co	

nical Concentration in Surface Soil, from EPC data (mg/kg)	C data (mg/kg)			
ige ivicasured $riv 10 \text{ Loncentration} = 110 \text{ ug/m}^2$ ion Factor = $1\text{E}$ -9 kg/ug	ym,			
	Reasonable Man	Reasonahle Maximim Exposure	Central Tendo	Central Tendency Expositre
	EPC Data for	Calculated Air EPC	EPC Data for	Calculated Air EPC
Chemical of Potential Concern	Surface Soil	Surface Soil	Surface Soil	Surface Soil
	(mg/kg)	(mg/m³)	(mg/kg)	(trng/m <sub>3</sub> )
Organic Compounds				
acene	10	1.1E-06	01	1.1E-06
9	8.5	9.4E-07	8.5	9.4E-07
anthene	10	1.1E-06	10	1.1E-06
anthene	8.7	9.6E-07	8.7	9.6E-07
	12	1.3E-06	12	1.3E-06
thracene	1.2	1.3E-07	1.2	1.3E-07
d)pyrenc	3.9	4.3E-07	3.9	4.3E-07
	0.0068	7.5E-10	0.0068	1 7.5E-10
oxide	0.023	2.6E-09	0.023	2.6E-09
	14.9	1.6E-06	14.9	1.6E-06
	83	9.1E-06	83	9.1E-06
	21627.1	2.4E-03	21627.1	2.4E-03
	106,375	1.2E-02	106,375	1.2E-02
	53.4	5.9E-06	53.4	5.9E-06
	42.7	4.7E-06	42.7	4.7E-06

# TABLE 6-7 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - TOTAL SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

frame:	Current/Future
	Soil
lium:	Air
וני	SEAD-121C

CStotal x PM10 x CF	
- Air EPC from Total Soil (mg/m²) =	mical Concentration in Soil, from EPC data (mg/kg) age Measured PM10 Concentration = 954 $\rm ug/m^3$ ion Factor = 1E-9 kg/ug

	Reasonable Max	Reasonable Maximum Exposure	Central Tende	Central Tendency Exposure
3- 1:	EPC Data for	Calculated Air EPC	EPC Data for	Calculated Air EPC
Chemical of Potential Concern	Total Soil	Total Soil	Total Soil	Total Soil
	(mg/kg)	(mg/m³)	(mg/kg)	(mg/m³)
anic Compounds				
	0.19	1.9E-07	0.19	1.9E-07
Organic Compounds				
acche	1.8	1.7E-06	1.8	1.7E-06
16	1.8	1.7E-06	1.8	1.7E-06
anthene	2.4	2.3E-06	2.4	2.3E-06
anthene	1.3	1.2E-06	1.3	1.2E-06
The state of the s	177	1.6E-06	1.7	1.6E-06
thracene	0.21	2.0E-07	0.21	2.0E-07
ed)pyrene	0.30	2.9E-07	0.30	2.9E-07
:Bs				
American for the first for the	0.0073	6.9E-09	0.0073	6.9E-09
Trace of a company when a section of the company of	0.014	1.4E-08	0.014	1.4E-08
	0.14	1.4E-07	0.14	1.4E-07
	0.033	3.2E-08	0.033	3.2E-08
				-
	29.9	2.9E-05	29.9	2.9E-05
	5.73	5.5E-06	5.73	5.5E-06
	1,477	1.4E-03	1,477	1.4E-03
The second secon	27.507	2.6E-02	27,507	2.6E-02

# TABLE 6-8A AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - DITCH SOIL AT SEAD-121C SEAD-121C SEAD-121I RI REPORT Seneca Army Depot Activity

Current/Future	Soil	Air	SEAD-121C
frame:		ium:	נו

Air EPC from Ditch Soil $\{mg/m^3\}$ =	CSditch x PM10 x CF	
smical Concentration in Ditch Soil, from EPC data (mg/kg)		
age Measured PM10 Concentration = 17 ug/m³		
on Factor = 1E-9 kg/ug		

design and the state of the sta	Reasonable Max	Reasonable Maximum Exposure	Central Tende	Central Tendency Exposure
Chemicals of Potential Concern	EPC Data for Ditch Soil	Calculated Air EPC Ditch Soil	EPC Data for Ditch Soil	Calculated Air EPC Ditch Soil
	(mg/kg)	(mg/m³)	(mg/kg)	(mg/m³)
Organic Compounds			The state of the s	
acene	0.7	1.1E-08	0.7	1.1E-08
3	0.6	1.1E-08	9.0	1.1E-08
anthene	0.7	1.1E-08	0.7	1.1E-08
anthene	9.0	9.9E-09	9.0	9.9E-09
	0.7	1.2E-08	0.7	1.2E-08
d)pyrene	9.0	9.9E-09	9.0	9.9E-09
and the second s	4.3	7.2E-08	4.3	7.2E-08
	21,728	3.7E-04	21,728	3.7E-04

TABLE 6-8B
AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR INDUSTRIAL WORKER AND ADOLESCENT TRESPASSER - DITCH SOIL AT SEAD-1211
SEAD-121C AND SEAD-1211 RI REPORT
Seneca Army Depot Activity

frame:	Current/Future
	Soil
ium:	Air
Tt.	SEAD-1211

CSditch x PM10 x CF

(mg/m³) =	emical Concentration in Ditch Soil, from EPC data (mg/kg) age Measured PM10 Concentration = 17 $\rm ug/m^3$
- Air EPC from Ditch Soil (mg/m³) =	emical Concentration in Ditch Soil, from EPC darage Measured PM10 Concentration = 17 ug/m³
Air E	emical age M

ion Factor = 1E-9 kg/ug	Ħ
ion Factor = 1E-9 kg/ug	- 11
ion Factor = 1E-9 kg/ug	
ion Factor = 1E-9 kg/ug	Ĭ.
ion Factor = 1E-9 kg/ug	
ion Factor = 1E-9 kg/ug	
ion Factor = 1E-9 kg/ug	ĥ
ion Factor = 1E-9 kg/ug	- 11
ion Factor = 1E-9 kg/ug	H
ion Factor = 1E-9 kg/ug	H
ion Factor = 1E-9 kg/ug	I
ion Factor = 1E-9 kg/ug	1
ion Factor = 1E-9 kg/ug	l
ion Factor = 1E-9 kg/ug	
ion Factor = 1E-9 kg/ug	ll l
ion Factor = 1E-9 kg/ug	
ion Factor = 1E-9 kg/ug	- 11
ion Factor = 1E-9 kg/ug	ĮĮ.
ion Factor = 1E-9 kg/ug	- 11
ion Factor = 1E-9 kg/ug	11
ion Factor = 1E-9 kg/ug	
ion Factor = 1E-9 kg/ug	ll.
ion Factor = 1E-9 kg/ug	H
ion Factor = 1E-9 kg/ug	
ion Factor = 1E-9 kg/ug	
ion Factor = 1E-9 kg/ug	- 11
ion Factor = 1E-9 kg/ug	
ion Factor = 1E-9 kg/ug	ll
ion Factor = 1E-9 kg/ug	H
ion Factor = 1E-9 kg/ug	1
ion Factor = 1E-9 kg/	쓸
ion Factor = 1E-9 k	18
ion Factor = 1E-	2
ion Factor = 1	
ion Factor =	
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PM 10 Concentration =	1E-9 kg/ug
ge Measured	n Factor = 1]
še	Ξ

	Reasonable Maximum Exposure	imum Exposure	Central Tende	Central Tendency Exposure
Chemical of	EPC Data for Ditch Soil	Calculated Air EPC Ditch Soil	EPC Data for Ditch Soil	Calculated Air EPC Ditch Soil
Polential Concern	(тв/кв)	(m/g/m³)	(mg/kg)	(mg/m³)
Organic Compounds	White production and the state of the state			
acenc	5.9	1.0E-07	5.9	1.0E-07
16	6.2	1.1E-07	6.2	1.1E-07
anthene		1.9E-07		1.9E-07
anthene	8.9	1.5E-07	8.9	1.5E-07
· Vo autotitititititititititititititititititit	8.6	1.5E-07	8.6	1.5E-07
thracene	2.4	4.0E-08	2.4	4.0E-08
cd)pyrene	11.0	1.9E-07	11.0	1.9E-07
	The state of the s			
***************************************	9.09	1.0E-06	60.6	1.0E-06
4.64.6.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	21,110	3.6E-04	21,110	3.6E-04
A PARAMETER AND A CONTRACT OF THE PARAMETER AND A CONTRACT OF	10,811	1.8E-04	10,811	1.8E-04
A CONTRACTOR OF THE PARTY OF TH	1.6	2.0E-07	11.6	2.0E-07

# TABLE 6-8C AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - DITCH SOIL AT SEAD-121C SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

:frame:	Current/Future
•	Soil
lium:	Air
34	SEAD-121C
r Air EPC from Ditch Soil (mg/m²) =	CSditch x PM10 x CF
mical Concentration in Ditch Soil, from EPC data (mg/kg)	
age Measured PM10 Concentration = 110 ug/m³	
ion Factor = 1E-9 kg/ug	Parameter Control of the Control of
And the state of t	
D Ciference	December Meximin Dunching

The state of the s	Reasonable Max	Reasonable Maximum Exposure	Central Tende	Central Tendency Exposure
Chemicals of	EPC Data for	Calculated Air EPC	EPC Data for	Calculated Air EPC
Potential Concern	Organ Soli	Ditch Soft	100 In	100 11310
	(mg/kg)	(mg/m³)	(mg/kg)	(mg/m³)
Organic Compounds	ANALYSIA MARKATANA MARKATANA ANALYSIA MARKATANA ANA	A Commence of the Commence of		
acene	0.7	7.4E-08	0.7	7.4E-08
16	0.6	6.9E-08	9.0	6.9E-08
anthene	0.7	7.4E-08	0.7	7.4E-08
anthene	0.6	6.4E-08	9.0	6.4E-08
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.7	7.7E-08	0.7	7.7E-08
cd)pyrene	9.0	6.4E-08	9.0	6.4E-08
	4.3	4.7E-07	4.3	4.7E-07
	21,728	2.4E-03	21,728	2.4E-03

## Pa 7

# TABLE 6-8D AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR CONSTRUCTION WORKER - DITCH SOII, AT SEAD-1211

## SEAD-1211 SEAD-121C AND SEAD-1211 RI REPORT Sencea Army Depat Activity

frame:	Current/Future
	Soil
Jium:	Air
ıt	SEAD-1211

CSditch x PM10 x CF
Ditch Soil (mg/m³) =
r Air EPC from

emical Concentration in Ditch Soil, from EPC data (mg/kg) age Measured PM10 Concentration = 110 ug/m² ion Factor = 1E-9 kg/ug

	Reasonable Maximum Exposure	imum Exposure	Central Tende	Central Tendency Exposure
	EPC Data for	Calculated Air EPC	EPC Data for	Calculated Air EPC
Potential Concern	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil
The state of the s	(mg/kg)	(mg/m³)	(mg/kg)	(mg/m³)
Organic Compounds				
acenc	5.9	6.5E-07	5.9	6.5E-07
31	6.2	6.9E-07	6.2	6.9E-07
anthene		1.2E-06		1.2E-06
anthene	8.9	9.8E-07	8.9	9.8E-07
	8.6	9.5E-07	9.8	9.5E-07
thracene	2.4	2.6E-07	2.4	2.6E-07
cd)pyrenc	11.0	1.2E-06	11.0	1.2E-06
A TANAMA A SERVICIA S	9.09	6.7E-06	60.6	6.7E-06
	21,110	2.3E-03	21,110	2.3E-03
	10,811	1.2E-03	10,811	1.2E-03
	11.6	1.3E-06	11.6	1.3E-06

# TABLE 6-9A EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-121C and SEAD-121I
Receptor Population:	Construction Worker
Receptor Age:	Adult

PARAMETER			RME		-	CT	OF TAXABLE AND PROPERTY.	Table of the second
CODE	PARAMETER DEFINITION	CULTS	VALUE	KME KAJIONALE	KME KEFEKENUE	VALUE	CIRATIONALE	C. KEFER
EPC	Soil EPC	mg/kg		Surface and subsurface soils.	See Table 6-4A/B/C &		Surface and subsurface soils.	See Table 6-4
					6-5A/B			6-5A/B
BW	Body Weight	kg	70	Default value for construction worker.	USEPA, 2002.	70	Default value for construction worker.	USEPA, 2002
K	Ingestion Rate	mg/day	330	Default value for construction worker.	USEPA, 2002.	100	Default value for outdoor worker.	USEPA, 2002
H	Fraction Ingested	unitless	,	Assuming 100% ingestion from site.	BPJ.	-	Assuming 100% ingestion from site.	BPJ.
EF	Exposure Frequency		250	Default value for construction worker.	USEPA, 2002.	219	Default value for industrial worker.	USEPA, 2004
ED	Exposure Duration	year	1	Default value for construction worker.	USEPA, 2002.	_	Default value for construction worker.	USEPA, 2002
CF	Conversion Factor	60	1.E-06			1.E-06		
AT(Nc)	Averaging Time - Nc		365	I year.		365	1 year.	
AT(Car)	Averaging Time - Car		25,550	70 years, default value for construction	USEPA, 2002.	25,550	70 years, default value for construction	USEPA, 2002
				worker.			worker.	
EPC	Soil EPC	mg/kg		Surface and subsurface soils.	See Table 6-4A/B/C &		Surface and subsurface soils.	See Table 6-4
					6-5A/B			6-5A/B
BW	Body Weight	kg	20	Default value for construction worker.	USEPA, 2002.	70	Default value for construction worker.	USEPA, 2002
SA	Skin Contact Surface Area	cm <sup>2</sup>	3,300	Default value for construction worker.	USEPA, 2002.	3,300	Default value for construction worker.	USEPA, 2002
ΑF	Soil/Skin Adherence Factor	mg/cm²-event	0.3	Default value for construction worker.	USEPA, 2002.	0.3	Default value for construction worker.	USEPA, 2002
ABS	Dermal Absorption Fraction	unitless		Chemical-specific.	USEPA, 2004.		Chemical-specific.	USEPA, 2004
EV	Event Frequency	events/day	_	Default value for construction worker.	USEPA, 2002.	_	Default value for construction worker.	USEPA, 2002
EF	Exposure Frequency	days/yr	250	Default value for construction worker.	USEPA, 2002.	219	Default value for industrial worker.	USEPA, 2004
ED	Exposure Duration	year	_	Default value for construction worker.	USEPA, 2002.	_	Default value for construction worker.	USEPA, 2002
Ç	Conversion Factor	кв/тв	1.E-06			1.E-06		
AT(Nc)	Averaging Time - Nc		365	I year.		365	1 year.	
AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for construction	USEPA, 2002.	25,550	70 years, default value for construction	USEPA, 2002
				worker.			worker.	

ble Maximum Exposure adency Exposure

Source References:

• BPJ: Best Professional Judgment.

• USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

• USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x FI / (BW x AT) DI (mg/kg-day) = EPC x SA x AF x ABS x EV x EF x ED x CF/(BW x AT)

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## EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-1211 SEAD-121C and SEAD-121I Remedial Investigation TABLE 6-9A

## Seneca Army Depot Activity

Scenario Timeframe:	CurrentFuture
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-121C and SEAD-121I
Receptor Population:	Construction Worker
Receptor Age:	Adult

CT RATIONALE	Surface and subsurface soils.	Default value for construction worker.	Default value for construction worker.	Default value for industrial worker.	Default value for construction worker.	1 year.	70 years, default value for construction	worker.
CT		70	20	219		365	25,550	
RME REFERENCE	See Table 6-6C, 6-7, 6 8C/D	USEPA, 2002.	USEPA, 2002.	USEPA, 2002.	USEPA, 2002.		USEPA, 2002.	
RME RATIONALE	Surface and subsurface soils.	Default value for construction worker.	1 year.	70 years, default value for construction	worker.			
RME		70	20	250	_	365	25,550	
STIND	mg/m³	ke	m³/dav	dave/vr	vear	davs	davs	
PARAMETER DEFINITION	Air EPC	Body Weight	Inhalation Rate	Exposure Frequency	Exposure Duration	Averaging Time - Nc	Averaging Time - Car	
PARAMETER CODE	EPC		民		ED	AT(Nc)	AT(Car)	
	1. 2							

CT REPERE

See Table 6-6C 6-8C/D USEPA, 2002. USEPA, 2004. USEPA, 2004.

USEPA, 2002.

Ource References:

\*\*SOBPEA\*\*, 2005: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

\*\*USEPA\*\*, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E., Supplemental Guidance for Dermal Risk Assessment) Final.

Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

<u>::</u>

nable Maximum Exposure Tendency Exposure

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# TABLE 6-9A EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-1211 SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

posure Medium  posure Point: Cand SEAD-121I Construction Worker	Medium Groundwater	Groundwater	cenario Timeframe: Current/Future
---	--------------------	-------------	-----------------------------------

	CONTRACTOR OF THE PROPERTY OF				7107707		-		
POSURE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	VALUE	RME RATIONALE	RME REFERENCE	VALUE	CT RATIONALE	CT REFERENCE
take of	EPC	Groundwater EPC	mg/L		See Table 6-4D	See Table 6-4D			See Table 6-4D
undwater	BW	Body Weight	kg	70	Default value for construction worker.	USEPA, 2002.	70	Default value for construction worker.	USEPA, 2002.
	ĸ	Intake Rate	L/day	1	Default intake rate for	USEPA, 1991.	0.7	_	USEPA, 1997 & BPI.
					commercial/industrial worker			Uday, assurning half occurs at work.	USEPA, 2004.
	臣	Exposure Frequency	days/yr	250	Default value for construction worker	USEPA, 2002.	219	Default value for industrial worker	USEPA, 2002.
	ED		year		Default value for construction worker.	USEPA, 2002.		Default value for construction worker.	
	AT(Nc)	Averaging Time - No	days	365	1 year.		365	1 year.	USEPA, 2002.
	AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for construction	USEPA, 2002.	25,550	70 years, default value for construction	
					worker.			worker.	
ral Contact	EPC	Groundwater EPC	mg/L		See Table 6-4D	See Table 6-4D		See Table 6-4D	See Table 6-4D
oundwater	BW	Body Weight	kg	70	Default value for construction worker.	USEPA, 2002.	70	Default value for construction worker	USEPA, 2002.
	SA	Skin Surface Area	cm <sub>2</sub>	2490	Maximum surface area for adult male	USEPA, 1997	1980	Average surface area for adult male	USEPA, 1997.
					(including hands and forearms).			(including hands and forearms).	
	ED	Exposure Duration	years	-	Default value for construction worker	USEPA, 2002, 2004.		Default value for industrial worker.	USEPA, 2004.
	EF	Exposure Frequency	days/yr	100	Assumes contact with groundwater 2	BPJ.	100	Assumes contact with groundwater 2	USEPA, 2004.
					workdays each week for 50 weeks.			workdays each week for 50 weeks.	
	EV	Event Frequency	events/day		Assumption.	BPJ.	ş4		BPJ.
	L WERE	Event duration (hr/event)	hr/event	0.5	Assumes half hour to assemble or	BPJ.	0.5	OF	BPJ.
					disassemble a pumping system.			disassemble a pumping system.	
	AT(Nc)	Averaging Tune - No	days	365	1 year	USEPA, 2002.	365	l year	
	AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for construction		25,550	70 years, default value for construction	USEPA, 2002.
					worker.			worker.	
: == Reasonal	: = Reasonable Maximum Exposure	iure		Source References - BPJ: Best Profes - USEPA, 1997: F	Source References: BPJ: Best Professional Judgment. USEPA, 1997: Exposure Factors Handbook				
Central Te.	Central Tendency Exposure			· USEPA, 20 · USEPA, 20	USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sistes. December. USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.	g Soil Screening Levels Fo nd Volume I: Human Heal rmal Risk Assessment) Fir	r Superfund S th Evaluation al.	ites. December. Manual	
e Equation: Intake (DI)	(mg/kg-day) = EP(	e Equation: Intake (DI) (mg/kg-day) = EPC x IR x EF x ED/(BW x AT)							
-			12.4						

DI (mg/kg-day) = DA  $_{\text{erm}}$  x EV x EF x ED x SA/(BW x AT) Where: DA<sub>west</sub> = Absorbed dose per event (mg/cm²-event)

ন

 $If_{t_{creal}} > t^*, \text{ then: } DA_{creal} = FA \times K_p \times EPC \left[ \left( t_{creal} / 1 + B \right) + 2 \, \tau_{creal} \left( \left( 1 + 3 \, B + 3 \, B^2 \right) / \left( 1 + B \right)^2 \right) \right]$ For organic compounds: If  $t_{\rm tree} < \approx t^{*}$ , then: DA<sub>even</sub> = 2 FA × K<sub>0</sub> x EPC ( (6  $\tau_{\rm cree}$  x  $t_{\rm even}$ ) /  $\pi$  ) <sup>172</sup>

**W**bere:

1\* = Time to reach steady - state (hr)

7<sub>cvet</sub> = Lag Time per event (hr / even)

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative
to its permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

DAevent = Kp x EPC x tevent

For morganic compounds:

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## EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C and SEAD-1211 Remedial Investigation TABLE 6-9A

## Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	SEAD-121C and SEAD-121I
Receptor Population:	Construction Worker
Receptor Age:	Adult

	PARAMETER			RME	A A THOUGHT OF EACH	TOTAL CHARLES	CT	G 17 NOELT G LO	Canadada 20
	CODE	PAKAME LEK DEFINITION	CINITS	VALUE	KME KA MONALE	KME KEFEKENCE	VALUE	CI KATIONALE	CI KEFEKEI
-	EPC	Surface Water EPC	mg/L		See Table 6-4E & 6-5C	See Table 6-4E & 6-5C		See Table 6-4E & 6-5C	Sce Table 6-4E &
_	BW	Body Weight	kg	70	Default value for construction worker.	USEPA, 2002.	70	Default value for construction worker.	USEPA, 2002.
	SA	Skin Surface Area	cm <sup>2</sup>	2490	Maximum surface area for adult male	USEPA, 1997	1980	Average surface area for adult male	USEPA, 1997.
					(including bands and forearms).			(including bands and forearms).	
	ED	Exposure Duration	years	-	Default value for construction worker.	USEPA, 2002, 2004.		Default value for industrial worker.	USEPA, 2004.
	EF	Exposure Frequency	days/yr	100	Assumes contact with surface water 2	BPJ.	100	Assumes contact with surface water 2	USEPA, 2004.
-					workdays each week for 50 weeks.			workdays each week for 50 weeks.	
	EV	Event Frequency	events/day	1	Assumption.	BPJ.	prest	Assumption.	BPJ.
_	Loren	Event Duration (hr/event)	hr/event	0.5	Assumes half hour to assemble or	BPJ.	0.5	Assumes half hour to assemble or	BPJ.
					disassemble a pumping system.			disassemble a pumping system.	
	AT(Nc)	Averaging Time - Nc	days	365	1 year		365	1 year	
_	AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for construction	USEPA, 2002.	25,550	70 years, default value for construction	USEPA, 2002.
_					worker			worker.	

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Source References:

• BPJ: Best Professional Judgment.

• USEPA, 1997: Exposure Factors Handbook

• USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

• USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

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DI (mg/kg-day) = DA $_{\rm cven}$  x EV x EF x ED x SA/(BW x AT) Where: DA $_{\rm cven}$  = Absorbed dose per event (mg/cm $^2$ -event)

organic compounds: If  $t_{\rm even} < \sim t^*$ , then: DA<sub>even</sub> = 2 FA x K<sub>p</sub> x EPC ( (6  $\tau_{\rm even}$  x  $t_{\rm even}$ )  $\tau$ )<sup>17</sup>

 $If\,t_{\text{event}} > t^*, \, then: \, DA_{\text{event}} = FA \; x \; K_p \; x \; EPC \left[ \; (t_{\text{event}} \; / \; i \; + \; B) \; + \; 2 \; \tau_{\text{event}} \left( \; (1 \; + \; 3 \; B \; + \; 3 \; B^2) \; / \; (1 \; + \; B)^2 \; \right) \; \right]$ 

t\* = Time to reach steady - state (hr) Where:

Term = Lag Time per event for the event.

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum comeum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

DAevent = Kp x EPC x tevent

norganic compounds:

## EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C and SEAD-121I Remedial Investigation TABLE 6-9B

Seneca Army Depot Activity

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-121C and SEAD-1211
Receptor Population:	Industrial Worker
Receptor Age:	Adult

Fai	PARAMETER			RME			CT	In the state of the state of the state of	And desired and
,	CODE	PARAMETER DEFINITION	UNITS	VALUE	KME KATIONALE	KME KEFEKENCE	VALUE	CIKALIONALE	CI KEFEKEN
	EPC	Soil EPC	mg/kg		Surface soils.	See Table 6-4B & 6-5A		Surface soils.	See Table 6-4B &
_	BW	Body Weight	kg	70	Default value for industrial worker.	USEPA, 2002.	70	Default value for industrial worker.	USEPA, 2002.
	R	Ingestion Rate	mg/day	100	Default value for outdoor worker.	USEPA, 2002.	20	Mean adult soil ingestion rate.	USEPA, 1997.
	H	pa	unitless	_	Assumng 100% ingestion from site.	BPJ.	1	Assuming 100% ingestion from site.	BPJ.
	EF	ıcy	days/yr	250	Default value for industrial worker.	USEPA, 2002, 2004.	219	Default value for industrial worker.	USEPA, 2004.
	ED		year	25	Default value for industrial worker.	USEPA, 2002, 2004.	6	Default value for industrial worker.	USEPA, 2004.
	CF	Conversion Factor	kg/mg	1E-6			1E-6		
	AT(Nc)	Averaging Time - Nc	days	9,125	25 years.		3,285	9 years.	
	AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for industrial	USEPA, 2002.	25,550	70 years, default value for industrial	USEPA, 2002.
					worker.			worker.	
Г	EPC	Soil EPC	mg/kg		Surface soils.	See Table 6-4B & 6-5A		Surface soils.	See Table 6-4B &
Z.	BW	Body Weight	Kg.	70	Default value for industrial worker.	USEPA, 2002.	70	Default value for industrial worker.	USEPA, 2002.
_	SA	Skin Contact Surface Area		3,300	Default value for industrial worker.	USEPA, 2002, 2004.	3,300	Default value for industrial worker.	USEPA, 2002, 200
	AF	Soil/Skin Adherence Factor	event	0.2	Default value for adherence factor.	USEPA, 2002, 2004.	0.02	Default value for adherence factor.	USEPA, 2004.
	ABS	Dermal Absorption Fraction	unitless		Chemical-specific	USEPA, 2004.		Chemical-specific	USEPA, 2004.
	EV	Event Frequency	events/day	_	Default value for industrial worker.	USEPA, 2004.	1	Default value for industrial worker.	USEPA, 2002, 200
	EF	Exposure Frequency	days/yr	250	Default value for industrial worker.	BPJ.	219	Default value for industrial worker.	USEPA, 2004.
	ED	Exposure Duration	year	25	Default value for industrial worker.	USEPA, 2002, 2004.	6	Default value for industrial worker.	USEPA, 2004.
	CF	Conversion Factor	kg/mg	1E-6			1E-6		
	AT(Nc)	Averaging Time - No	days	9,125	25 year.		3,285	9 years.	
	AT(Car)	Averaging Time - Car		25,550	70 years, default value for industrial	USEPA, 2002.	25,550	70 years, default value for industrial	USEPA, 2002.
					worker.			worker.	

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Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x FI / (BW x AT) DI (mg/kg-day) = EPC x SA x AF x ABS x EV x EF x ED x CF/(BW x AT)

Source References:

BPI: Best Professional Judgment.

USEPA, 1997: Exposure Factors Handbook.

USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

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## EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C and SEAD-121I Remedial Investigation TABLE 6-9B

Seneca Army Depot Activity

Scenario Timeframe:	Future
Medium:	Ditch Soil
Exposure Medium:	Ditch Soil
Exposure Point:	SEAD-121C and SEAD-121I
Receptor Population:	Industrial Worker
Receptor Age;	Adult

(II				2000			1.0		
얼	PARAMETER CODE	PARAMETER DEFINITION	UNITS	VALUE	RME RATIONALE	RME REFERENCE	VALUE	CT RATIONALE	CT REFEREN
ربي)	EPC	Soil EPC	mg/kg		Surface soils.	See Table 6-4C & 6-5B			See Table 6-4C &
	BW	Body Weight	kg	70	Default value for industrial worker.	USEPA, 2002.	70	Default value for industrial worker.	USEPA, 2002.
	IR	Ingestion Rate	mg/day	100	Default value for outdoor worker.	USEPA, 2002.	50	Mean adult soil ingestion rate.	USEPA, 1997.
	FI	ed	unitless	1	Assuming 100% ingestion from site.	BPJ.		Assuming 100% ingestion from site.	BPJ.
_	日	Exposure Frequency	days/yr	50	Default value for industrial worker.	USEPA, 2002, 2004.	50	Default value for industrial worker.	USEPA, 2004.
_	ED	Exposure Duration	year	25	Default value for industrial worker.	USEPA, 2002, 2004.	6	Default value for industrial worker.	USEPA, 2004.
_	CF	Conversion Factor	kg/mg	1E-6			1E-6		
	AT(Nc)	Averaging Time - No	days	9,125	25 years.		3,285	9 years.	
-~	AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for industrial	USEPA, 2002.	25,550	70 years, default value for industrial	USEPA, 2002.
					worker.			worker.	
	EPC	Soil EPC	mg/kg		Surface soils.	See Table 6-4C & 6-5B		Surface soils.	See Table 6-4C &
٤.	BW	Body Weight	kg	70	Default value for industrial worker.	USEPA, 2002.	70	Default value for industrial worker.	USEPA, 2002.
_	SA	Skin Contact Surface Area	cm2	3,300	Default value for industrial worker.		3,300	Default value for industrial worker.	USEPA, 2002, 200
	AF	Soil/Skia Adherence Factor	mg/cm2-event	0.2	Default value for adherence factor.		0.02	Default value for adherence factor.	USEPA, 2004.
	ABS	Dermal Absorption Fraction	unitless		Chemical-specific	USEPA, 2004.		Chemical-specific	USEPA, 2004.
	EV	Event Frequency	events/day	-	Default value for industrial worker.	USEPA, 2004.	_	Default value for industrial worker.	USEPA, 2002, 200
	EF	Exposure Frequency	days/yr	50	Default value for industrial worker.	BPJ.	50	Default value for industrial worker.	USEPA, 2004.
	ED	Exposure Duration	year	25	Default value for industrial worker.	USEPA, 2002, 2004.	6	Default value for industrial worker.	USEPA, 2004.
	CF	Conversion Factor	kg/mg	1E-6			1E-6		
	AT(Nc)	Averaging Time - No	days	9,125			3,285		
	AT(Car)	Averaging Time - Car	days	25,550		USEPA, 2002.	25,550		USEPA, 2002.

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Source References:

BPI: Best Professional Judgment.

USEP A, 1997: Exposure Factors Handbook

USEP A, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

USEP A, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

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Daity Intake (D1) (mg/kg-day) = EPC x IR x EF x ED x CF x F1 / (BW x AT) D1 (mg/kg-day) = EPC x SA x AF x ABS x EV x EF x ED x CF/(BW x AT)

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# EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-121C and SEAD-121I
Receptor Population:	Industrial Worker
Receptor Age:	Adult

B	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME	RME RATIONALE	RME REFERENCE	CT	CT RATIONALE	CT REFERENCE
jo	EPC	Air EPC	mg/m3		Surface soils.	See Table 6-4B/C & 6-5A/B		Surface soils.	See Table 6-4B/C & 6-5A
	BW	Body Weight		70	Default value for industrial worker.	USEPA, 2002.	70	Default value for industrial worker.	USEPA, 2002.
ij	ĸ	Inhalation Rate	nı3/day	20	Default value for industrial worker.	USEPA, 2002.	10.4	Assumes average inhalation rate of 1.3	USEPA, 1997 & BPJ.
								m3/hr for outdoor worker for 8 hrs/day.	USEPA, 2004.
	EF	Exposure Frequency	days/yr	250	Default value for industrial worker.	USEPA, 2002, 2004.	219	Default value for industrial worker.	USEPA, 2004.
	ED	Exposure Duration	year	25	Default value for industrial worker.	USEPA, 2002, 2004.	6	Default value for industrial worker.	
_	AT(Nc)	Averaging Time - Nc	days	9,125	25 years.		3,285	9 years.	USEPA, 2002.
	AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for industrial	USEPA, 2002.	25,550	70 years, default value for industrial worker.	
					worker.				

Source References:

- BPJ: Best Professional Judgement.

- USEPA, 1997: Exposure Factors Handbook

- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.

- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual

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rion Daily intake (DI) (mg/xg-day) = EPC x IR x EF x ED / (BW x AT)

# TABLE 6-9B EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-1211 SEAD-121C and SEAD-121I Remedial Investigation

Seneca Army Depot Activity

COURT OF THE PROPERTY.	amin's	
Medium:	Groundwater	
posure Medium:	Groundwater	
Exposure Point:	SEAD-121C and SEAD-121I	
ceptor Population:	Industrial Worker	
ptor Age:	Adult	

RE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME	RME RATIONALE	RME REFERENCE	CT	CT RATIONALE	CT
4	FPC	Groundwater EPC	mø/1		See Table 6-4D	See Table 6-4D		See Table 6-4D	See Table 6-4
ter	BW		20.00	70	Default value for industrial worker.	USEPA, 2002.	70	Default value for industrial worker.	USEPA, 2002
	K	Intake Rate	L/day	-	Default intake rate for	USEPA, 1991.	0.7	Average adult tap water intake is 1.41	USEPA, 1997
					commercial/industrial worker.			L/day, assuming half occurs at work.	BPJ.
	EF	Exposure Frequency	days/yr	250	Default value for industrial worker.	USEPA, 2002, 2004.	219	Default value for industrial worker.	USEPA, 2004
	ED	Exposure Duration	year	25	Default value for industrial worker.	USEPA, 2002, 2004.	6	Default value for industrial worker.	USEPA, 2004
	AT(Nc)	Averaging Time - Nc	days	9,125	25 years.		3,285	9 years.	
	AT(Car)	Averaging Time - Car		25,550	70 years, default value for industrial	USEPA, 2002.	25,550	70 years, default value for industrial worker. USEPA, 2002	USEPA, 2002
					worker.				

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Source References:
Source References:
Source References:
- USEPA, 1991: Human Health Evaluation Manual, OSWER Directive 9285.6-03. Jun 25.
- USEPA, 1997: Exposure Factors Handbook
- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. Docember.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual
(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

tion:  $(DI) \ (mg/kg-day) = EPC \times IR \times EF \times ED/(BW \times AT)$ 

## TABLE 6-9C EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

				_	-	_	_	_				÷		_		_			_	-			$\neg$
		CT RATIONALE	Surface soils.	Average weight for adolescent ages 11-16 (Table 7-3).	Mean soil ingestion rate for adult.	Assuming 100% ingestion from site.	Assumption.	Assumption.		5 years.	70 years, default value for human life span.	Surface soils.	Average weight for adolescent ages 11-16 (Table 7-3).	Average surface area for adolescent child (11-16) including	head, hands, forearms, lower less, and feet.	Default value for adult.	Chemical-specific	Default value for residential child.	Assumption.	Assumption.		5 years.	70 years, default value for human life span.
	כו	VALUE		20	50		14	2	1.E-06	1,825	25,550		20	2,867		0.01			7	2	1E-06	1,825	25,550
		RME REFERENCE	See Table 6-4B/C & 6-5A/B	USEPA, 2002.	USEPA, 2002.	BPJ.	BPJ.	BPJ.			USEPA, 2002.	See Table 6-4B/C & 6-5A/B	USEPA, 2002.	USEPA, 1997.	-	USEPA, 2004.	USEPA, 2004.	USEPA, 2004.	BPJ.	BPJ			USEPA, 2002.
Current/Future Said Soil Soil Adolescent Treppaser (11-16yr) Adolescent (11-16yr)		RME RATIONALE	Surface soils.	Average weight for adolescent ages 11-16 (Table 7-3).	Default soil ingestion rate for adult.	Assuming 100% ingestion from site.	Assumption.	Assumption.		5 years.	70 years, default value for human life span.	Surface soils.	Average weight for adolescent ages 11-16 (Table 7-3).	Average surface area for adolescent child (11-16) including	head, hands, forearms, lower legs, and feet.	Default value for adult.	Chemical-specific	Default value for residential child	Assumption,	Assumption.		5 years.	70 years, default value for human life span.
Current/Future Soil Soil SEAD-121C at Adolescent Tre Adolescent (11	RME	VALUE		20	100	-	4	2	1.E-06	1,825	25,550		20	5,867		0.07			14	'n	1E-06	1,825	25,550
Q		UNITS	mg/kg	kg	mg/day	unitless	days/yr	year	kg/mg	days	days	mg/kg	kg.	cm <sub>2</sub>		mg/cm²-event	unitless	events/day	days/yr	year	kg/mg	days	days
Scenario Tinefrane: Medium: Exposure Andiure Exposure Point: Receptor Population: Receptor Age:		PARAMETER DEFINITION	Soil EPC	Body Weight	Ingestion Rate	Fraction Ingested	Exposure Frequency	Exposure Duration	Conversion Factor	Averaging Time - No	Averaging Time - Car		Body Weight	Skin Contact Surface Area		Soil/Skin Adherence Factor	Dermal Absorption Fraction	Event Frequency	Exposure Frequency	Exposure Duration	Conversion Factor	Averaging Time - No	Averaging Time - Car
	PARAMETER	CODE	EPC	BW	R	E		ED	£,	AT(Nc)	AT(Car)	EPC	BW	SA		AF	ABS	EV	出	ED	Ç	AT(Ne)	AT(Car)
	-		-		_	_			_	-		-			_			_	_	_	_	_	

CT REFERENC

See Table 6-4B/C & 6-USEPA, 1997. USPP. BPJ. BPJ.

USEPA, 2002. See Table 6-4B/C & 6-USEPA, 2002. USEPA, 1997.

USEPA, 2004. USEPA, 2004. USEPA, 2004. BPJ. BPJ.

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Source References:

- BPJ: Best Professional Judgment.

- USEPA, 1972. Exposure Factors Handbook

- USEPA, 2002: Supperfund Guidance For Developing Soil Screening Levels For Superfund Sites. Docember.

- USEPA, 2002: Supplemental Guidance for Superfund Volume I: Human Health Evaluation Manual

(Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Daily Intake (DI) (mg/kg-day) = EPC  $_{\rm A}$  IR  $_{\rm x}$  EF  $_{\rm x}$  ED  $_{\rm x}$  CF  $_{\rm x}$  FI / (BW  $_{\rm x}$  AT) DI (mg/kg-day) = EPC  $_{\rm x}$  SA  $_{\rm x}$  AF  $_{\rm x}$  ABS  $_{\rm x}$  EV  $_{\rm x}$  EF  $_{\rm x}$  ED  $_{\rm x}$  CF/(BW  $_{\rm x}$  AT)

## TABLE 6-9C EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

	Medium:		Soil		
	Exposure Medium:		Air		
	Exposure Point:		SEAD-121	SEAD-121C and SEAD-1211	
	Receptor Population		Adolescent	Adolescent Trespasser (11-16yr)	
	Receptor Age:		Adolescent (11-16yr)	(11-16yr)	
METER	PARAMETER		RME	the second control of the second control	000000000000000000000000000000000000000
ODE	DEFINITION	SINO	VALUE	KME KATIONALE	KME KEFEKBNUE
PC	Air EPC	mg/m³		Surface soils.	See Table 6-4B/C & 6-5A/B
W	Body Weight	kg	50	Average weight for adolescent ages 11-16 (Table 7-3).	USEPA, 2002.
æ	Inhalation Rate	m³/day	9.1	Average inhalation rate for moderate activity is 1 6 m3/hr	USEPA, 1997 & BPJ.
				Assuming 1 hr/day exposure.	
1	The Court of the C	drinker 14		Agenment	the I

CT REFERENCE

See Table 6-4B/C & 6-5 USEPA, 2002. USEPA, 1997 & BPI.

USEPA. 2002

BPJ. BPJ.

PARAMETER         UNITS         PALUE         ROME RATIONALE           At EPC         mg/m³         Surface soils.           Body Weight         kg         50         Average weight for adolescent ages 11-16 (Table 7-3).           Brown Rate         m³/day         16         Average inhabation rate for moderate activity is 16 m³/hr           Exposure Frequency         days/yr         14         Assumption.           Exposure Duration         year         5         Assumption.           Average in Average in Assumption.         year         6 years.	BRENCE CT CT RATIONALE	I/C & 6-5A/B Surface soils	50 Average weight for adolescent ages 11-16 (Table 7-3).	& BPJ. 1.6 Average inhalation rate for moderate activity is 1.6 m <sup>2</sup> /hr.	Assuming 1 hr/day exposure.	14 Assumption	S Assumption	1,825   5 years.	The east of the same of the same of the same
PARAMETER	RME REFERENCE	See Table 6-4B/C & 6-5A/B	USEPA, 2002	USEPA, 1997 & BPJ.		BPJ.	BPJ.		4000
PARAMETER UNITS DEFINITION Myn Air EPC mg/m Body Weight kg kg Inbalation Rate m²/day Exposure Frequency days/r Exposure Duration year		Surface soils.	Average weight for adolescent ages 11-16 (Table 7-3).	Average inhalation rate for moderate activity is 1 6 m <sup>3</sup> /h	Assuming 1 hr/day exposure.	Assumption.	Assumption.	6 years.	
PARAMETER DEFINITION AT EPC Body Weight Inhalation Rate Exposure Frequency Exposure Purition			20	1.6		14	2	1,825	
Air El Body Inhala Expos	TING	mg/m³	kg	m3/day		days/yr	year	days	
AMETER CODE EPC BW R R EF		Air EPC	Body Weight	Inhalation Rate		Exposure Frequency	Exposure Duration	Averaging Time - No	
PAR L	PARAMETER CODE		BW	呂		ь		AT(Nc)	

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Source References:

- BPP: Best Professional Judgment

- USEPA, 1997: Expressure Factors Handbook

- USEPA, 1997: Expressure Factors Handbook

- USEPA, 2002: Supplemental Guidance for Developing Soil Screening Levels For Superfund Sites. Decemben.

- USEPA, 2004: Risp Assessment Guidance for Superfund Volume I. Human Health Evaluation Manual

- USEPA, 2004: Rassessment Guidance for Dermal Risk Assessment) Final.

Daily Intake (Df) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

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# TABLE 6-9C EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

	CT RATIONALE	See Table 6-4D  So Average weight for adolescent ages 11-16 (Table 7-3).  Og7 Average for 11-19 yr old  Assumption  Assumption  Sof Syears.  22,550 70 years, default value for human life span.
	CT	50 0.97 14 5 365 25,550
	RME REFERENCE	See Table 6-4D USEPA, 2002. USEPA, 1997. BPJ. BPJ. USEPA, 2002.
Groundwarer SEAD-121C and SEAD-121I Adolescent Trespasser (11-16yr)	RME RATIONALE	See Table 6-4D Avange weight for adolescent ages 11-16 (Table 7-3). Stop percentile for 11-19 yr old. Assumption. Assumption. 5 years. 70 years. default value for human life span.
Groundwater Groundwater SEAD-121C and SEA Adolescent Trespasser Adolescent (11-16yr)	RME	50 2 14 5 1,825 25,550
	UNITS	mg/L kg L/day days/yr year days
Arconun: Exposure Medium: Exposure Point: Receptor Population: Receptor Age:	PARAMETER DEFINITION UNITS	Groundwater EPC Body Weight innake Rate Exposure Frequency Exposure Duration Averaging Time - Nc Averaging Time - Car
	PARAMETER CODE	EPC BW RR EF ED AT(Ne) AT(Car)

SURE TTE E of twater

CT REFERENCE

See Table 6-4D USEPA, 2002. USEPA, 1997. BPJ. BPJ.

USEPA. 2002.

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Source Reference:

- BPI: Best Professional Judgment

- USEPA, 1997 Exposure Factors Handbook

- USEPA, 2002: Supplemental Guidance for Developing Soil Screening Levels For Superfund Sites. December.

- USEPA, 2004: Supplemental Guidance for Superfund Volume I: Human Health Evaluation Manual

- USEPA, 2004: Rassessment Guidance for Dermal Risk Assessment) Final.

Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x FI / (BW x AT)

quation:

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# EXPOSURE FACTOR ASSUMPTIONS FOR SEAD-121C AND SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Scenario Timeframe	CurrentFuture
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	SEAD-121C and SEAD-1211
Receptor Population:	Adolescent Trespasser (11-16yr)
Receptor Age:	Adolescent (11-16yr)

NCE					_				******	***	ener.	
CT REFERENCE		See Table 6-4E	USEPA, 2002.	USEPA, 1997.			BPJ.	BPJ.	USEPA, 2004.	USEPA, 2004		USEPA, 2002.
CT RATIONALE		See Table 6-4E	Average weight for adolescent ages 11-16 (T) USEPA, 2002.	Average surface area for adolescent child (11 USEPA, 1997	16) including head, hands, forearms, lower	legs, and feet.	Assumption.	Assumption.	Default CT for water contact.	Default CT for showering/bathing.	5 years.	70 years, default value for human life span USEPA, 2002.
IJ	VALUE		50	5,867			5	14	,	0.33	1,825	25.550
RME REFERENCE		See Table 6-4E	USEPA, 2002.	USEPA, 1997.			BPJ.	BPJ.	USEPA, 2004.	BPJ.		USEPA, 2002.
RME RATIONALE		See Table 6-4E	Average weight for adolescent ages 11-16 (T) USEPA, 2002.	Average surface area for adolescent child (11) USEPA, 1997.	16) including head, hands, forearms, lower	lens, and feet.	Assumption	Assumption	Default RME for water contact.	Assumption.	5 years.	70 years, default value for human life span USEPA, 2002.
RME	VALUE		50	5,867			5	14	_	0.5	1,825	25,550
UNITS		mg/L	kg	car,			years	days/yr	events/day	hr/event	days	days
EXPOSURE PARAMETER DEFINITION		Surface Water EPC	Body Weight	Skin Surface Area			Exposure Duration	Exposure Frequency	Event Frequency	Event Duration (hr/event)	Averaging Time - No	Averaging Time - Car
PARAMETER	CODE	EPC	BW	SA			А	齿		tevral	AT(Nc)	AT(Car)
EXPOSURE	ROUTE	Dermal Contact	of Surface	Water								

Source References:

- BPP: Best Professional Judgment.

- USEPA, 1997: Exposure Factors Handbook

- USEPA, 2002: Supplemental Guiddance for Developing Soil Screening Levels For Superfund Sites December.

- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I. Human Health Evaluation Manual

- (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Dermal

Notes: RME = Reasonable Maximum Exposure CT =: Central Tendency Exposure

Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x F1/ (BW x AT)
D1 (mg/kg-day) = EPC x SA x AF x ABS x EV x EF x ED x CF/(BW x AT)
D1 (mg/kg-day) = DA<sub>creal</sub> x EV x EF x ED x SA/(BW x AT)
Where: DA<sub>creal</sub> = Absorbed dose per event (mg/cm²-event)
For organic compounds: If t<sub>real</sub> <= t², then: DA<sub>eved</sub> = 2FA x K<sub>o</sub> x EPC ((6 x<sub>real</sub> x t<sub>real</sub>) / x)<sup>12</sup> Intake Equations: Ingestion

 $If\,t_{event} > t^*,\,then:\,DA_{event} = FA\;x\;K_p\;x\;EPC\;[\;(t_{event}\;/\;1+B)+2\;\tau_{event}\;(\;(1+3\;B+3\;B^2)\,/\;(1+B)^2\;)\;]$ 

Where:

t\* = Time to reach steady - state (fm)

f<sub>reer</sub> = Lag Time per event (fm / event)

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative

lo ise permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

B = Kp (MW)<sup>1/2</sup> / 2.6 If B<= 0.6, then t\*=2.47<sub>eves</sub>

$$\begin{split} I(B > 0.6, \text{ then } t^* = 6 \text{ revent } (b\text{-SQRT}(b^2\text{-c}^2)) \\ \tau_{\text{crest}} = 0.105 \times 10^{(0.0050\text{AW})} \\ Kp = 10^{\circ}(-2.80\text{+}0.66) (\text{logK}_{\text{cw}}) - 0.0056(\text{MW})) \end{split}$$

DA<sub>west</sub> = K<sub>p</sub> x EPC x t<sub>ewest</sub> For inorganic compounds:

SUSPENDED PARTICULATE CONCENTRATIONS MEASURED AT SEDA SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity **TABLE 6-10** 

PARTICULATE DATA	SITE #1 PM 10	SITE #2 PM 10	SITE #3 PM 10	SITE #4 PM 10
Peak Concentration (ug/m3)	37 on 23 July 95	37 on 23 July 95	37 on 5 July 95	37 on 5 July 95
Arithmetic Mean (ug/m3)	16.9	16.6	16.4	15.8
Standard Deviation	21.4	21.1	23.0	23.0
Geometric Mean (ug/m3)	15.1	14.8	14.8	14.2
No. of 24-hr. Avgs. Above 150 ug/m3	0	0	0	0
Number of Valid Samples	29	32	29	31
Percent Data Recovery	9.06	100.0	9.06	6.96

Cumulative Summary for April 1, 1995 through July 31, 1995

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## Table 6-11A NON-CANCER TOXICITY DATA — ORAL/DERMAL SEAD-121C and SEAD-1211 SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Oral to Dernial Adjustment Factor (1)	Adjusted Dermal RfD (2)	Units	Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfD: Target Organ	Dates of RfD: Target Organ (3) (MM/DD/YY)
1,1,2,2-Tetrachloroethane	Chronic	6.0E-02	mg/kg-day	1	6.0E-02	mg/kg-day	N/A	N/A	PPRTV	4/7/2005
1,2-Dichloropropane	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	Chronic	3.0E-02	N/A	ı	3.0E-02	mg/kg-day	N/A	N/A	NCEA	4/7/2005
Вепzепе	Chronic	4.0E-03	mg/kg-day	-	4.0E-03	mg/kg-day	Blood	300	IRIS	3/24/2005
Vinyl chloride	Chronic	3.0E-03	mg/kg-day	-	3.0E-03	mg/kg-day	Liver	30	IRIS	3/10/2005
2-Methylnaphthalene	Chronic	4.0E-03	mg/kg-day	1	4.0E-03	mg/kg-day	Lungs	1000	IRIS	3/10/2005
Benzo(a)anthracene	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(h)fluoranthene	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(k)fluoranthene	N/A	N/A	V/N		N/A	N/A	N/A	N/A	N/A	¥∕Z
Chrysene	N/A	N/A	N/A		N/A	N/A	N/A	N/A	V/V	N/A
Dibenz(a,h)anthracene	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	V/V
Іпдепо(1,2,3-сd)рутепе	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalenc	Chronic	2.0E-02	mg/kg-day	1	2.0E-02	nıg/kg-day	Body Weight	3000	IRIS	3/15/2005
Phenanthrene	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1242	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor-1254	Chronic	2.0E-05	mg/Kg-day	_	2.0E-05	mg/kg-day	Eye, İmmune System	300	IRIS	3/24/2005
Aroclor-1260	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDD	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDE	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDT	Chronic	5.0E-04	mg/kg-day		5.0E-04	mg/kg-day	Liver	100	IRIS	12/03/2004
Alpha-BHC	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Beta-BHC	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Delta-BHC	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	Chronic	5.0E-05	mg/kg-day	_	5.0E-05	mg/kg-day	Liver	100	IRIS	3/15/2005
Gamma-Chlordane (4)	Chronic	5.0E-04	mg/kg-day	-	5.0E-04	mg/kg-day	Liver	300	IRIS	3/15/2005
Heptachlor	Chronic	1.3E-05	mg/kg-day	-	1.3E-05	mg/kg-day	Liver	1000	IRIS	12/03/2004
Heptachlor cpoxide	Chronic	5.0E-04	mg/kg-day	1	5.0E-04	nıg/kg-day	Liver	300	IRJS	3/15/2005
Antimony	Chronic	4.0E-04	nıg/kg-day	0.15	6.0E-05	mg/kg-day	Whole Body Blood	1000	IRIS	12/03/2004

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## NON-CANCER TOXICITY DATA -- ORAL/DERMAL SEAD-121C AND SEAD-121I RI REPORT SEAD-121C and SEAD-1211 Seneca Army Depot Activity Table 6-11A

- 6 c						-		T					
Dates of RID: Target Organ (3) (M:M:DD/YY)	12/03/2004	3/24/2005	3/24/2005	3/24/2005	3/15/2005	4E+04	12/23/2004	3/16/2005	3/15/2005	3/15/2005	12/23/2004	3/15/2005	
Sources of RID: Target Organ	IRIS	IRIS	IRIS	HEAST	IRIS	NCEA	IRIS	IRIS	IRIS	IRIS	IRIS	HEAST	
Combined Uncertainty/Modifying Factors	3	10	006		200	1	3	1000	300	3	3000	100	
Primary Target Organ	Skin	Kidney	N/A	Gastrointestinal	Whole Body, Thyroid	N/A	Central Nervous System	Immune System	Whole Body, Organs	Skin	Liver, Blood, Hair	N/A	
Units	mg/kg-day	mg/kg-day	mg/kg-day	nıg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	
Adjusted Dermal RID (2)	3.0E-04	2.5E-05	7.5E-05	4.0E-02	2.0E-02	3.0E-01	9.3E-04	2.1E-05	8.0E-04	2.0E-04	6.5E-04	1.8E-04	
Oral to Dermal Adjustment Factor (1)	-	0.05	0.025			1	0.04	0.07	0.04	0.04	_	0.026	
Oral RID Units	nıg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	ıng/kg-day	mg/kg-day	тв/кв-day	mg/kg-day	
Oral RfD Value	3.0E-04	5.0E-04	3.0E-03	4.0E-02	2.0E-02	3.0E-01	2.3E-02	3.0E-04	2.0E-02	5.0E-03	6.5E-04	7.0E-03	
Chronic/ Subchronic	Chronic	Chronic	Chronic	Chronic	Subchronic	Chronic	Chronic	Chronic	Chronic	Chronic	Chronic	Chronic	
al trial		(5)	(9)		(7)		(8)	(6)			(01)		opho
Chemical of Potential Concern	Arsenic	Cadmium	Chromium	Copper	Cyanide, Total	Iron	Manganese	Mercury	Nickel	Silver	Thallium	Vanadium	N/A = Not Amboshlo

N/A =: Not Applicable IRIS = Integrated Risk Information System

HEAST= Health Effects Assessment Summary Tables NCEA \* National Center for Environmental Assessment

PPRTV = EPA's Provisional Peer Reviewed Toxicity Values

(1) Source: Supplemental Guidance for Dermal Risk Assessment. Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1). Final. USEPA. 2004.

A default value of 1 was used if no value was available in the USEPA (2004) document.

(2) Dermal RfD  $\approx$  Oral RfD x Adjusfment Factor

(3) For IRIS values, the date was the last time IRIS was checked.

For NCEA values, the date was the date of the article provided by NCEA.

For PPRTV values, the date was the date of the Region III RBC table, where the PPRTV was cited from

- (4) The chronic oral RID for gamma-chlordane was based on the chronic RID of chlordane.
- (5) The chronic oral RfD for cadmium was based on water, since cadmium is only a COC for surface water (6) The chronic oral RfD for chronium was based on the chronic RfD of chromium (VI).
  - (7) The chronic oral RfD for cyanide was based on the chronic RfD of hydrogen cyanide.
- (8) The chronic oral RID for manganese was adjusted by using a modifying factor of 3 in accordance with the IRIS recommendation.

In addition, dictary exposure (assumed 5 mg/day) was subtracted. Thus, the RfD used in this risk assessment is 1/6 of the value listed in the IRIS.

- (9) The chronic oral RID for mercury was based on the chronic RtD of mercuric chloride.
- (10) The chronic oral R.D. for thatlitum was based on the chronic oral R.D. of thallitum sulfate adjusted for molecular weight differences

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Table 6-11B

NON-CANCER TOXICITY DATA -- INHALATION

SEAD-121C and SEAD-121I

SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

Chemical	Chronic/	Value	Units	Adjusted	Units	Primary	Combined	Sources of	Dates (2)	Notes
of Potential	Subchronic	Inhalation		Inhalation		Target	Uncertainty/Modifying	RfC:RfD:	(MM/DD/YY)	
Concern		RfC		R(D(1)		Organ	Factors	Target Organ		
1,2,2-Tetrachloroethane	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
2-Dichloropropane	Chronic	4.0E-03	mg/m³	1.1E-03	mg/kg-day	respiratory system	300	IRIS	3/10/2005	
4-Dichlorobenzene	Chronic	8.0E-01	mg/m³	2.3E-01	mg/kg-day	liver	100	IRIS	3/10/2005	
enzene	Chronic	3.0E-02	mg/m³	8.6E-03	mg/kg-day	Blood	300	IRIS	3/24/2005	
nyl chloride	Chronic	1.0E-01	mg/m³	2.9E-02	mg/kg-day	liver	30	IRIS	3/10/2005	
Methyinaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
enzo(a)antluracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
enzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	V/N	N/A	N/A	
enzo(b)fluoranthenc	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
enzo(ghi)perylene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
enzo(k)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
arysene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
ibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
deno(1,2,3-cd)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
apthalene	Chronic	3.0E-03	mg/m³	8.6E-04	mg/kg-day	respiratory system	3000	IRIS	3/15/2005	
renanthrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
roclor-1242	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
roclor-1254	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
roctor-1260	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4'-DDD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4'-DDE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
4-DDT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Ipha-BHC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
eta-BHC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
elta-BHC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
ieldrin	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

## 4

## Table 6-11B NON-CANCER TOXICITY DATA -- INHALATION SEAD-121C and SEAD-1211 SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

_					_		-				_		_		:	-		_	-	
	Notes									(3)						(4)				
	Dates (2)	(MM/DD/YY)		3/14/2005	N/A	N/A	N/A	N/A	4/7/2005	3/24/2005	N/A	N/A	N/A	N/A	12/23/04	3/14/05	N/A	N/A	N/A	N/A
	Sources of	RfC:RfD:	Target Organ	IRIS	N/A	N/A	N/A	N/A	NCEA	IRIS	N/A	N/A	N/A	N/A	IRIS	IRIS	N/A	N/A	N/A	N/A
	Combined	Uncertainty/Modifying	Factors	1000	N/A	N/A	N/A	N/A	N/A	300	N/A	N/A	N/A	N/A	1000	30	N/A	N/A	N/A	N/A
	Primary	Target	Organ	Liver	N/A	N/A	N/A	N/A	N/A	respiratory system	N/A	N/A	N/A	N/A	Central Nervous System	Body, Brain	N/A	N/A	N/A	N/A
	Units			mg/kg-day	N/A	N/A	N/A	N/A	mg/kg-day	mg/kg-day	N/A	N/A	N/A	N/A	mg/kg-day	mg/kg-day	N/A	N/A	N/A	N/A
	Adjusted	Inhalation	RfD (1)	2.0E-04	N/A	N/A	N/A	N/A	5.7E-05	2.9E-05	N/A	N/A	N/A	N/A	1.4E-05	8.6E-05	N/A	N/A	N/A	N/A
	Units			nıg/m³	N/A	N/A	N/A	N/A	mg/m³	mg/m³	N/A	N/A	N/A	N/A	mg/m³	mg/m3	N/A	N/A	N/A	N/A
	Value	Inhalation	RfC	7.0E-04	N/A	N/A	N/A	N/A	2.0E-04	1.0E-04	N/A	N/A	N/A	N/A	5.0E-05	3.0E-04	N/A	N/A	N/A	N/A
	Chronic/	Subchronic		Chronic	N/A	N/A	N/A	N/A	Chronic	Chronic	N/A	N/A	N/A	N/A	Chronic	Chronic	N/A	N/A	N/A	N/A
	Chemical	of Potential	Сопсети	amma-Chlordane	eptachlor	eptachlor epoxide	ntimony	rsenic	admium	hromium	оррег	yanide, Total	on	ead	anganese	ercury	ickel	ilver	hallium	anadium

otes:

/A = Not Applicable

US = Integrated Risk Information System

PRTV = EPA's Provisional Peer Reviewed Toxicity Values

) Inhalation RfD was adjusted based on the assumption of 70 kg body weight and 20 m³/day inhalation rate.

.) For IRIS values, the date was the last time IRIS was checked.

For PPRTV or NCEA values, the date was the date of the Region III RBC table, where the PPRTV was cited from

) The chronic oral RfD for chromium was based on the chronic RfD of chromium (VI).

.) The chronic data for mercury was based on the chronic data of elemental mercury.

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## Table 6-11C CANCER TOXICITY DATA -- ORAL/BERMAL SEAD-121C and SEAD-121I SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Сопсет	Ofal Cancer Stopic Factor	Of a Cancer Stope ractor	Adjustment	Adjusted Dermal Cancer Slope Factor (2)	Units	Weignt of Evidence	Weight of Evidence	Date (3) (MM/DD/YY)
			Factor (1)			Description	Source	
,2,2-Tetrachloroethane	2.0E-01	IRIS	1	2.0E-01	(mg/kg-day)-1	C	IRIS	3/14/2005
-Dichloropropane	6.8E-02	HEAST, 1997		6.8E-02	(mg/kg-day)-1	B2	HEAST, 1997	3/14/2005
-Dichlorobenzene	2.4E-02	HEAST, 1997	-	2.4E-02	(mg/kg-day)-1	C	HEAST, 1997	3/14/2005
nzene	5.5E-02	IRIS	1	5.5E-02	(mg/kg-day)-1	٧	IRIS	3/24/2005
nyi chloride	1.4E+00	IRIS	1	1.4E+00	(mg/kg-day)-1	A	IRIS	3/14/2005
Methylnaphthalene	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
enaphthylene	N/A	N/A	1	N/A	N/A	D	IRJS	12/03/2004
nzo(a)anthracene	7.3E-01	NCEA	1	7.3E-01	(mg/kg-day) <sup>-1</sup>	B2	IRIS	12/03/2004
nzo(a)pyrene	7.3E+00	IRIS	1	7.3E+00	(mg/kg-day) <sup>-1</sup>	B2	IRIS	12/03/2004
nzo(b)fluoranthene	7.3E-01	NCEA	1	7.3E-01	(mg/kg-day)"	B2	IRJS	12/03/2004
nzo(ghi)perylene	N/A	N/A	1	N/A	N/A	D	IRUS	12/03/2004
nzo(k)fluoranthene	7.3E-02	NCEA	1	7.3E-02	(mg/kg-day)"	B2	IRIS	12/03/2004
rbazole	2.0E-02	HEAST, 1997	1	2.0E-02	(mg/kg-day)"	N/A	N/A	N/A
rysene	7.3E-03	NCEA	1	7.3E-03	(mg/kg-day) <sup>-1</sup>	B2	IRIS	12/03/2004
benz(a,h)anthracene	7.3E+00	NCEA	1	7.3E+00	(mg/kg-day) <sup>-1</sup>	B2	IRIS	12/03/2004
Icno(1,2,3-cd)pyrene	7.3E-01	NCEA	1	7.3E-01	(mg/kg-day) <sup>-1</sup>	B2	IRIS	12/03/2004
phthalene	N/A	N/A	-	N/A	N/A	ပ	IRJS	3/15/2005
enanthrene	N/A	N/A	1	N/A	N/A	D	IRIS	12/03/2004
octor-1242	2.0E+00	IRIS		2.0E+00	(mg/kg-day)-1	B2	IRIS	3/24/2005
oclor-1254	2.0E+00	IRIS	1	2.0E+00	(mg/kg-day)-1	B2	IRIS	3/24/2005
oclor-1260	2.0E+00	IRIS	-	2.0E+00	(mg/kg-day)-1	B2	IRIS	3/24/2005
t-DDD	2.4E-01	IRIS	1	2.4E-01	(mg/kg-day)-1	B2	IRIS	3/15/2005
t-DDE	3.4E-01	IRIS	_	3.4E-01	(mg/kg-day)"	B2	IRIS	12/03/2004
t-DDT	3.4E-01	IRIS		3.4E-01	(mg/kg-day)"	B2	IRIS	12/03/2004
pha-BHC	6.3E+00	IRIS	-	6.3E+00	(mg/kg-day) <sup>-1</sup>	B2	IRIS	3/15/2005
eta-BHC	1.8E+00	IRIS	1	1.8E+00	(mg/kg-day)	၁	IRIS	3/15/2005

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### CANCER TOXICITY DATA -- ORAL/DERMAL SEAD-121C AND SEAD-121I RI REPORT SEAD-121C and SEAD-1211 Seneca Army Depot Activity Table 6-11C

Chemical	Oral Cancer Slope Factor	Oral Cancer Slope Factor	Oral to Dermal	Adjusted Dermal	Units	Weight of Evidence/	Weight of	Date (3)
of Potential		Source	Adjustment	Cancer Slope Factor (2)		Cancer Guideline	Evidence	(MM/DD/YY)
Сопсети			Factor (1)			Description	Source	
sla-BHC	N/A	N/A	1	N/A	N/A	D	IRIS	3/15/2005
eldrin	1.6E+01	IRIS	-	1.6E+01	(mg/kg-day)-1	B2	IRIS	3/15/2005
ımma-Chlordane	3.5E-01	IRIS	1	3.5E-01	(mg/kg-day)-1	B2	IRIS	3/15/2005
sptachlor epoxide	9.1E+00	IRIS	1	9.1E+00	(mg/kg-day)"	B2	IRIS	12/03/2004
sptachlor	4.5E+00	IRUS	1	4.5E+00	(mg/kg-day)"	B2	IRIS	3/15/2005
itimony	N/A	N/A	0.15	N/A	N/A	N/A	N/A	N/A
senic	1.5E+00	IRUS	1	1.5E+00	(mg/kg-day)"	A	IRIS	12/03/2004
dmium	N/A	N/A	-	N/A	N/A	Bi	IRIS	3/24/2005
tromium	N/A	N/A	1	N/A	N/A	D	IRIS	3/24/2005
pper	N/A	N/A	1	N/A	N/A	Q	IRIS	3/24/2005
anide, Total	N/A	N/A	yand	N/A	A/A	D	IRIS	3/15/2005
U.	N/A	N/A	-	N/A	N/A	N/A	N/A	N/A
anganesc	N/A	N/A	0.04	N/A	N/A	D	N/A	N/A
ercury	N/A	N/A	0.07	N/A	N/A	D	IRIS	3/15/2005
ckel	N/A	N/A	0.04	N/A	N/A	N/A	N/A	N/A
ver	N/A	N/A	0.04	N/A	N/A	D	N/A	N/A
allium	N/A	N/A	_	N/A	N/A	Q	N/A	N/A
nadium	N/A	N/A	0.026	N/A	N/A	N/A	N/A	N/A

IS = Integrated Risk Information System

3AST= Health Effects Assessment Summary Tables

CEA = National Center for Environmental Assessment

'R'TV = EPA's Provisional Peer Reviewed Toxicity Values

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and

inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

) Source: USEPA (2004) Supplemental Guidance for Dermal Risk Assessment. Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual

(Volume I). Final. A default value of 1 was used if no value was available in the USEPA (2004) document.

ses:

) Dermal Cancer Slope Factor = Oral Cancer Slope Factor/Adjustment Factor

) For IRIS values, the date was the last time IRIS was checked.

For PPRTV values, the date was the date of the Region III RBC table, where the PPRTV was cited from.

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### Table 6-11D CANCER TOXICITY DATA -- INHALATION SEAD-121C and SEAD-121I SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

nemical Potential oncern	Unit Risk	Units	Unit Risk Source	Adjustment (1)	Inhalation Cancer Slope Factor	Units	Weight of Evidence/ Cancer Guideline Description	Weight of Evidence Source	Date (MM/DI
achloroethane	5.8E-05	(ug/m³) <sup>-1</sup>	IRIS	3500	2.0E-01	(mg/kg-day)-1	2	IRIS	3/14/2
оргорапс	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/
obenzene	N/A	N/A	N/A	N/A	2.2E-02	(mg/kg-day) <sup>-1</sup>	C	HEAST	3/14/2
	7.8E-06	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	2.7E-02	(mg/kg-day)-1	A	IRIS	3/24/2
de	8.8E-06	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	3.1E-02	(mg/kg-day) <sup>-1</sup>	A	IRIS	3/14/2
phthalene	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N.
lene	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	12/03/
hracene	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	12/03/
rene	8.9E-04	(ug/m <sup>3</sup> )-1	NCEA	3500	3.1E+00	(mg/kg-day)"	B2	IRIS	12/03/
oranthene	N/A	N/A	1	N/A	N/A	N/A	B2	IRIS	12/03/
erylene	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	12/03/
oranthene	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	12/03/
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Z
	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	12/03/
anthracene	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	12/03/
3-cd)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	12/03/
	N/A	N/A	N/A	N/A	N/A	N/A	C	IRIS	3/15/
Je	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	12/03/
12	5.7E-04	N/A	N/A	3500	2.0E+00	(mg/kg-day) <sup>-1</sup>	B2	IRIS	3/24/
54	5.7E-04	N/A	N/A	3500	2.0E+00	(mg/kg-day)"	B2	IRIS	3/24/
90	5.7E-04	N/A	N/A	3500	2.0E+00	(mg/kg-day) <sup>-1</sup>	B2	IRIS	3/24/
	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	3/15/
	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	12/03
	9.7E-05	(ug/m³) <sup>-1</sup>	IRIS	3500	3.4E-01	(mg/kg-day) <sup>-1</sup>	B2	IRIS	12/03,
	1.8E-03	(ug/m³) <sup>-1</sup>	IRIS	3500	6.3E+00	(mg/kg-day)"	B2	IRIS	3/15/
	5.3E-04	(ug/m³) <sup>-1</sup>	IRIS	3500	1.9E+00	(mg/kg-day) <sup>-1</sup>	C	IRIS	3/15/
	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	3/15/

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### CANCER TOXICITY DATA -- INHALATION SEAD-121C AND SEAD-121I RI REPORT SEAD-121C and SEAD-1211 Seneca Army Depot Activity Table 6-11D

entical otential oncern	Unit Risk	Units	Unit Risk Source	Adjustment (1)	Inhalation Cancer Slope Factor	Units	Weight of Evidence/ Cancer Guideline Description	Weight of Evidence Source	Date (MM/DI
	4.6E-03	(ug/m³) <sup>-1</sup>	IRIS	3500	1.6E+01	(mg/kg-day) <sup>-1</sup>	B2	IRIS	3/15/2
ordane	1.00E-04	(ug/m³) <sup>-1</sup>	IRIS	3500	3.5E-01	(mg/kg-day) <sup>-1</sup>	B2	IRIS	3/15/2
spoxide	2.6E-03	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	9.1E+00	(mg/kg-day) <sup>-1</sup>	B2	IRIS	12/03/
	1.3E-03	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	4.6E+00	(mg/kg-day)"	B2	IRIS	3/15/2
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/N
	4.3E-03	(ug/m³)-1	IRIS	3500	1.5E+01	(mg/kg-day) <sup>-1</sup>	A	IRIS	12/03/
	1.8E-03	(ug/m³) <sup>-1</sup>	IRIS	3500	6.3E+00	(mg/kg-day) <sup>-1</sup>	B1	IRIS	3/24/2
	1.2E-02	(ug/m <sup>3</sup> ).1	IRIS	3500	4.2E+01	(mg/kg-day) <sup>-1</sup>	A	IRIS	3/24/2
	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	3/24/2
tał	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	3/15/2
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/N
	N/A	N/A	N/A	N/A	N/A	N/A	Q	IRIS	12/23/
	N/A	N/A	N/A	N/A	N/A	N/A	Ω	IRIS	03/15
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/N
	N/A	N/A	N/A	N/A	N/A	N/A	Q	IRIS	03/15
	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	12/23/
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N.
								Visite State	- A

rated Risk Information System ealth Effects Assessment Summary Tables

tional Center for Environmental Assessment

EPA Group:

A - Human carcinogen B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and

inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen E - Evidence of noncarcinogenicity

stment was based on an assumption of 70 kg body weight and 20 m $^3$ /day inhalation rate. was the last time IR1S was checked.

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### Table 6-12A CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-121C REASONABLE MAXIMUM EXPOSURE (RME) AND CENTRAL TENDENCY (CT) SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

		REAS	ONABLE MAXIM	REASONABLE MAXIMUM EXPOSURE (RME)	(E)		CENTRAL TENDENCY (CT)	IDENCY (CT)	
RECEPTOR	EXPOSURE ROUTE	HAZAR	RD X	CANCE		HAZARD INDEX	(RD EX	CANCER	
		Hazard Index	Percent Contribution	Cancer Risk	Percent Contribution	Hazard index	Percent	Canter Risk	Percent
INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air (Soil)	Ö,	%0	15-07	%0	ÕN	%0	2E-08	1%
Tiori	Ingestion of Sail	3E-01	93%	1E-05	%85	16-01	%66	2E-06	87%
	Dermal Contact to Soil	1E-02	7%	1E-05	42%	2E-03	1%	3E-07	13%
	intake of Groundwater	QN	%0	ND	%0	Q.V.	%0	QN	%0
	TOTAL RECEPTOR RISK (Nc & Car)	4E-01	100%	3E-05	100%	2E-01	1901%	35.06	100%
INDUSTRIAL WORKER	Inhabation of Dust in Ambient Air (Ditch)	Ŋ	%0	8E-08	%9	NQ	%D	1E-08	7%7
(1995 HAND)	Ingestion of Ditch Soil	2E-01	%96	9E-07	62%	8E-03	%66	1E-07	84%
	Dermal Contact to Dirch Soil	6E-04	%*	5E-07	32%	56-39	%1	2E-08	%6
	Intake of Groundwater	QN	%0	GN	%0	QN	%0	ND	%0
	TOTAL RECEPTOR RISK (Ne & Car)	2E-02	100%	1E-06	100%	9E-03	100%	2E-07	160%
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air (Soil)	4E-06	%0	2E-07	13%	45.06	%0	2E-07	15%
11023	Ingestion of Soil	7E-01	%16	1E-06	%19	18-41	%16	3E-07	38%
	Dernal Contact to Soil	2E-02	3%	4E-07	20%	2E-02	%6	3E-07	37%
	Intake of Groundwater	ND	%0	QN.	%0	QN	%0	QN	6%
	Derinal Contact to Groundwater	QN	%0	QN	%0	ND	%0	QN	**0
	TOTAL RECEPTOR RISK (No & Car)	85.01	100%	2. E-06	100%	18-01	100%	9E-07	100%
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air (Ditch)	Ŏ,	%0	2E-08	3%	ЙN	%0	2E-08	%9
TION LINE	Ingestim of Ditch Soil	35-01	%98	6E-07	78%	75.02	%99	25-07	52%
	Derinal Contact to Ditch Soil	5E-03	1%	15-07	18%	45.03	***	15-47	41%
	Intake of Groundwater	ND	9%0	ND	%0	ND	%0	QN	%0
	Dermal Contact to Groundwater	g <sub>k</sub>	%0	ND	%0	ND	%,0	QN	%0
	Dermal Contact to Surface Water	4E-02	13%	5E-09	%	3E-02	30%	4E-U9	1%
	TOTAL RECEPTOR RISK (No & Car)	3.5-81	100%	75-07	100%	1E-01	300%	3E-07	100%
ADOLESCENT TRESPASSER	Inhalation of Dust in Ambient Air (Soit)	Ŏ,	%0	15.10	%.0	δN	%0	15.10	%0
	Ingestion of Sall	3E-02	%96	1E-07	%69	1E-02	%66	1E.07	89%
	Dermal Contact to Sail	1E-03	***	1E-07	31%	2E-04	1%	1E-08	11%
	Infake of Groundwater	GN	%0	QN	9.7%	MD	%0	UN	%0
77	TOTAL RECEPTOR RISK (Nc & Car)	3.5-0.2	100%	35-07	100%	15-02	100%	1E-07	100%
ADOLESCENT TRESPASSER	Inhalation of Dust in Ambient Air (Ditch)	Ņ	%0	1E-10	%0	Òv	%0	1E-10	%0
1100 131177	Ingestion of Ditch Sall	7E-03	72%	7E-08	%19	35-03	15%	3E-08	*69
	Dermal Contact to Dixch Soil	215-04	1%	2E-08	21%	2E-05	%0	3E-09	%9
	Intake of Groundwater	QN	%0	QN	%0	QN	%.0	QN	%0
	Dernial Contact to Surface Water	2E-02	74%	1E-48	12%	2E-02	85%	1E-08	24%
	TOTAL RECEPTOR RISK (Nc & Car)	35-03	100%	1.6-07	100%	2E-02	100%	\$E-08	100%

NQ= Not quantified due to fack of toricity data
ND = Not quantified since no COPCs were deter

# Table 6-12B CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-1211 REASONABLE MAXIMUM EXPOSURE (RME) AND CENTRAL TENDENCY (CT) SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

		REAS	ONABLE MAXIM	REASONABLE MAXIMUM EXPOSURE (RME)	ME)		CENTRAL TENDENCY (CT)		
RECEPTOR	EXPOSURE ROUTE	HAZARD	.X	CANCE	CANCER	HAZARD	RD X	CANCE	CANCER
	The state of the s	Hazard Index	Percent Contribution	Cancer Risk	Fercent	Hazard Index	Percent	Cancer Risk	Percent
STRIAL WORKER	Inhalation of Dust in Ambient AJr (Soil)	loe at	82%	4E-06	9%9	1840	84%	75-07	%6
(Soil)	Ingestion of Soil	5E+00	16%	4B-05	54%	2E+00	15%	6E-06	79%
	Dermal Contact to Soll	8E-01	2%	36-05	39%	7E-02	%0	9E-07	11%
	TOTAL RECEPTOR RISK (No. & Car)	35+01	100%	76-05	100%	16+31	100%	8E-06	100%
STRIAL WORKER	Inhalation of Dust in Ambient Alr (Ditch)	007)11	%46	1E-06	%9	00181	94%	2E-07	7%
(Ditch Spij)	ingestion of Ditch Soil	1E-01	5%	1E-05	62%	7E-02	%9	2E-06	84%
	Dermal Contact to Ditch Soll	2B-02	%]	6E-06	32%	2E-03	%0	2E-07	%6
	TOTAL RECEPTOR RISK (No. & Car)	3,6+00	100%	2E-05	100%	1E+00	100%	3.5-06	100%
TRUCTION WORKER	Inhalation of Dust in Ambient Air (Soil)	25.42	%16	1E-06	14%	TOH 31	%96	90-31	26%
Tios	Ingestion of Soil	IGHAL	%6	5E-06	64%	454	3%	15.06	35%
	Dermal Contact to Soil	1,8100	%!	2E-06	21%	1E+00	%1	1E-06	39%
	TOTAL RECEPTOR RISK (Nc & Car)	25-402	100%	8E-06	100%	1,5+02	100%	4E-06	%001
FRUCTION WORKER	Inhalation of Dust in Ambient Air (Ditch)	1840	86%	3E-07	3%	18+61	%\$6	35-07	%9
THE SOUL	Ingestion of Ditch Soil	307-30	13%	8E-06	79%	6E-01	4%	2E-06	53%
	Dermal Contact to Difch Soil	2E-01	*	2E-06	18%	2E-01	1%	2E-06	41%
	Dermal Contact to Surface Water	Öz	0%	ÖN	%0	Ŏ,	%0	δŃ	%0
	TOTAL RECEPTOR RISK (No & Car)	2E+01	100%	15-05	100%	<u>2E+01</u>	100%	₹ -06	100%
SCENT TRESPASSER	Inhalation of Dust in Ambient Air (Soil)	2E-01	28%	6E-09	1%	2E-01	45%	6E-09	2%
(IGE)	Ingestion of Soil	4E-01	,699	6E-07	%89	2E-01	53%	3E-07	87%
	Dermi Contact to Soil	4E-02	7%	3E-07	31%	5E-03	2%	4E-08	11%
	TOTAL RECEPTOR RISK (Nc & Car)	6E-01	100%	9E-07	100%	3E-01	100%	4E-07	100%
SCENT TRESPASSER	Inhalation of Dust in Ambient Air (Ditch)	2E-02	20%	16-09	%0	2E-02	35%	1E-09	%
(included)	Ingestion of Ditch Soil	6E-02	73%	1E-06	76%	36-02	64%	5E-07	%16
	Dermal Contact to Ditch Soll	65-03	362	3E-07	24%	8E-04	2%	4E-08	8%8
	Dermal Contact to Surface Water	Öz	%0	Ŷ.	%0	Ŏ,	%0	Š.	%0
	TOTAL RECEPTOR RISK (No & Car)	8E-02	100%	1E-06	100%	<u>5E-02</u>	100%	SE-07	100%

tified due to lack of loxicity data. res that the HQ>1, or the cancer risk is greater than 10-4.

nt/Human Health Risk Tables/1213-Cosmoline/TOTRISK 1211.xls/1211 tox ECAVID Area Report/Draft Final/Risk Asset

Table 6-13
Contributing COPCs to Human Health Risk at SEAD-1211
SEAD-121I
SEAD-121C AND SEAD-121I RI REPORT
Seneca Army Depot Activity

	Exposure	Contributing	Hazard	Percent
Receptors	Route	COPC	Quotient	Quotient Contribution
Industrial Worker	Inhalation of Dust in Ambient Air Due to Soil	Manganese	2E+01	100%
	Ingestion of Soil	Manganese	4E+00	%56
	Inhalation of Dust in Ambient Air Due to Ditch Soil Manganese	Manganese	3E+00	100%
Construction Worker	Inhalation of Dust in Ambient Air Due to Soil	Manganese	2E+02	100%
	Ingestion of Soil	Manganese	1E+01	95%
	Dermal Contact to Soil	Manganese	1E+00	%26
	Inhalation of Dust in Ambient Air Due to Ditch Soil Manganese	Manganese	2E+01	100%
	Ingestion of Ditch Soil	Arsenic	7E-01	27%
		Iron	2E-01	%6
		Manganese	1E+00	61%

## TABLE 6-14A CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C & SEAD-27 (low flow) SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

itake (nig/kg-day) =		EPC x IR x EF x ED	ED						
		BW x AT				Equation for Hazard Que	tient = Chronic Daily Int	Equation for Hazard Quotient = Chronic Daily Intake (NC)/Reference Dose	
uniptions for Each Re	imptions for Each Receptor are Listed at the Bottom):	Bottom):							
re Point Concentration	re Point Concentration in Groundwater (mg/L)	(1	ED=Exposure Duration	uration		Equation for Cancer R	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	e (Car) x Slope Factor	
tc			BW=Bodyweight	_					
c Frequency			AT=Averaging Time	ine					
Oral	al Carc. Slope	EPC	Industrial Worker	orker		Construction Worker	n Worker	Adolescent Ti	<del>[</del> -
yte RID	Oral	Groundwater	Intake	Hazard	Cancer	Intake	Hazard Cancer	Intake	L

	Oral	Carc. Slope	EPC		Industrial Worker	l Worker			Construction Worker	on Worker		1	Adolescent Trespasser	Trespasser	
yte	RID	Oral	Groundwater	Intake	ıke	Hazard	Cancer	Intake	ıke	Hazard	Cancer	Intake	ake	Hazard	Ü
				(mg/kg-day)	-day)	Quotient	Risk	(mg/kg-day)	(-day)	Quotient	Risk	(mg/kg-day)	z-day)	Quotient	1
	(mg/kg-day)	(mg/kg-day)-1	(mg/liter)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
nic Compounds	nds														
ane	N/A	6.8E-02	2.9E-03	2.8E-05	1.0E-05	-	7E-07	2.8E-05	4.0E-07		3E-08	4.4E-06	3.1E-07		2
	3.00E-03	1.4E+00	2.7E-03	2.7E-05	9.5E-06	9E-03	1E-05	2.7E-05	3.8E-07	9E-03	5E-07	4.2E-06	3.0E-07	1E-03	4
	3.00E-04	1.5E+00	Z.8E-03	2.7E-05	9.7E-06	9E-02	1E-05	2.7E-05	3.9E-07	9E-02	6E-07	4.2E-06	3.0E-07	1E-02	5
	3.00E-01	N/A	2.5E+02	2.4E+00	8.6E-01	8E+00		2.4E+00	3.5E-02	8E+00		3.8E-01	2.7E-02	1E+00	
	9.33E-04	N/A	9.6E-01	9.4E-03	3.4E-03	1E+01		9.4E-03	1.3E-04	1E+01		1.5E-03	1.1E-04	2E+00	
	6.47E-04	N/A	2.7E-03	2.7E-05	9.5E-06	4E-02		2.7E-05	3.8E-07	4E-02		4.2E-06	3.0E-07	6E-03	
rd Quoties	d Quotient and Cancer Risk:	r Risk:				2E+01	3E-05			2E+01	1E-06			3E+00	6
				Assur	nptions for I	Assumptions for Industrial Worker	rker	Assum	ptions for Co	Assumptions for Construction Worker	Vorker	Assum	Assumptions for Adolescent Trespass	olescent Tres	spass
				BW =	70	70 kg		BW =	70	70 kg		BW=	50	50 kg	
				IR=		1 liters/day		IR ==		1 liters/day		IR =	2	2 liters/day	
				EF =	250	250 days/year		EF =	250	250 days/ycar		EF =	14	14 days/year	
				ED =	25	25 years		ED =	-	1 years		ED ≠	5	5 years	
				AT (Nc) ==	9,125 days	days		AT (Nc) =	365	365 days		AT (Nc) =	I,825 days	days	
				AT (Car) =	25,550 days	days		AT (Car) ==	25,550 days	days		AT (Car) =	25,550 days	days	

this table were intentionally left blank due to a lack of toxicity data, ion not available.

### TABLE 6-14B CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER REASONABLE MAXIATUM EXPOSURE (RME) - SEAD-121 C & SEAD-27 (low flow) SEAD-121 C and SEAD-121 Remedial Investigation Seneta Army Depot Activity

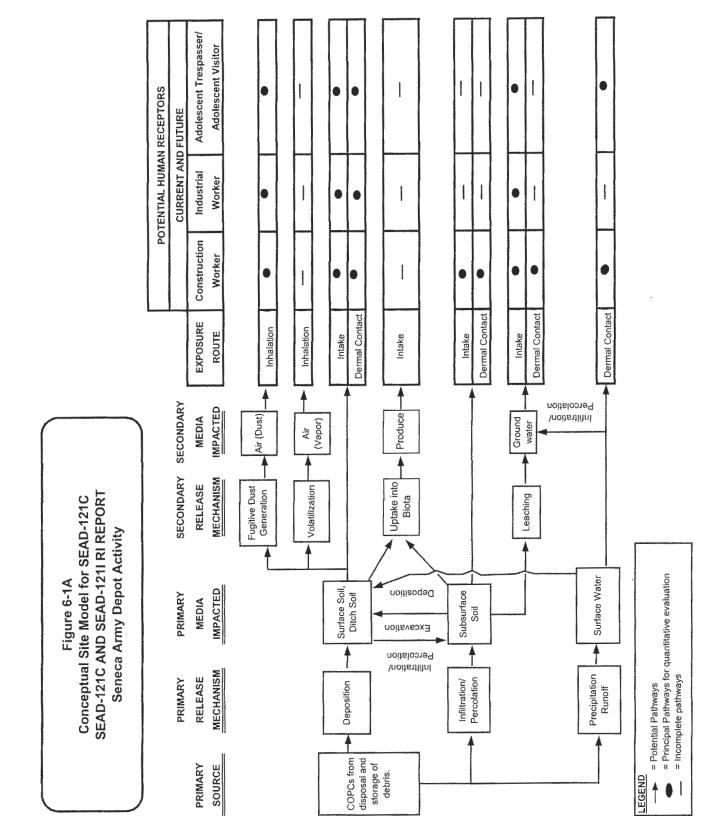
i (mg/kg-day) = iens for Each Ra	estionare List	· (mykg-day) = ions. for Each Beseptor at g. Listed at the Bottom):	DAXSA K EFKEDKEV BW x AT	-	Equation for Al For inorganic: I	Equation for Absorbed Dose per Event (DA): For inorganic: DA = Kp. x EPC x t <sub>tron</sub> x C For organics: Ift <sub>tron</sub> <= t.*, then: DA <sub>vent</sub> × 2   Ift <sub>tron</sub> > t.*, then: DA <sub>vent</sub> » FA	or Event (DA):  T. T. T. T. T. T. T. T. T. T. T. T. T. T	FAXK, XEI	Equation for Absorbed Dose per Event (DA): $K_{p} = Permeability Coefficient, cmP$ For inorganic DA = $K_{p} \times EPC \times L_{q,q,q} \times C$ $C = Conversion Factor, 10^{3} Ucm^{3}$ For organics: $II(v_{q,qq} < ce^{-t}$ , then: $DA_{q,qq} \times 2 FA \times K_{q} \times EPC \times C ((6 t_{q,qq} / t_{q,qq}) / \pi)^{1/2}$ $iI(v_{q,qq} > t^{*}, then: DA_{q,qq} = FA \times K_{q} \times EPC \times C ((t_{q,qq} / t_{q,qq}) / \pi)^{1/2}$	by socked Dose per Event (DA): $K_{p_i} = Permeability Coefficient, cm/nt$ $EPC = EPC in Groundwater, mg/L$ $DA = Kp \times EPC \times t_{way} \times C$ $C = Conversion Factor, 10^{3} Lcm^{3}$ $I[t_{way} < c_{i}t_{i}, then: DA_{wail} \ge FA \times K_{i} \times EPC \times C ((s_{i-wail}, t_{wail})/r))^{1/2}$ $i[t_{way} > t_{i}^{*}, then: DA_{wail} = FA \times K_{p} \times EPC \times C ([t_{wail}/1 + B) + 2 t_{wail}/(1 + 3 B + 3 B))/(1 + B)^{2})]$	r 3B+3B³)/(t	+B)²))	Equation	for Hazard Quobi	rni = Chronic Dai	Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose (RID)	ose (RID)
se per Evant, mp(cm³-cvant Contact quency scy	g/cm³-event		ED = Exposure Duration BW = Bodyweight AT = Averaging Time		B = Din relat FA = FR FA = FR FA = FL Tree is Lag Time per e $\tau_{\rm rest}$ is Lag Time per e $\tau_{\rm rest}$ is time to reach stea $\tau_{\rm rest}$ admation of ever	B = Dumensionless ratio of the permeability correction acros FA = Faction absorbed water (dimensionless) B = Kp (MW) <sup>127</sup> , 2.6 If B Twee is Lag Time per event (he'event) = 0.105 x 10° *** If B I* is time to reach socialy-state (h) b = 10.00 to the permeability of th	css ratio of the s permeability t bsorbed water ( event) = 0 105 (hr)	oefficient ac dimensionle If x 10° me If	$\gamma$ coefficient of a compound $\theta$ cross the viable epidermis (we cass) If $B < 0$ , then $t^{**} = \delta_{t_{max}}$ If $B > 0$ , then $t^{**} = \delta_{t_{max}}$ $\delta_{t_{max}} = \delta_{$	B = Dimensionless ratio of the permeability coefficient of a compound through the strandm conneum relative to its permeability coefficient across the viable epidermis (vc) (dimensionless) $ \begin{aligned} F_A &= F_{Bertion} &= P_{Aertion} &= P$	i the stratum cor bensionfess) ((b²-c²))	neam	Equation	for Cancer Risk '	Chronic Daily In	Equation for Cancer Rist « Chronic Daily Intake (Car) x Slope Pactor	
	Dermal	Carc. Slope	Permeability		Fraction			EPC	Absorbed	Industr	Industrial Worker		Constr	Construction Worker		Adolescent	Adolescent Trespasser
ţ	RID	Dermal	Coefficient	, sven	Absorbed	pò	Ł	Ground	Dose/Event	Intake	Hazard Cs	Cancer	Intake	Hazard	Ľ	Intake	Hazard
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	λρ (ctn/hr)	(hr/event)	Water		(hour)	Water (mg/L) (i	(mg/cm²-event) (Nc) (Car)		Quotient	RJsk (m	(mg/kg-day)	Quotient	Risk	(Mc) (Car)	Quotient
spunodwo												-					
	A/A	6.8E-02	7.8.E-03	4.5.E-01	1.0.E+00	3.2.E-02	1.1.E+00	2.9.E-03	2.9.E-08			1.415.07	4 07E-09	9 SE-05	3E-10		
										Dermal Conts	Dermal Contact to Groundwater					Dermal Contact to Groundwat	Contact to Groundwat
	3.E-04	1.5E+00	1.9.E-03	2.8.E-01	ļ	;	1	2.8.E-03	2.7.E-09	for Indu	for Industrial Worker	2.60E-08	3.72E-10	0 9E-05	01-39	for Adolesce	for Adolescent Trespasser
	9.3.E-04	X X	1.3.E-03	2.1.E-01		1 1	1 1	9.6.E-01	6.1.E-07			5.995-06	9 9	66-03			
	6.5.E-04	N/A	1.6.E-04	1.5.E+00	i		;	2.7.E-03	2.1.E-10			Z 08E-09	60	3E-06			
notient and Cancer Risk:	Cancer Risk													8E-03	4E-09		
													Assumptions fo	Assumptions for Construction Worker	Worker		
												BW=	-	70 kg			
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												EF=		100 days/year			
												- 03 - 1		0.5 hr/event			
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		The second second							Accountants to tolerance and the second		-						

able were intentionally lelt blank due to a lack of toxicity data avanishie. it 81 op 82.2 of "Supplemental Guidance for Dormall Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health als (Volume 1), August 16. 2004. For chemicals that did not have a Kp value listed in Estibit B-1 or B-2, Kp was calculated using: -0.66(pgKow)-0.0056(MW))

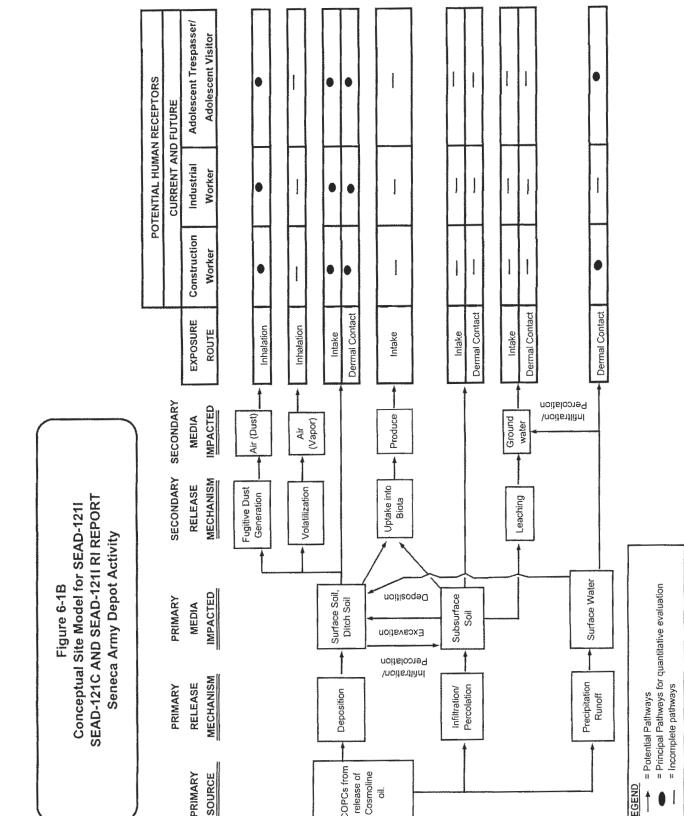
Comparison of Risk Due to Dermal Contact to Wet vs. Dry Ditch Soil (RME) SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity Table 6-15

	Industria	Industrial Worker	Constr.	Constr. Worker	Adolescent Trespasser	Trespasser
	HI	Cancer	HI	Cancer	IH	Cancer
SEAD-121C dry	6E-04	5E-07	2E-04	2E-08	2E-04	2E-08
SEAD-121C wet	3E-03	2E-06	2E-02	5E-07	2E-03	3E-07
SEAD-1211 dry	2E-02	6E-06	2E-01	2E-06	6E-03	3E-07
SEAD-121I wet	1E-01	3E-05	6E-01	6E-06	8E-02	4E-06

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### 7.0 SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

A screening-level ecological risk assessment (SLERA) was performed for the Defense Reutilization and Marketing Office (DRMO) Yard (SEAD-121C) and the Rumored Cosmoline Oil Disposal Area (SEAD-121I) at the Seneca Army Depot Activity in Romulus, New York to evaluate whether contaminants at the sites have the potential to cause adverse effects to ecological resources. This section provides a description of the methodology and a summary of the SLERA results. Complete exposure calculation tables are provided in **Appendix G**.

### 7.1 INTRODUCTION

This SLERA was conducted in accordance with several USEPA and NYSDEC guidance documents including Ecological Risk Assessment Guidance for Superfund (ERAGS): Process for Designing and Conducting Ecological Risk Assessments (USEPA, 1997c), Guidelines for Ecological Risk Assessment (USEPA, 1998b), Fish and Wildlife Impact Analysis (NYSDEC, 1994b), and The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments (USEPA, 2001a).

The current USEPA (1997c) ecological risk assessment paradigm includes eight general steps:

- 1. Screening-Level Problem Formulation and Ecological Effects Evaluation;
- 2. Screening-Level Exposure Estimate and Risk Calculation;
- 3. Baseline Risk Assessment Problem Formulation;
- 4. Study Design and Data Quality Objective (DQO) Process;
- 5. Field Verification of Sampling Design;
- Site Investigation and Analysis Phase;
- 7. Risk Characterization; and
- 8. Risk Management.

The ecological risk assessment presented in this section includes a screening-level ecological risk assessment (SLERA, Steps 1 and 2) and further refinement of chemicals of concern (COCs) (Step 3.2). Step 3.2, COC refinement, was performed in accordance with the USEPA's ERAGS (1997c) and the supplemental guidance of ERAGS (USEPA, 2001a). The SLERA process is summarized in Figure 7-1.

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Upon completion of screening-level Ecological Risk Assessment (ERA) Step 2, there is a Scientific Management Decision Point (SMDP) with four possible decisions according to the ERAGS (USEPA, 1997c) and the supplemental guidance (USEPA, 2001a):

- There is adequate information to conclude that ecological risks are negligible and therefore no need for remediation on the basis of ecological risks;
- The information is not adequate to make a decision at this point and the ERA process should continue to a baseline ERA;
- The information indicates a potential for adverse ecological effects, and a more thorough assessment is warranted; or
- It may be preferable to cleanup the site to the screening values for some sites of relatively small size or where the contamination has a sharply defined boundary rather than to spend time and resources determining a less conservative cleanup number.

The results of the SLERA indicate which contaminants found at the site can be eliminated from further consideration and which should be evaluated further. The refinement of COCs helps streamline the overall ERA process by considering additional components early in the baseline ERA. The results of the ecological risk assessment presented will be used to determine the need for further study. The baseline ERA, if conducted, will further evaluate potential or actual adverse ecological effects associated with site-related contaminants and results will be used to develop appropriate remedial measures, if required.

### 7.2 STEP 1A: SCREENING-LEVEL PROBLEM FORMULATION

This step considers environmental characteristics of the sites, contaminants present, potential fate and transport processes, and potential receptor categories and exposure pathways. A brief ecological characterization is provided, contaminants of potential concern are identified, and a preliminary conceptual site model is presented.

### 7.2.1 Environmental Setting

Information of the sites is provided in Sections 1 through 5 of the report: general site information is presented in Section 1.0; all investigations conducted for the sites are summarized in Sections 2.0 and 3.0; nature and extent of impact is discussed in Section 4.0; and the fate and transport of contaminants is presented in Section 5.0. This section provides a brief introduction of SEAD-121C (Section 7.2.1.1) and SEAD-121I (Section 7.2.1.2) and a habitat and ecological community characterization for the sites (Section 7.2.1.3).

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### 7.2.1.1 SEAD-121C - The DRMO Yard

SEAD-121C is comprised of a triangularly-shaped gravel lot located in the east-central portion of the Depot (Figure 1-3), roughly 4,000 ft. (0.75 miles) southwest of the Depot's main entrance off of State Route 96. Several buildings (Buildings 360, 316, and 317) are located adjacent and east of the site, and one building (Building T-355) is located within the site boundaries. Building T-355 is located in the central part of the DRMO Yard and is used for storage. The DRMO Yard is surrounded by a chain-linked fence and access into the site is limited by a single gate that is normally locked and that is located south of Building 360.

The surface of the DRMO Yard is graded to allow surface water to drain toward the man-made ditches that bound the site on the north and south sides. The major pathway of surface water flow out of SEAD-121C is to these drainage ditches, which then flow to the west towards a wetland area and the headwaters of Kendaia Creek in the former munitions storage area.

Bedrock is encountered at less than 8 feet below the ground surface (bgs) in most locations at SEAD-121C. The geologic units commonly encountered were till, brown silt or clay, fill material (in a few locations), and weathered shale above competent shale. Groundwater was encountered at less than 2 feet above competent shale (approximately 5 – 6 feet below grade) and flows to the southwest.

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

### 7.2.1.2 SEAD-121I - The Rumored Cosmoline Oil Disposal Area

The site-wide physical characteristics of SEAD-121I (Rumored Cosmoline Oil Disposal Area) have been described in the preceding sections. SEAD-121I, shown in Figure 1-4, consists of four rectangular grassy areas that are bounded by 3<sup>rd</sup> and 7<sup>th</sup> Streets (north and south ends, respectively) and Avenues C and D (west and east sides, respectively). Buried reinforced concrete storm drains run east to west through the site along 3<sup>rd</sup> St., 4<sup>th</sup> St., 5<sup>th</sup> St., 6<sup>th</sup> St., and 7<sup>th</sup> St. To the east and west of the four rectangular plots comprising SEAD-1211 there are two rows of buildings that are actively used for warehousing, Buildings 331 and 329, located to the west and across Avenue C, receive frequent truck deliveries. A railroad spur line enters SEAD-121I from the south and extends to the northern end of the SEAD where it terminates near the intersection of 3<sup>rd</sup> Street and Avenue C. Two sidings branch off the main spur line; one terminates in the first (north to south) block and the other terminates in the third (north to south) block. There are concrete loading docks located in the first and third blocks next to the railroad lines. The major pathway of surface water flow out of SEAD-121I is overland flow to ruts located along the sides of the roadways, to catch basins, and then into the underground sewer pipes. The sewer pipes discharge to a man-made drainage ditch that flows south to north, and is located two blocks (approximately 1,000 feet) west of SEAD-121I. From that point, surface water flow either infiltrates into the ground, or during high flow periods it may enter Kendaia Creek, which flows in a predominant westerly direction, and discharges into Seneca Lake at a location north of Pontius Point and the SEDA's Lake Shore Housing Area. In addition, a portion of the surface water flow from SEAD-121I may move easterly toward Cayuga Lake.

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

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

### 7.2.1.3 Habitat and Ecological Community Characterization

Site-specific ecological evaluations of the plant and animal habitats and communities at SEAD-121C and SEAD-121I have not been conducted. Characterizations of the habitat and ecological communities present at the sites are based on general observations made during the 1998 Environmental Baseline Survey (EBS) and the 2002 Remedial investigation (RI), and on the results of the ecological evaluations and assessment that have been conducted at other solid waste management units at the Depot (e.g., SEADs-4, 12, 16, 17, 25 and 26, and the Open Burning (OB) Grounds) as

part of the remedial investigations. The results and findings of the ecological characterizations completed at the other SWMUs were used along with observations made at the sites to characterize the ecological settings at SEAD-121C and SEAD-121I. Key aspects of these characterizations relevant to this risk assessment are presented below.

Ecological site characterizations conducted for other SWMUs at the Depot are based on compilation of existing ecological information and on-site reconnaissance activities. The methods used to characterize the ecological resources included site-walkovers for the evaluation of existing wildlife and vegetative communities; interviews with local, state, and SEDA resource personnel; and review of environmental data obtained from previous Army reports. SEDA has a strong wildlife management program that is reviewed and approved by the New York Fish and Game Agency. The Depot manages an annual white-tailed deer (*Odocoileus virginiana*) harvest and has constructed a large wetland called the "duck pond" in the northeastern portion of the facility to provide a habitat for migrating waterfowl.

The NYSDEC Natural Heritage Program Biological and Conservation Data System identifies no known occurrences of federal- or state-designated threatened or endangered plant or animal species within a 2-mile radius of the sites. No species of special concern are documented within the Depot property.

The only significant terrestrial resource known to occur at SEDA is the population of white-pelaged white-tailed deer, which inhabits the fenced portion of the Depot. Annual deer counting conducted at the Depot indicates that the size of the deer herd is approximately 600 animals of which approximately one-third (i.e., 200) are white-pelaged. Since the Depot is totally enclosed, the white-pelaged deer is thought to result from inbreeding within the herd. The Depot maintains the herd through an annual hunting season to prevent overgrazing and starvation of the deer. The management plan of the herd is conducted by the New York State Division of Fish and Wildlife (DFW). The normal brown-pelaged deer are also common. White-tailed deer are not listed as a rare or endangered species.

Agricultural crops and deciduous forests comprise the vegetative resources used by humans near SEDA. Although no crops are grown at the Depot, farmland is the predominant land use of the surrounding private lands. Crops including corn, wheat, oats, beans and hay mixtures, are grown primarily for livestock feed. Deciduous forestland on the Depot and surrounding private lands is under active forest management. Timber and firewood are harvested from private woodlots that surround the Depot, but timber harvesting does not occur on the Depot.

Vegetation across the Depot consists of successional old field, successional shrub, and successional hardwoods. The NYSDEC Natural Heritage Program Biological and Conservation Data System identifies no known occurrences of federal- or state-designated threatened or endangered plant. No species of special concern are documented within the Depot property. No rare or endangered species were observed during the site assessment.

Several wildlife species are hunted and trapped on private lands near SEDA. Game species hunted include the eastern cottontail, white-tailed deer, ruffed grouse, ring-necked pheasant, and various waterfowl. Gray squirrel and wild turkey are hunted to a lesser extent. At the Depot, deer, waterfowl, and small game hunting is allowed. Trapping is also permitted on the Depot.

Animals that have been identified at the Depot during various ecological surveys include the beaver, eastern coyote, deer, red and gray fox, eastern cottontail rabbit, muskrat, raccoon, gray squirrel, striped skunk, and the woodchuck. Bird species that have been identified include the bluejay, black-capped chickadee, American crow, mourning dove, northern flicker, ruffed grouse, ring-billed gull, red-tailed hawk, northern junco, American kestrel, white breasted nuthatch, ring-necked pheasant, American robin, eastern starling, turkey vulture, and pileated woodpecker.

There are no permanent lakes, ponds, streams or wetlands in either SEAD-121C or SEAD-121I. Surface water only exists intermittently in man-made drainage ditches; thus, it does not directly support aquatic life.

No signs of stressed or altered terrestrial biota (vegetation and wildlife species) were observed at either SEAD-121C or SEAD-121I. There were no indications of unnatural die-off or stunted vegetation.

### 7.2.2 Preliminary Ecological Conceptual Site Model

A preliminary Conceptual Site Model (CSM) was developed for the sites and presented in **Figure 7-2**. The CSM provides an overall assessment of the primary and secondary sources of contamination at the sites, and the corresponding release mechanisms and affected media. Potential sources of contamination, potentially complete exposure pathways, and ecological receptors are depicted in the CSM. Sources, release mechanisms, affected media, contaminant fate and transport, and current and future foreseeable land use of the sites are discussed in **Section 6.0** of the report. Potentially complete exposure pathways and potential ecological receptors are further discussed below.

A complete exposure pathway consists of a source and mechanism of contaminant release, a transport mechanism for the released contaminants, a point of contact, and a route of contaminant entry into the receptor. If any of these elements is missing, the pathway is incomplete. In addition, potential receptors were identified to allow evaluation of potentially complete pathways.

The CSM identifies exposure to surface soils (0-2 ft. bgs), ditch soil, and surface water at SEAD-121C and SEAD-121I as complete exposure pathways (current and future) for ecological receptors. Pathways evaluated in the SLERA are presented in **Figure 7-2**. Pathways evaluated in the SLERA include direct exposure (ingestion, dermal, and inhalation) and ingestion of contaminated biota. Various prey items such as plants and animals are consumed by receptors and serve as indirect exposure routes for contaminants. Receptors also incidentally ingest media during foraging activities. While terrestrial receptors are exposed to air, uncertainties associated with inhalation exposures to

chemicals inhibit assessment of the impacts from exposure to this medium. Similarly, dermal exposure to chemicals is difficult to quantify due to a lack of toxicity data. Given these factors, the SLERA for SEAD-121C and SEAD-121I quantitatively assesses exposure to contaminants in the mediums (soil, ditch soil, and surface water) and biota through ingestion.

For most terrestrial receptors, soil exposure intervals are limited to the upper 2 feet of the soil column. For purposes of this SLERA, surface soil was defined as the 0-2 ft. bgs. Surface and subsurface soil (0-4 ft. bgs, hereafter referred to as total soil) may be uncovered during excavation activities in the future and therefore may result in contaminants in the soil becoming available for contact. Therefore, exposure to total soil (0-4 ft. bgs) was also evaluated in this SLERA.

Ecological receptors are not directly exposed to contaminants in groundwater. As shown in Figure 7-2, exposure to groundwater was considered an incomplete pathway at SEAD-121C and SEAD-121I.

There are no permanent lakes, ponds, streams or wetlands in either SEAD-121C or SEAD-121I. Man-made drainage ditches at SEAD-121C and SEAD-121I are dry most of the time during the year and are not expected to support any balanced aquatic community. Exposure to ditch soil and surface water was evaluated for wildlife receptors identified for the SLERA.

### 7.2.3 Identification of Ecological COPCs

Chemicals of potential concern (COPCs) were identified by comparing the maximum detected concentrations in each impacted medium to ecological risk-based screening values. The data used for the ecological risk assessment are the same as those used for the human health risk assessment. The data are presented in **Appendix C** of this report, and the sample locations are shown in **Figure 3-1** and **Figure 3-2**. All analytical data were validated prior to inclusion in the SLERA. A discussion of the data used in both the baseline human health risk assessment and the SLERA is presented in **Section 6.3.1**. The following seven data sets were used for the screening-level ecological risk assessment:

- 1. SEAD-121C surface soil (0-2 ft. bgs.);
- 2. SEAD-121C total soil (0-4 ft. bgs.);
- 3. SEAD-121C ditch soil (0-2 ft. bgs.);
- 4. SEAD-121C surface water;
- 5. SEAD-121I soil (0-2 ft. bgs.);
- 6. SEAD-121I ditch soil (0-2 ft. bgs.); and
- 7. SEAD-1211 surface water.

For each data set, the maximum detected concentration was compared with the ecological screening value. For soil, the maximum detected concentration of all sample results (including surface and subsurface soil results) was used for the screening purposes, and the COPCs identified were used for both the surface soil and the total soil data sets. The ecological screening values are based on conservative (i.e., environmentally protective) generic values derived by various agencies. In brief, the following sources (cited in order of preference) were consulted for screening value selection for soil:

- USEPA (2000b, 2003c, 2005b) Ecological Soil Screening Levels;
- USEPA Region III (1995) Biological Technical Assistance Group (BTAG) Screening Levels;
- USEPA Region 5 (2003) Ecological Screening Levels;
- Oak Ridge National Laboratory (ORNL) Screening Benchmarks for Soil and Litter Invertebrates and Heterotrophic Process (Efroymson et al., 1997a), and Terrestrial Plants (Efroymson et al., 1997b);
- Canadian Environmental Quality Guidelines developed by the Canadian Council of Ministers of the Environment (2003); and
- Circular on Target Values and Intervention Values for Soil Remediation developed by the Netherlands (2000)

For surface water, the New York State Ambient Water Quality Standards (NYS AWQC) and Guidance Values for Class C water and the National Recommended Water Quality Criteria (USEPA, 2002c) (whichever is lower) were used as screening values. If screening values are not provided by either of the above documents, the USEPA Region III (1995) BTAG screening levels were used for the screening. Screening values for certain metals (cadmium, chromium, copper, lead, nickel, and zinc) are dependent on the hardness in surface water. For the screening purposes, the screening values for these metals were calculated at a hardness of 217 mg/L (CaCO<sub>3</sub>), which was the average surface water hardness for SEDA using data from two upstream surface water samples: 232 mg/L at SW-801 from the Ash Landfill remedial investigation and 201 mg/L at SW0196 from the OB Grounds remedial investigation.

Constituents with the maximum detected concentrations exceeding the corresponding screening values were retained as COPCs. With the exception of the nutrients (i.e., calcium, magnesium, potassium, and sodium), constituents with no screening values available were retained as COPCs. In addition, all bioaccumulative compounds identified by USEPA (2000a) in its report Bioaccumulation Testing and Interpretation for the Purpose of Sediment Quality Assessment as important bioaccumulative compounds were retained as COPCs as a conservative approach, which is consistent with the ecological risk assessment guidance set forth by USEPA for the Mid-Atlantic Hazardous Site Cleanup program.

Results of the screening process are summarized in **Tables 7-1A**, **7-1B**, and **7-1C** for SEAD-121C soil, ditch soil, and surface water, respectively. **Tables 7-2A**, **7-2B**, and **7-2C** summarize the screening results for SEAD-121I soil, ditch soil, and surface water, respectively.

Aluminum in soil was not retained as a COPC as USEPA recommends that aluminum be considered as a COPC only at sites where the soil pH is less than 5.5 (USEPA, 2003c). The basis for this is as follows:

- Total aluminum in soil is not correlated with toxicity to the tested plants and soil invertebrates.
- Aluminum toxicity is associated with soluble aluminum.
- Soluble aluminum and not total aluminum is associated with the uptake and bioaccumulation of aluminum from soil into plants.
- The oral toxicity of aluminum compounds in soil is dependant upon the chemical form. Insoluble
  aluminum compounds, such as aluminum oxides, are considerably less toxic compared to the
  soluble forms.

The pH of soil at SEDA is generally between 7 and 8 (Soil pH for SEADs 38, 39, & 40 were presented in the Action Memorandum and Decision Document Removal Actions, Three VOC Sites (Parsons, 2001)). Consequently, aluminum was not retained as a COPC in accordance with the USEPA guidance (USEPA, 2003c).

Iron is essential for plant growth and is generally considered to be a micronutrient (Thompson and Troeh, 1973, cited from USEPA, 2003c). According to USEPA (USEPA, 2003c), currently, identifying a specific benchmark for iron in soils is difficult since iron's bioavailability to plants and resulting toxicity are dependent upon site-specific soil conditions (pH, Eh, soil-water conditions). In well-aerated soils between pH 5 and 8, the iron demand of plants is higher than the amount available (Römheld and Marschner, 1986, cited from USEPA 2003c). Because of this limitation, plants have developed various mechanisms to enhance iron uptake (Marschner, 1986, cited from USEPA 2003c). Under these soil conditions, iron is not expected to be toxic to plants. Based on the fact that soil pH at the sites is generally between 7 and 8 and surface soil at the sites is expected to be well aerated, iron in soil was not retained as a COPC in accordance with the USEPA guidance (USEPA, 2003c).

COPCs identified for soil at the sites include volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), pesticides, and inorganics. COPCs identified for ditch soil at the sites include semivolatile organic compounds (SVOCs) (predominantly PAHs) and inorganics. COPCs identified for surface water at the sites include one SVOC (bis(2-ethylhexyl)phthalate) and metals. Ecotoxicity associated with these types of contaminants includes the effects associated with direct as well as indirect exposures.

### 7.2.4 Selection of Assessment Endpoints

Ecological risks should be expressed in terms of a definite endpoint, which is defined as an environmental value to be protected. Assessment endpoints are "explicit expressions of the actual environmental value that is to be protected" (USEPA 1998b). The assessment endpoints provide a transition between broad management, or policy goals, and the specific measures used in the assessment.

The proposed assessment endpoints for the SLERA are the survival and reproduction of wildlife populations (associated with suitable habitat) that may be affected by previous site operations. Specifically, assessment endpoints are provided for populations at two trophic levels: small mammals and ground-feeding birds and higher trophic level predators. The assessment endpoints are addressed through the survival and reproduction of mammal and bird populations at the sites. The proposed policy goals, ecological assessment endpoints, and measurement endpoints are summarized in **Table 7-3**.

### 7.2.5 Selection of Receptor Species

This section presents the receptor species identified for the sites. Ecological receptors evaluated include wildlife that may reasonably be expected to reside or regularly forage in areas affected by site contaminants, given current and anticipated future site conditions.

Guidelines considered in selecting receptors from the potentially exposed community include the following:

- relationship to the assessment endpoint;
- limited home range;
- role in local food chains;
- potential high abundance and wide distribution at the sites;
- relatively long-lived to provide chronically exposed individuals;
- sufficient toxicological information available in the literature for comparative and interpretive purposes;
- sensitivity to COPCs;
- likely current and future occurrence; and
- suitability for long-term monitoring, if necessary.

The selected receptor species have either been observed at, or are likely to be present in the vicinity of the Depot, given habitat conditions.

When selecting representative receptor species, it is important that sufficient toxicological information is available in the literature on the receptor species, or a closely-related species. While the ecological communities at the individual sites may have species with desirable characteristics for use as receptor species, not all of these species have been extensively used for toxicological testing.

The receptors were also selected to represent the trophic levels and characteristics of the area being assessed. Based on available information, specific receptor species were selected to be representative of ecological populations potentially exposed to COPCs at the sites. These representative receptor species were evaluated according to the measurement endpoints selected for the site. These measurement endpoints in turn evaluate the assessment endpoints and policy goals that were ultimately evaluated in the ecological assessment.

Consideration was given to special-concern (i.e., threatened or endangered) species potentially present at the sites when selecting receptor species. There are no known occurrences of federal- or state-designated threatened or endangered plant or animal species within a 2-mile radius of the Depot. No species of special concern are documented within the Depot property.

Vegetation across the Depot consists of successional old field, successional shrub, and successional hardwoods. In the absence of special-concern plant species or sensitive plant communities at the Depot, plants were evaluated as an exposure medium (i.e., food source) for wildlife receptors, and not as individual receptors. Likewise, invertebrates, such as insects, were evaluated as potential indirect exposure media. Therefore, no primary producer or detritivore receptor species were identified for qualitative evaluation. The general health of these populations in areas affected by site contamination was evaluated qualitatively in the ecological site characterization. The plant assemblages representing the dominant cover types present at the site and general invertebrate group were evaluated as biotransfer media, assuming that all forage plants and soil invertebrates have the capacity to take up contaminants from soils within the root zone or from dermal contact (dust).

The terrestrial indicator species identified for the SLERA are the deer mouse, short-tailed shrew, and meadow vole as representative of first-order consumer/prey species with a relatively small foraging range, the American robin for maintained grass cover type, and the red fox was evaluated for potential bioaccumulation/biomagnification of soil COPCs by a second-order consumer (higher trophic level predator). A higher trophic level bird raptor, such as a red-tailed hawk (*Buteo jamaicensis*), was initially considered as a potential receptor for this SLERA. However, the home range of a hawk, approximately 1,800 acres or more (USEPA 1993b), is much greater than the area of the sites considered in this assessment, approximately 21 acres altogether. Therefore, it is unlikely that a hawk would derive a significant portion of its diet from prey at any one of the sites evaluated. Consequently, the raptor was not evaluated further in this SLERA.

The selected species are considered to be representative of current and/or future ecological receptors at the site and are discussed below.

Small mammal populations likely to be present at SEAD-121C and SEAD-121I include mice, shrews, and other rodents. The deer mouse (*Peromyscus maniculatus*) was selected as the resident species with the niche best met by conditions present at the sites. These are one of the vertebrate receptors most likely to be maximally exposed to contaminants in soil at the site. They represent a significant component of the food chain, feeding on seeds and berries and soil invertebrates and providing prey for predators.

A second terrestrial receptor, the short-tail shrew (*Blarina brevicauda*), was also evaluated. The shrew was selected because more of its diet is derived from soil invertebrates and less is derived from seeds and berries than the deer mouse. The shrew may be directly exposed to contaminants during burrowing activities and indirectly through prey. Therefore, the shrew may be more susceptible than the mouse to the effects of COPCs that bioaccumulate in soil biota. For this reason, the shrew was used to evaluate potential risk for small carnivorous mammals.

Although not observed at SEDA, the meadow vole (*Microtus pennsylvanicus*) was selected as the herbivorous mammalian receptor for the purposes of the screening-level risk assessment. The meadow vole subsists almost entirely on vegetative matter. The vole may be directly exposed to contaminants during burrowing activities and indirectly through consumption of contaminated plant materials,

The American robin (*Turdus migratorius*) has been identified at SEDA during site reconnaissance visits and has been selected as an appropriate avian receptor species for soil. Birds are frequently more sensitive to specific chemicals (e.g., pesticides and phthalates) than terrestrial mammalian species. The American robin was selected because a large portion of its diet is derived from soil invertebrates that would make it more susceptible to the effects of COPCs that bioaccumulate in soil biota. Additionally, its home range is roughly comparable to those of both the deer mouse and shrew.

The red fox (*Vulpes vulpes*) has been identified at SEDA during site reconnaissance visits and has been selected as an appropriate receptor species for potential bioaccumulation/biomagnification of soil. It should be noted that the home range of a red fox, approximately 200 acres or more (USEPA 1993b), is much greater than the area of any of the sites considered in this assessment (approximately 21 acres altogether for SEAD-121C and SEAD-121I). Therefore, it is unlikely that a fox would derive a significant portion of its diet from prey at any one of the sites evaluated. Nonetheless, as a conservative approach, the red fox was identified for potential bioaccumulation/biomagnification of soil.

As discussed in Section 7.2.2, the drainage ditch systems at the sites are not wetlands and are not regulated as wetlands. They do not support aquatic life. Therefore, the ecological receptors selected for the site soil (deer mouse, short-tailed shrew, meadow vole, red fox, and American robin) will be

used for the drainage ditch system at SEAD-121C and SEAD-121I. In addition, a higher trophic level wetland bird - the great blue heron (*Ardea herodias*) was selected to evaluate potential exposure to contaminants in water and ditch soil via ingestion of ditch soil and water and ingestion of contaminants that bioaccumulate in prey. It should be noted that the great blue heron feeds primarily on aquatic animal life and is adapted for wading in shallow water (USEPA, 1993b); therefore, the ditch systems at SEAD-121C and SEAD-121I are not suitable habitats for the great blue heron. Nonetheless, as a conservative approach, the great blue heron was selected for the screening-level risk assessment to evaluate potential exposure to ditch soil and surface water. Great blue heron prey includes primarily crustaceans, amphibians, and small fish that could be exposed to contaminated sediment or surface water. For the SLERA, the great blue heron was assumed to prey small animals.

### 7.2.6 Characterization of Exposure Pathways

Potentially completed pathways were identified for SEAD-121C and SEAD-121I in the CSM (Figure 7-2). Potential ecological receptors identified for the sites (i.e., deer mouse, short-tailed shrew, meadow vole, red fox, American robin, and great blue heron) are potentially exposed to COPCs in soil, ditch soil, and surface water via direct intake and biota intake. The primary potential ecological receptor exposure interval for which characterization data were collected is shallow soils (0 to 2 ft. bgs). This interval was considered appropriate for the evaluation of soil contaminant exposures to surface-foraging and shallow-burrowing wildlife and to many forage plants (e.g., grasses and forbs). To assess both potential future burrowing and/or deep-rooted plant site conditions, the deeper soil interval (0 to 4 ft. bgs) was also evaluated. Animals may be exposed directly to site-related contaminants through ingestion, dermal contact, and inhalation. In addition, animals may be exposed indirectly to site-related contaminants through ingestion of biota (plants, invertebrates, and animals) that have bioaccumulated contaminants. Because analysis of biological tissue is not proposed for these sites, the potential for exposure via completed pathways was inferred based on estimated contaminant uptake and assimilation by vegetation and prey species, and on the bioaccumulation and biomagnification properties of the contaminants.

While ecological receptors are exposed to air, uncertainties associated with inhalation exposures to chemicals inhibit assessment of the impacts from exposure to this medium. Similarly, dermal exposure to chemicals is difficult to quantify due to a lack of toxicity data. Given these factors, the dermal and inhalation exposure pathways were not quantitatively assessed.

### 7.3 STEP 1B: SCREENING-LEVEL EFFECTS EVALUATION

The SLERA for mammalian and avian receptors was conducted by comparing potential exposures to COPCs to screening ecotoxicity values (SEVs). SEVs for those analytes identified as COPCs were derived from studies reported in the literature, in the absence of site-specific data, by establishing data selection criteria such that SEVs would be as relevant as possible to assessment endpoints at the sites. In accordance with USEPA guidance (1997c), the lowest available, appropriate toxicity values were

used with modifying factors to ensure a conservative (i.e., health protective) screening-level evaluation.

Using the relevant toxicity information, receptor-specific SEVs were calculated for each of the COPCs. SEVs represent no-observed-adverse-effect-level (NOAELs) and lowest-observed-adverseeffect-level (LOAELs) with conversion values incorporated for toxicity information derived from studies other than no-effect or lowest-effect studies. The order of taxonomic preference when choosing SEVs was data from studies using (1) native species potentially present at the site, or (2) proxy species, such as commonly studied laboratory species. The preferred toxicity test was the lowest appropriate chronic NOAEL or LOAEL for non-lethal or reproductive effects. Values based on chronic studies were preferred. If NOAEL data were not available for a contaminant, the next preferred endpoints for SEV derivation were chronic or subchronic LOAEL, then acute endpoints including LD50 (median lethal dose) in diet, or an LC50 (median lethal concentration). SEVs were calculated using conversion factors to adjust the reported effects doses to a final SEV. Two factors are used to convert other types of study results into SEVs comparable to NOAEL and LOAEL studies. The factors are 1) study duration, and 2) endpoint (e.g. LD50 or LC50). These factors were multiplied together to derive the total conversion factor. The reported effects dose was divided by the total conversion factor to account for potential uncertainties in extrapolation from one endpoint to another. These factors are presented in Table 7-4. For chemicals for which toxicity data were not available for the site-specific receptor, but toxicity data were available for another test organism, the toxicity data were adjusted for difference in body size for mammals. For COPCs without chemicalspecific SEVs, the SEV for a surrogate chemical was used based on the chemical structure of the compounds and in a conservative approach. As an example, the SEV for benzo(a)pyrene, the most toxic PAH, was used as SEVs for the other PAHs without chemical-specific SEVs.

NOAEL and LOAEL SEVs and information used to derive them including test organisms, effect dose, and study duration, are summarized in **Tables 7-5** and **7-6**, respectively.

### 7.4 STEP 2A: SCREENING-LEVEL EXPOSURE ESTIMATE

To compare potential wildlife exposures to adverse effect levels, an estimate of contaminant exposures, expressed as daily dose ingested of contaminated food items (i.e., plants, invertebrates, and animals) and media, was calculated. COPC daily dose ingested (expressed as the mass of COPC ingested per kilogram body weight per day) depends on the COPC concentration in food items and media, the receptor's trophic level, the trophic level of food items, and the receptor's ingestion rate of each food item and media. The daily dose of COPC ingested by a receptor, considering all food items and media ingested, can be calculated from the following generic equation (USEPA, 1999b):

$$DD = \sum IR_F \cdot C_i \cdot P_i \cdot F_i + \sum IR_M \cdot C_M \cdot P_M$$

Where:

DD = Daily dose of COPC ingested (mg COPC/Kg BW-day);

IR<sub>F</sub> = Receptor food ingestion rate (Kg/Kg BW-day);

C<sub>i</sub> = COPC concentration in i<sup>th</sup> food item (mg COPC/Kg);

P<sub>i</sub> = Proportion of i<sup>th</sup> food item that is contaminated (unitless);

 $F_i$  = Fraction of diet consisting of food item i (unitless);

IR<sub>M</sub> = Receptor media ingestion rate (Kg/KgBW-day);

C<sub>M</sub> = COPC concentration in media (mg/Kg for soil and mg/L for water); and

P<sub>M</sub> = Proportion of ingested media that is contaminated (unitless).

Based on this algorithm, the daily dose equation for each receptor is as follows:

Deer mouse, meadow vole, and American robin average daily exposure dose (mg/Kg-day) =

$$[[(C_s \times SP \times I_p \times CF) + (C_s \times BAF_i \times I_{in}) + (C_s \times I_s \times ST) + (C_w \times WR)] * SFF] / BW$$

Where:

C<sub>s</sub> = Exposure point concentration in the appropriate soil matrix (surface soil/deeper soil/ditch soil) (mg COPC/Kg dry soil);

 $C_w = Exposure point concentration in surface water (mg/L);$ 

SP = Soil-to-plant uptake factor ((mg COPC/Kg dry tissue)/(mg COPC/Kg dry soil));

I<sub>p</sub> = Receptor-specific ingestion rate of plant material (Kg wet tissue/day)

$$I_p = PDF * FR$$

Where PDF = Plant dietary fraction;

and FR = Feeding rate (Kg wet food/day);

CF = Dry weight to wet weight plant matter conversion factor, 0.2 (unitless);

BAF<sub>i</sub> = Constituent-specific soil-to-invertebrate bioaccumulation factor ((mg COPC/Kg wet tissue)/(mg COPC/Kg dry soil));

I<sub>in</sub> = Receptor-specific ingestion rate of soil invertebrate (Kg wet tissue/day);

$$I_{in} = FR * IDF$$

Where IDF = Invertebrate dietary fraction;

and FR = Feeding rate (Kg wet food/day);

For meadow vole, soil invertebrate intake is negligible and Iin was assumed to be 0.

I<sub>s</sub> = Receptor-specific ingestion rate of soil (Kg dry/day);

ST = Bioavailability factor for constituents ingested in soil (assumed to be 1 for all constituents) (unitless);

WR = Water intake rate (L/day)

SFF = Site foraging frequency - ratio of site exposure area to receptor foraging range (unitless), assumed to be 1; and

BW = Average adult body weight (Kg).

Short-tailed shrew, red fox, and great blue heron average daily exposure dose (mg/Kg-day) =

$$[[(C_s * SP * I_p * CF) + (C_s * BAF_i * I_{in}) + (C_s * BAF_a * I_a) + (C_s * I_s * ST) + (C_w x WR)] * SFF] / BW$$

Where:

 $C_s$  = Exposure point concentration in the appropriate soil matrix (surface soil/deeper soil/ditch soil) (mg COPC/Kg dry soil);

 $C_w = Exposure point concentration in surface water (mg/L);$ 

SP = Soil-to-plant uptake factor ((mg COPC/Kg dry tissue)/(mg COPC/Kg dry soil));

 $I_p$  = Receptor-specific ingestion rate for plant material (Kg wet tissue/day);

$$I_n = PDF * FR$$

Where PDF = Plant dietary fraction;

and FR = Feeding rate (Kg wet food/day);

CF = Dry weight to wet weight plant matter conversion factor, 0.2 (unitless);

I<sub>in</sub> = Receptor-specific ingestion rate for invertebrates (Kg wet/day);

$$I_{in} = FR * IDF$$

Where IDF = Invertebrate dietary fraction;

and FR = Feeding rate (Kg wet food/day);

 $BAF_i$  = Constituent-specific soil-to-invertebrate bioaccumulation factor ((mg COPC/Kg wet tissue)/(mg COPC/Kg dry soil));

 $I_a = Receptor-specific ingestion rate for animal material (Kg wet tissue/day);$ 

$$I_a = ADF * FR$$

Where ADF = Animal dietary fraction;

and FR = Feeding rate (Kg wet food/day);

BAF<sub>a</sub> = constituent-specific soil-to-small mammal bioaccumulation factor ((mg COPC/Kg wet tissue)/(mg COPC/Kg dry soil));

 $I_s$  = Receptor-specific ingestion rate of soil (Kg dry/day);

ST = Bioavailability factor for constituents ingested in soil (assumed to be 1 for all constituents) (unitless);

WR = Water intake rate (L/day)

SFF = Ratio of site exposure area to average receptor foraging range (unitless), assumed to be 1; and

BW = Average adult body weight (Kg).

USEPA (1993b, 1999b, and 2005b) has provided a variety of exposure information for a number of avian and mammalian species. Data are directly available for body weights of various species. Similarly, information regarding feeding rates, and dietary composition, including incidental soil ingestion, are also available for many species. Such exposure parameters were compiled for the selected receptor species (deer mouse, short-tailed shrew, meadow vole, red fox, American robin, and great blue heron). Feeding rates for receptors were based upon USEPA (1999b, 2005b) or allometric

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equations presented in Nagy (1999). Literature values for diet fraction and body weights were taken from USEPA (1993b, 1999b, 2005b). Great blue herons fish in shallow waters (up to 0.5 m) with a firm substrate (USEPA, 1993b). They capture fish by thrusting the beak into the fish's side or back (Eckert and Karalus, 1983; as cited in TAMS, 2000). Based on the great blue heron's fishing technique, a value of 2% of the food ingestion rate (on a dry weight basis) was applied based on incidental ingestion during feeding and grooming. This value is used in the Phase 2 Report of Further Site Characterization and Analysis, Volume 2E - Revised Baseline Ecological Risk Assessment, Hudson River PCBs Reassessment (TAMS, 2000) prepared for USEPA Region 2 and USACE Kansas City District.

For the screening-level exposure estimate, site foraging frequency factors for all receptors were assigned as 1, in accordance with the USEPA (1997c) guidance. That is, all receptors were assumed to be exposed 100% of the time to the COPCs at the sites. This is a very conservative assumption as most receptors will spend at least part of the time outside of the site boundaries, either by having a larger home range than the site area, seasonal migration patterns, and/or winter dormancy periods. As an example, the red fox has much larger foraging range compared to the size of SEAD-121C and SEAD-121I (i.e., over 200 acres vs. approximately 21 acres). This factor will be considered in the COC refinement step (Section 7.6).

The soil-to-plant uptake factors and soil-to-soil invertebrate uptake factors were obtained from the USEPA Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities (1999b). Small mammal bioaccumulation factors were from published literature or were calculated based on chemical-specific partitioning coefficients from the literature.

The exposure point concentration (EPC) evaluated for each soil COPC was determined based on the maximum detected concentration, in accordance with the USEPA (1997c) guidance. The EPCs are summarized in **Tables 7-7A**, **7-7B**, and **7-7C** for SEAD-121C soil, ditch soil, and surface water, respectively. EPCs for SEAD-121I soil, ditch soil, and surface water are summarized in **Tables 7-8A**, **7-8B**, and **7-8C**, respectively.

Receptor food intake rate and dietary fraction information is presented in **Table 7-9**. The uptake parameters are presented in **Appendix G**, **Table G-1**. The exposure calculation sheets are presented in **Appendix G** (**Tables G-2A** through **G-2E** for exposure to SEAD-121C soil and surface water, **Tables G-3A** through **G-3F** for exposure to SEAD-121C ditch soil and surface water, **Tables G-4A** through **G-4E** for exposure to SEAD-121I soil and surface water, and **Tables G-5A** through **G-5F** for exposure to SEAD-121I ditch soil and surface water).

### 7.5 STEP 2B: SCREENING-LEVEL RISK CALCULATION

For wildlife receptors, the risk calculation step uses the results of the wildlife exposure and toxicity effects assessments to calculate a hazard quotient for each COPC. A hazard quotient (HQ) is a ratio of the estimated exposure dose (for mammal and bird receptors) of a contaminant to the SEV.

Generally, the greater this ratio, or quotient, the greater the likelihood of an effect. An HQ less than 1 indicates that the contaminant alone is unlikely to cause adverse ecological effects. Because conservative (i.e., health protective) estimates of potential chronic exposures and toxicity were used, screening-level HQs tend to overestimate actual risks. Cumulative effects of COPCs were not quantitatively evaluated in this SLERA. For metals, there is no evidence of clearly additive effects in ecological systems. For PAHs, the uncertainty associated with the cumulative effects is discussed in the uncertainty section (Section 7.5.2). Calculated HQs for mammal and bird receptors are reviewed below.

For all identified receptors, HQs were calculated based on the NOAEL SEVs, the maximum detected concentrations for the COPCs, and a site foraging frequency factor of 100% in accordance with the USEPA (1997c) guidance. A site foraging frequency factor of 100% assumes the receptor is present at the site and does not forage or range beyond the boundaries of the site being evaluated. This is a very conservative assumption as most receptors will spend at least part of the time outside of the site boundaries, either by having a larger home range than the site area, seasonal migration patterns, and/or winter dormancy periods.

### 7.5.1 Summary of Risk Results and Preliminary COC Identification

HQ results for the identified receptors based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Table 7-10A** for SEAD-121C soil and surface water exposure, **Table 7-10B** for SEAD-121C ditch soil and surface water exposure, **Table 7-11A** for SEAD-121I soil and surface water exposure, and **Table 7-11B** for SEAD-121I ditch soil and surface water exposure.

The results are discussed in the following subsections for potential risks associated with SEAD-121C surface water, SEAD-121C soil, SEAD-121C ditch soil, SEAD-121I surface water, SEAD-121I soil, and SEAD-121I ditch soil, respectively. All COPCs with HQs greater than or equal to 1 for one or more receptors based on the maximum detected concentrations and the NOAEL SEVs were identified as preliminary COCs. A further discussion of the preliminary COCs and a refinement of the COCs is presented in Section 7.6.

### 7.5.1.1 SEAD-121C Surface Water

HQ results for the identified receptors exposed to COPCs in SEAD-121C soil, ditch soil, and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Tables 7-10A** and **7-10B** for soil and ditch soil exposure, respectively. Estimated exposures based on the maximum detected concentrations of the COPCs for the deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron are presented in **Tables G-2A** through **G-3F**.

Surface water COPC concentrations (with the exception of aluminum and iron concentrations) would result in insignificant exposure compared to the soil or ditch soil COPC concentrations. With the exception of aluminum and iron, the COPCs in soil and ditch soil contribute significantly (more than 90%) to the elevated HQs at or above 1. As aluminum and iron were not identified as soil COPCs, exposure to aluminum and iron in surface water is the sole source of HQs for aluminum and iron. Therefore, only aluminum and iron were retained as preliminary COCs in surface water.

The HQs associated with exposure to the maximum detected concentration of aluminum in surface water at SEAD-121C are below 1 for all the receptors with the exception of meadow vole. The HQ associated with exposure to aluminum in SEAD-121C surface water is at 1 for the meadow vole.

Exposure to the maximum detected concentration of iron in SEAD-121C surface water results HQs greater than 1 based on the NOAEL SEVs for all identified receptors with the exception of the American robin and great blue heron. The HQs are approximately 20 for the deer mouse, short-tailed shrew, and meadow vole and 10 for the red fox.

### 7.5.1.2 SEAD-121C Soil

HQ results for the identified receptors exposed to COPCs in SEAD-121C soil and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Table 7-10A**. Estimated exposures based on the maximum detected concentrations of the COPCs in surface water and soil (0-2 ft. bgs soil and 0-4 ft. bgs soil) at SEAD-121C for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox are presented in **Tables G-2A** through **G-2E**.

Soil COPCs and surface water COPCs with the maximum detected concentrations that generated HQs based on the NOAEL SEVs greater than or equal to 1 for one or more identified receptors include one VOC (meta/para xylene), two PAHs (phenanthrene and pyrene), one PCB (Aroclor-1254), one pesticide (4,4'-DDT), and several metals (aluminum, antimony, barium, cadmium, copper, iron, lead, silver, thallium, and zinc). With the exception of aluminum and iron, these COPCs were identified as preliminary COCs in SEAD-121C soil and were further evaluated in Section 7.6. As discussed in the previous section, aluminum and iron were identified as preliminary COCs in SEAD-121C surface water.

**Table 7-10A** indicates that exposure to the maximum detected concentrations of meta/para xylene (total soil only), Aroclor-1254, and several metals (antimony, barium, cadmium, copper, lead, silver, and zinc) in SEAD-121C soil by the deer mouse results in HQs greater than 1 based on the NOAEL SEVs. All the other HQs for the deer mouse were below 1.

HQs based on the NOAEL SEVs are below 1 for the avian receptor (American robin) exposed to all COPCs in SEAD-121C soil with the exception of Aroclor-1254, 4,4'-DDT, and several metals (barium, cadmium, copper, lead, and zinc). The HQ for the American robin exposed to lead in

SEAD-121C soil is approximately 100 and the HQ for the 4,4'-DDT exposure is approximately 20. The HQs associated with exposure to all the other COPCs are below 10. An antimony SEV was not identified for birds and therefore, risks to the American robin were not quantified for exposure to antimony.

Exposure to the maximum detected concentrations of meta/para xylene (total soil only), pyrene, Aroclor-1254, and several metals (antimony, barium, cadmium, copper, lead, silver, thallium - total soil only, and zinc) in SEAD-121C soil by the short-tailed shrew results HQs greater than 1 based on the NOAEL SEVs. The HQs associated with exposure to the maximum detected concentration of phenanthrene in soil are at 1 for the short-tailed shrew. The HQs resulting from the maximum detected concentrations of all the other COPCs in SEAD-121C soil are all below 1.

Table 7-10A indicates that exposure to the maximum detected concentrations of meta/para xylene (total soil only), phenanthrene, pyrene, and several metals (antimony, barium, cadmium, copper, lead, silver, and zinc) in SEAD-121C soil by the meadow vole results in HQs greater than or equal to 1 based on the NOAEL SEVs.

HQs based on the NOAEL SEVs are below 1 for the high trophic level mammal (red fox) exposed to all COPCs in SEAD-121C soil with the exception of meta/para xylene in total soil (0-4 ft. bgs) and antimony, copper, and lead in surface soil and total soil.

### 7.5.1.3 SEAD-121C Ditch Soil

HQ results for the identified receptors exposed to COPCs in SEAD-121C ditch soil and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in Table 7-10B. Estimated exposures based on the maximum detected concentrations of the COPCs in SEAD-121C ditch soil and surface water for the deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron are presented in Tables G-3A, G-3B, G-3C, G-3D, G-3E, and G-3F, respectively.

Using the maximum detected concentrations and the NOAEL SEVs, COPCs in ditch soil and surface water that generated HQs greater than or equal to 1 for one or more identified receptors include cyanide and several metals (aluminum, antimony, cadmium, copper, iron, lead, selenium, and zinc). With the exception of aluminum and iron, these COPCs were identified as preliminary COCs in SEAD-121C ditch soil and were further evaluated in Section 7.6. As discussed in Section 7.5.1.1, aluminum and iron were identified as preliminary COCs in SEAD-121C surface water.

Table 7-10B indicates that exposure to the maximum detected concentrations of antimony, cadmium, and copper in SEAD-121C ditch soil by the deer mouse results HQs greater than 1 based on the NOAEL SEVs. All the other HQs for the deer mouse are below 1.

HQs based on the NOAEL SEVs are below 1 for the avian receptor (American robin) exposed to all COPCs in SEAD-121C ditch soil with the exception of cadmium, cyanide, and lead. The HQ for the American robin exposed to zinc in SEAD-121C ditch soil is at 1.

Exposure to the maximum detected concentrations of antimony, cadmium, and copper in SEAD-121C ditch soil by the short-tailed shrew results in HQs greater than 1 based on the NOAEL SEVs. The HQs associated with exposure to the maximum detected concentrations of lead and selenium in ditch soil are at 1 for the short-tailed shrew. The HQs resulting from the maximum detected concentrations of all the other COPCs in SEAD-121C ditch soil are all below 1.

**Table 7-10B** indicates that exposure to the maximum detected concentrations of antimony, cadmium, copper, and lead in SEAD-121C ditch soil by the meadow vole results in HQs greater than or equal to 1 based on the NOAEL SEVs.

HQs based on the NOAEL SEVs are below 1 for the high trophic level mammal (red fox) exposed to all COPCs in SEAD-121C ditch soil.

HQs based on the NOAEL SEVs are below 1 for the great blue heron exposed to all COPCs in SEAD-121C ditch soil with the exception of cyanide and lead. The HQ associated with exposure to the maximum detected concentration of cyanide and lead in ditch soil is at 1 for the great blue heron.

### 7.5.1.4 SEAD-1211 Surface Water

HQ results for the identified receptors exposed to COPCs in SEAD-121I soil, ditch soil, and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Tables 7-11A** and **7-11B**. Estimated exposures based on the maximum detected concentrations of the COPCs for the deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron are presented in **Tables G-4A** through **G-4F**.

Surface water COPC concentrations (with the exception of aluminum and iron concentrations) would result in insignificant exposure compared to the soil or ditch soil COPC concentrations. HQs associated with exposure to aluminum and iron in SEAD-121I surface water are below 1 for all receptors; therefore, no preliminary COCs were identified for SEAD-121I surface water.

### 7.5.1.5 SEAD-121I Soil

HQ results for the identified receptors exposed to COPCs in SEAD-121I soil and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Table 7-11A**. Estimated exposures based on the maximum detected concentrations of the COPCs in surface water and soil (0-2 ft. bgs soil and 0-4 ft. bgs soil) at SEAD-121I for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox are presented in **Tables G-4A**, **G-4B**, **G-4C**, **G-4D**, and **G-4E**, respectively.

Soil COPCs and surface water COPCs with the maximum detected concentrations that generated HQs based on the NOAEL SEVs greater than or equal to 1 for one or more identified receptors include nine PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, phenanthrene, and pyrene), one pesticide (4,4'-DDT), cyanide, and several metals (antimony, arsenic, cadmium, chromium, cobalt, copper, lead, manganese, selenium, silver, thallium, and vanadium). These COPCs were identified as preliminary COCs in SEAD-121I soil and were further evaluated in Section 7.6.

**Table 7-11A** indicates that exposure to the maximum detected concentrations of two PAHs (phenanthrene and pyrene) and several metals (antimony, arsenic, cadmium, cobalt, manganese, selenium, thallium, and vanadium) in SEAD-121I soil by the deer mouse results in HQs greater than or equal to 1 based on the NOAEL SEVs. All the other HQs for the deer mouse were below 1.

HQs based on the NOAEL SEVs are below 1 for the avian receptor (American robin) exposed to all COPCs in SEAD-121I soil with the exception of 4,4'-DDT, cyanide, and several metals (cadmium, chromium, manganese, selenium, thallium, and vanadium). The HQ for the American robin exposed to manganese in SEAD-121I soil is approximately 100 and the HQs for selenium and thallium are approximately 30 and 50, respectively. The HQs associated with exposure to all the other COPCs are below 10.

Exposure to the maximum detected concentrations of two PAHs (phenanthrene and pyrene) and several metals (antimony, arsenic, cadmium, cobalt, manganese, selenium, thallium, and vanadium) in SEAD-121I soil by the short-tailed shrew results in HQs greater than 1 based on the NOAEL SEVs. The HQs associated with exposure to the maximum detected concentration of several PAHs (benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, and chrysene) and silver in soil are at 1 for the short-tailed shrew. The HQs resulted from the maximum detected concentrations of all the other COPCs in SEAD-121I soil are all below 1.

Table 7-11A indicates that exposure to the maximum detected concentrations of several PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, phenanthrene, and pyrene) and several metals (antimony, arsenic, cobalt, copper, lead, manganese, selenium, thallium, and vanadium) in SEAD-121I soil by the meadow vole results in HQs greater than or equal to 1 based on the NOAEL SEVs.

HQs based on the NOAEL SEVs are below 1 for the high trophic level mammal (red fox) exposed to all COPCs in SEAD-121I soil with the exception of manganese, selenium, and thallium.

### 7.5.1.6 SEAD-121I Ditch Soil

HQ results for the identified receptors exposed to COPCs in SEAD-121I ditch soil and surface water based on the maximum detected concentrations for the COPCs and the NOAEL SEVs are presented in **Table 7-11B**. Estimated exposures based on the maximum detected concentrations of the COPCs

in surface water and ditch soil at SEAD-121I for the deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron are presented in Tables G-5A, G-5B, G-5C, G-5D, G-5E, and G-5F, respectively.

Ditch soil COPCs and surface water COPCs with the maximum detected concentrations that generated HQs based on the NOAEL SEVs greater than or equal to 1 for one or more identified receptors include six PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and pyrene) and several metals (arsenic, cobalt, manganese, selenium, silver, thallium, vanadium, and zinc). These COPCs were identified as preliminary COCs in SEAD-121I ditch soil and were further evaluated in Section 7.6.

**Table 7-11B** indicates that exposure to the maximum detected concentrations of several metals (arsenic, cobalt, manganese, selenium, silver, thallium, and vanadium) in SEAD-121I ditch soil by the deer mouse results in HQs greater than or equal to 1 based on the NOAEL SEVs. All the other HQs for the deer mouse are below 1. The HQ for the deer mouse exposed to thallium in SEAD-121I ditch soil is approximately 10. All the other HQs for the deer mouse are below 10.

HQs based on the NOAEL SEVs are below 1 for the avian receptor (American robin) exposed to all COPCs in SEAD-121I ditch soil with the exception of several metals (arsenic, manganese, selenium, thallium, and zinc). The HQ associated with exposure to zinc in ditch soil is at 1. The HQs associated with exposure to all the other COPCs are below 1.

Exposure to the maximum detected concentrations of several metals (arsenic, cobalt, manganese, selenium, silver, thallium, and vanadium) in SEAD-121I ditch soil by the short-tailed shrew results in HQs greater than 1 based on the NOAEL SEVs. The HQs associated with exposure to the maximum detected concentration of two PAHs (benzo(b)fluoranthene and benzo(k)fluoranthene) in ditch soil are at 1 for the short-tailed shrew. The HQs resulted from the maximum detected concentrations of all the other COPCs in SEAD-121I ditch soil are all below 1.

Table 7-11B indicates that exposure to the maximum detected concentrations of several PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and pyrene) and several metals (arsenic, cobalt, manganese, selenium, silver, thallium, and vanadium) in SEAD-121I ditch soil by the meadow vole results in HQs greater than or equal to 1 based on the NOAEL SEVs.

HQs based on the NOAEL SEVs are below 1 for the high trophic level mammal (red fox) exposed to all COPCs in SEAD-121I ditch soil except that the HQ for thallium is slightly above 1 at a value of 2.

HQs based on the NOAEL SEVs are below 1 for the great blue heron exposed to all COPCs in SEAD-121I ditch soil except that the HQs associated with exposure to manganese and thallium in ditch soil are at 1.

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### Uncertainties for ERA Steps 1 and 2 7.5.2

For this aspect of the SLERA, a qualitative analysis was made of the uncertainties associated with the various components of the assessment, including the problem formulation and screening of contaminants and criteria used, toxicity and exposure characterization, and characterization of risk. This analysis identifies the potential magnitude of underestimating or overestimating the potential for adverse effects to organisms.

### 7.5.2.1 Uncertainty in Screening-Level Problem Formulation

The preliminary problem formulation step of the SLERA may have some degree of uncertainty regarding the selection of COPCs, identification of potential exposure pathways, and the selection of receptor species.

The assessment and measurement endpoints were selected according to the USEPA guidance (1997c and 1998b). The screening criteria used for the selection of ecological COPCs were derived from various sources. Most of these criteria are recommended for screening of site contaminants and are developed by the USEPA and various USEPA regions. Uncertainties associated with the sources and derivation of the criteria could possibly underestimate or overestimate the number of site COPCs.

In order to determine the potential exposure to ecological receptors to site-related constituents, the presence of constituents in environmental media must first be established. The magnitude at which these constituents are present also greatly influences resulting exposure estimates. The SLERA was conducted based on all data available for the sites. As discussed in Section 6.8, the size of the soil samples and the biased sampling approach indicate the uncertainty associated with site characterization is low. In addition, uncertainty in contaminant identification is considered low because generally full suite of Contract Laboratory Program (CLP) target compounds including VOCs, semivolatile organic compounds, PCBs, pesticides, and metals were analyzed for the samples. Reasonable certainty also is assumed because of the sample data validation and quality assurance/quality control procedures applied to sample analysis and data evaluation.

Receptors were selected based on several factors, including their known or potential occurrence in the vicinity of the Depot, as well as their level of sensitivity to contaminants. These decisions are based on best professional judgment and recommendations by USEPA (1997c and 1999b) regarding wildlife exposure parameters and calculations. Limitations regarding the determination of receptor species include the availability of exposure and toxicity information, abundance versus sensitivity, and ecological relevance. The potential for overestimation or underestimation exists when using receptor species and extrapolating calculated risks to other species within that trophic level.

### 7.5.2.2 Uncertainty in Screening-Level Ecological Effect Evaluation

The evaluation of ecological effects involves the derivation of ecological SEVs for comparison to the calculated exposures (e.g., daily dose). Because toxicity information is limited for many chemicals,

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SEVs from similar or related chemicals were sometimes used. The use of surrogate toxicity values may underestimate or overestimate risk. For other chemicals, analytical results may not distinguish between different isomers or forms of a chemical although available toxicity information does, or vice versa. The absence of isomer specific toxicity values or isomer specific analytical data for some chemicals may tend to overestimate or underestimate risks. The SEV selection process may overestimate risk since overall the most conservative (and scientifically defensible) SEV is chosen rather than a range of or median SEV(s). In addition, the toxicity values used are chemical-specific and are incorporated into the SEV by use of conversion factors. For example, a conversion factor may be applied for the extrapolation from LD50 to chronic exposures. The use of conversion factors may overestimate or underestimate risk for a particular COPC. Toxicity studies for species other than the receptor species of concern are often used in the development of SEVs. The use of related species to estimate toxicity to a representative receptor species may overestimate or underestimate risk due to different species sensitivity to particular toxicants.

SEVs may not be available for some COPCs, thereby precluding their inclusion in the quantitative risk estimates. The resulting risk estimates will not include the chemical-specific risks from these chemicals and therefore, may underestimate risk. For this assessment, toxicity data were available for all of the identified COPCs with the exception of antimony, benzene, and ethylbenzene. No SEVs of antimony, benzene, and ethylbenzene were identified for avian receptors (the American robin and great blue heron). Benzene and ethylbenzene were detected in only three out of 68 soil samples at SEAD-121C. There is no evidence that benzene and ethylbenzene are associated with any historical release at the site. In addition, due to the high volatility of benzene and ethylbenzene, exposure to these chemicals in surface soil is expected to be minimal. Therefore, risks associated with benzene and ethylbenzene are expected to be minor. A further evaluation of antimony in soil is presented in Section 7.6.

For many COPCs, especially metals, the form of the compound has a direct affect on its toxicity. For this screening ERA, the most toxic form of the COPC was utilized to derive the SEVs. NOAELs or estimated NOAELs were always utilized as the SEVs for the screening level ERA. However, LOAELs may be better for estimating risk since LOAELs are the lowest concentrations at which a receptor demonstrates adverse effects. Thus, HQs can be generated utilizing LOAELs in lieu of NOAELs to represent the concentration at which receptors start showing effects due to exposure to the COPCs.

### 7.5.2.3 Uncertainty in Screening-Level Exposure Assessment

Factors that can contribute to uncertainty in the exposure assessment include identification and evaluation of exposure pathways, intake parameters, and EPCs.

The identification of potential exposure pathways and receptors was based on site-specific reasonable current use and future ecological habitat. Site-specific receptors were identified to the extent possible

and exposure parameters tailored to these receptors to minimize uncertainty in the defined scenarios and exposure assessments.

Values assumed for exposure parameters (e. g., feeding rates and dietary intake) used in calculations for intakes are based on Nagy (1999) and USEPA (1993b, 1997c, and 1999b) guidance. These assumptions may result in underestimating or overestimating the intakes calculated for specific receptors, depending on the accuracy of the assumptions relative to actual site conditions and uses. Since conservative assumptions were used to select intake rates, bioaccumulation factors and site utilization factors, the estimated risk to the receptors is generally overestimated.

Exposure and toxicity information are generally not available for dermal or inhalation exposure; hence, the lack of quantitative evaluation may underestimate risk. On-site exposure of COPCs to receptors may occur via dermal and inhalation pathways. Although intake of contaminants from these additional pathways may occur, these exposure routes are expected to be negligible compared to exposure via ingestion routes. Therefore, the impact to the overall contaminant exposure is expected to be minor.

Another source of exposure estimation uncertainty is that contamination is assumed to remain constant over time. Fate and transport mechanisms, which would result in the degradation and loss of some COPCs from the environment, may not be considered in the exposure evaluation for ecological receptors. In addition, the use of the maximum detected concentration as the EPC may overestimate risk since the receptor is actually exposed to a broader range of contaminant concentrations rather than the maximum detected concentrations. Exposure would occur throughout the site at various levels, including the EPC. Thus, actual risks may be lower than those presented in the assessment.

Estimations of uptake and retention of COPCs using bioaccumulation factors (BAFs) often do not account for the depuration of COPCs from the organism's system over time. BAFs are also reflective of the most contaminated source of the organism's diet fraction. For example, a receptor's invertebrate diet may consist largely of insects, yet for most COPCs, the invertebrate BAF used was reflective of earthworm bioaccumulation since the earthworm BAFs are generally more conservative than other invertebrate BAFs.

Metals in environmental media, particularly solid matrices, are frequently bound to particles or complexed with other elements, making them less available to biological organisms. Metals such as lead can react with anions in water, such as hydroxides, carbonates, sulfates, and phosphates that have low water solubilities, and will precipitate out of the water column, or occur as sorbed ions or surface coatings on sediment mineral particles (ATSDR, 2003). Zinc is capable of forming complexes with a variety of organic and inorganic complexing groups. Sorption is the dominant reaction of zinc, resulting in the enrichment of zinc in suspended and bed sediments (ATSDR, 2003). These complexes would limit the bioavailability of chemicals of potential ecological concern to receptors. Extraction and analysis of total metals in samples does not differentiate between the bioavailable and non-bioavailable fraction (complexed with other compounds present in bulk sediment samples) of

metals in soil. This would result in an overestimation of hazard for the ecological receptors exposed to metals in soil.

Biota uptake is a major exposure pathway evaluated in the SLERA. The USEPA recommended food chain models have been used in the analysis. However, no biota sampling has been conducted to validate the model. If a further evaluation (i.e., a baseline ecological risk assessment) is warranted, a biota sampling would provide site-specific information and improve the understanding of the ecological impacts to the site habitat.

A conservative site foraging frequency factor of 1 was used for all mammalian receptors. A site utilization factor of 100% assumes the receptor is present at the site and does not forage or range beyond the boundaries of the site being evaluated. This is a very conservative assumption as most receptors will spend at least part of the time outside of the site boundaries, either by having a larger home range than the site area, seasonal migration patterns, and/or winter dormancy periods.

### 7.5.2.4 Uncertainty in Screening-Level Risk Characterization

The screening level risk characterization step may result in some degree of uncertainty for the SLERA results. Uncertainties in the risk characterization are compounded under the assumption of dose additivity or non-additivity for multiple substance exposure. For this assessment, it was assumed that the potential toxic effects of the COPCs were non-additive. This assumption may result in the underestimation of risk since concurrent exposure to several contaminants might have synergistic toxic effects. The risk characterization of metals does not include additive effects since there is no evidence of clearly additive effects in ecological systems. For PAHs in SEAD-121C and SEAD-121I soil, although the sum of the HQs exceeded 1 for the deer mouse, short-tailed shrew, and meadow vole, the SEVs are based on the SEV for benzo(a)pyrene, the most toxic chemical among the PAHs. In addition, the sum of the HQs would be below or at 1 if LOAEL SEVs were used. Therefore, PAHs in SEAD-121C and SEAD-121I soil are not expected to pose significant risk to the environment.

In summary, identification and evaluation of exposure pathways, intake parameters, and EPCs can all contribute to uncertainty in the SLERA. Overall, the HQs calculated from conservative SEVs, the maximum detection exposure concentrations, and 100% site utilization factor for mammals were intended to provide confidence that the risk assessment yields reasonably conservative estimates of the potential risk of adverse ecological effects on the assessment endpoints.

### 7.6 FURTHER REFINEMENT OF CHEMICALS OF CONCERN

For the screening level ERA, NOAEL toxicity values, the maximum detected COPC concentrations, and conservative exposure assumptions were used to calculate screening level HQs. Due to the conservative nature of these assumptions, additional evaluation is required to refine the contaminants of concern. The refinement of COCs streamlines the overall ERA process to determine if further

evaluation is warranted. This section presents the results of further refinement of chemicals of concern conducted in accordance with the USEPA's ERAGS supplemental guidance (USEPA, 2001a).

Lines of evidence (COC refinement) evaluated include:

- · COC detection frequency;
- risk results based on reasonable site average concentration and/or LOAEL SEVs;
- · size of site relative to foraging area of receptors;
- site risk relative to background risk;
- relative uncertainties of SLERA results;
- sufficiency and quality of literature toxicity data and experimental designs;
- · strength of cause/effect relationships; and
- quality of habitat for receptors.

Alternative toxicity values and mean exposures based on mean concentrations were considered for the refinement of COCs. Utilizing the mean concentration instead of the maximum concentration presents a more realistic approach to evaluate exposure for a receptor that comes into contact with a COPC. The receptor is likely to range over the entire site and not be continuously exposed to the maximum concentration at all times. Thus, the mean is more representative of the actual exposure concentration for a receptor to contact on a continual basis. This additional risk characterization performed as part of the ERA Step 3, together with the other lines of evidence, is discussed in Sections 7.6.2 through 7.6.7 for SEAD-121C surface water, SEAD-121C soil, SEAD-121C ditch soil, SEAD-121I surface water, SEAD-121I soil, and SEAD-121I ditch soil, and can be used to refine the COCs and support a decision for either additional evaluation or no further evaluation of environmental risk.

### 7.6.1 Overall Conservative Evaluation of Ecological Risks in Steps 1 and 2

In accordance with the USEPA (1997c) ERAGS, this SLERA was conducted using highly conservative assumptions. Therefore, the SLERA in general leads to an overestimation of the risks to the ecosystem. This section discusses three major parameters for which conservative estimations were used: the relative bioavailability, the site foraging frequency factor, and the NOAEL/LOAEL multiplier.

### Relative Bioavailability

Although the relative bioavailability of contaminants at the sites was assumed to be 100 % for the SLERA, contaminants in environmental media are generally less available to biological organisms compared with the same contaminants in the experimental medium (i.e., diet, water, etc.). For example, most of the soil COPCs identified in the initial screening level ERA are PAHs and metals. The following factors should be considered in the refinement of PAH and metal COCs:

- Metals in soil are frequently bound to particles or complexed with other elements, making them
  less available to biological organisms. These tendencies would tend to limit the bioavailability of
  metal to ecological receptors.
- Metal toxicity is generally associated with the soluble fraction.
- Soluble metal, not total metal, is associated with the uptake and bioaccumulation of metal from soil into plants.
- The oral toxicity of metal compounds in soil is dependant upon the chemical form. Insoluble compounds are considerably less toxic compared to the soluble forms. The soil pH observed at the site (7 to 8) favors formation of insoluble fractions.
- Although bioaccumulation has been observed for some metals (e.g., Cd, Pb, etc.), biomagnification is not reported for these metals.

Although there are some interaction effects between certain metals (for example, lead may enhance cadmium absorption (ATSDR, 1999), the overall conservative assumptions (100% bioavailability) tend to overestimate the risks.

Over time (e.g., months or years), an organic compound can enter the microscopic pores on the surface of soil particles and become sequestered into the solid portion by binding tightly to the organic content in soil, thereby making it less bioavailable (Alexander, 2000). Extensive scientific data now exist to support the concepts that the longer the chemicals remain in soil, (1) the less readily they are removed by solvents, including water, (2) the less available they become to microorganisms, (3) the less toxic they become to organisms such as earthworms, and (4) the less they are ingested by organisms such as earthworms. This reduction in availability of the chemicals reduces the risk associated with their presence in the soil (GRI, 1997, as cited in Nakles et al., 2002). For example, the toxicity of DDT declined by 25~80% for animals (including fruit flies, houseflies, and cockroaches) after 90 days of aging (Nakles, et al., 2002). The assumption that COPCs are completely bioavailable, given the age and history of the site, is likely to overestimate systemic absorption of these COPCs.

Chemical-specific bioavailability factors are discussed in the following sections where appropriate on a case-by-case basis.

### Site Foraging Frequency Factor

The site foraging frequency factors (or area-use factors) were assumed to be 1 for the mammalian receptors at the sites. That is, the receptors were assumed to be present at the site and do not forage or range beyond the boundaries of the site being evaluated. This is a very conservative assumption as most receptors will spend at least part of the time outside of the site boundaries, either by having a larger home range than the site area, seasonal migration patterns, and/or winter dormancy periods. As an example, the red fox has much larger foraging range (i.e., over 200 acres) compared to the size of SEAD-121C or SEAD-121I (5 acres and 16 acres, respectively). Site foraging frequency factors of 0.025 and 0.08 would be more appropriate for the red fox for SEAD-121C and SEAD-121I.

For the avian receptors, a site foraging frequency factor of 100% was assumed. This is an overly conservative assumption. American robins in the northern portions of the range that complete full migration leave the breeding grounds from mid-August through mid-October and arrive on their northern breeding grounds in April and May (Whitefish Point Bird Observatory, 2005). Although there are partially migratory populations and sedentary populations, during winter these populations are not likely to be exposed to soil or earthworms, the predominant contaminated diet items contributing to the total daily dose of contaminants. In addition, only part of the site has been impacted by the contaminants. Therefore, a site foraging frequency factor of 0.5 would be a more appropriate estimate for the American robin. Similarly, the great blue herons are seasonal residents in New York State, spending around half the year at the site (http://www.mbr-pwrc.usgs.gov/bbs/anim/h1940.html). Therefore, a foraging factor of 0.5 is a more reasonable estimate.

### NOAEL/LOAEL Multiplier

A NOAEL is preferred to a LOAEL as a screening ecotoxicity value to ensure that risk is not underestimated (USEPA, 1997c). However, NOAELs currently are not available for many groups of organisms and many chemicals. When a LOAEL value, but not a NOAEL value, is available from the literature, a standard practice is to multiply the LOAEL by a NOAEL/LOAEL multiplier (0.1) and to use the product as the NOAEL for the screening evaluation. Although a NOAEL/LOAEL multiplier of 0.1 was used, the true NOAEL may be only slightly lower than the experimental LOAEL, particularly if the observed effect is of low severity (Sample et al., 1996). The data review referred to in the ERAGS that is used to support the use of 0.1 as the NOAEL/LOAEL multiplier indicates that 96% of chemicals included in the review had a NOAEL/LOAEL multiplier no less than 0.2. Therefore, using a default NOAEL/LOAEL multiplier of 0.1 may result in an overestimation of the HQs. LOAEL values were used in Step 3.2 as alternative SEV values.

### **Maximum Detected Concentration**

The use of the maximum detected concentration as the EPC may overestimate risk since the receptor is actually exposed to a broader range of contaminant concentrations rather than the maximum

detected concentrations. Exposure would occur throughout the site at various levels, including the EPC. Thus, actual risks may be lower than those presented in the assessment. Mean concentrations for preliminary COCs (as presented in Tables 7-12A/B and 7-13A/B) were used in Step 3.2 as the alternative values for EPCs.

### 7.6.2 Identification of COCs in SEAD-121C Surface Water

Only aluminum and iron were retained as preliminary COCs in surface water. The HQ associated with exposure to aluminum in SEAD-121C surface water is at 1 for the meadow vole. If the LOAEL was used, the HQ would be below 1 (Table 7-14A).

The HQs associated with exposure to iron in SEAD-121C surface water are approximately 20 for the deer mouse, short-tailed shrew, and meadow vole, and 10 for the red fox. The maximum concentration detected at SWDRMO-2 (110 mg/L) is much higher than the iron concentrations detected in other surface water samples (ranging from not detected to 17.2 mg/L). The average iron concentration detected in surface water at SEAD-121C is 12 mg/L. If the second highest iron concentration (17.2 mg/L) were used, the HQs for all receptors would be at or below 3. The alternative HQs based on the maximum detected concentration and the LOAEL SEVs are at 1 or 2 (Table 7-14A). Further, it should be noted that as no iron toxicity information was available for ecological receptors, the dietary reference intake for a child (Wright, 2001) was used as the SEV for iron. This is an overly conservative assumption.

Based on the above discussion, aluminum and iron in surface water were not retained as final COCs. As a result, no COCs were identified for SEAD-121C surface water.

### 7.6.3 Identification of COCs in SEAD-121C Soil

Based on the calculated risk estimates for the screening level ERA, one VOC (meta/para xylene), two PAHs (phenanthrene and pyrene), one PCB (Aroclor-1254), one pesticide (4,4'-DDT), and several metals (antimony, barium, cadmium, chromium, copper, lead, silver, thallium, and zinc) were identified as preliminary COCs in SEAD-121C soil as the associated HQs were at least 1 for one or more receptors (see Table 7-10A). This section presents further evaluation of the preliminary COCs identified in SEAD-121C soil based on the SLERA results. Upon the refinement described in this section, no COPC was identified for SEAD-121C soil.

### Meta/para xylene

For meta/para xylene, the HQs for the deer mouse, short-tailed shrew, meadow vole, and red fox exposed to total soil (0-4 ft. bgs) are above 1. The HQs for all receptors exposed to surface soil (0-2 ft. bgs) and the American robin exposed to total soil are below 1.

Meta/para xylene and ortho xylene were detected infrequently in SEAD-121C soil (four out of 56 samples and two out of 56 samples, respectively). The maximum meta/para xylene concentration

(130 mg/Kg) was detected in SBDRMO-9 at 2-6 ft. bgs. The meta/para xylene concentration detected in SBDRMO-9 at 0-2 ft. bgs was 4.4 mg/Kg. Meta/para xylene was not detected in any of the adjacent locations (SBDRMO-6, SBDRMO-12, and SSDRMO-8). Therefore, the maximum detected concentration of meta/para xylene, 130 mg/Kg, at 2-6 ft. bgs, is an isolated hit and does not represent the average EPC in soil. If the average meta/para xylene concentration were used, the HQs for all identified receptors would be below 1 (as shown in Table 7-14B). In addition, the HQs based on the maximum detected concentration and the LOAEL are below 1 for all receptors (Table 7-14A). Based on the infrequent detection of meta/para xylene, the high volatility of xylene, and the relatively low (i.e., below 1) HQs based on the alternative assumptions (LOAEL used as SEV and/or average concentration used as EPC) for all receptors, meta/para xylene is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC in SEAD-121C soil.

### Phenanthrene

For phenanthrene, the HQs for the short-tailed shrew exposed to surface and total soil are at 1; the HQs for the meadow vole exposed to surface and total soil are approximately 2; and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEVs derived from the LOAEL value for benzo(a)pyrene. The alternative HQs based on the maximum detected concentration and the LOAEL value for benzo(a)pyrene are all below 1 (as shown in Table 7-14A). The alternative HQs based on the NOAEL SEV and the mean concentration of phenanthrene in surface and total soil for the shrew and vole are at least one magnitude below 1 (as shown in Table 7-14B). The alternative HQs based on the LOAEL SEV and the mean concentration of phenanthrene in surface and total soil for the shrew and vole are at least two magnitudes below 1 (as shown in Table 7-14C). Due to the fact that the HQs based on the SLERA are at 1 or 2 for the shrew and vole and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., SEV for benzo(a)pyrene was used for phenanthrene), phenanthrene is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### <u>Pyrene</u>

For pyrene, the HQs for the short-tailed shrew exposed to surface and total soil are approximately 2; the HQs for the meadow vole exposed to surface and total soil are approximately 3; and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEVs derived from the LOAEL value for benzo(a)pyrene. The alternative HQs are based on the maximum detected concentration and the LOAEL values for benzo(a)pyrene are all below 1 (as shown in Table 7-14A). The alternative HQs based on the NOAEL SEVs and the mean concentrations of pyrene in surface and total soil for the shrew and vole are approximately 0.1 (as shown in Table 7-14B). The alternative HQs based on the LOAEL SEV and the mean concentrations of pyrene in surface and total soil for the shrew and vole are approximately 0.01 (as shown in Table 7-14C). Due to the fact that the HQs based on the SLERA are slightly above 1 for the shrew and vole and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative

assumptions (e.g., SEV for benzo(a)pyrene was used for pyrene), pyrene is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Aroclor-1254

For Aroclor-1254, the HQs for the deer mouse, American robin, and short-tailed shrew exposed to surface and total soil are slightly above 1 (i.e., ranging from 2 to 3) and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEVs. The NOAEL SEV for the robin was derived from the LOAEL value for the ring-necked pheasant. Aroclor-1254 was detected in nine out of 68 soil samples and was only detected in surface soil (i.e., 0-2 ft. bgs).

The alternative HQs based on the maximum detected concentration and the LOAEL value are all below 1 (as shown in Table 7-14A). The alternative HQs based on the NOAEL SEVs and the mean concentration of Arcolor-1254 in surface and total soil for the mouse, robin, and shrew range from 0.1 to 0.2 (as shown in Table 7-14B). The alternative HQs based on the LOAEL SEV and the mean concentration of Aroclor-1254 in surface and total soil are at least two magnitudes below 1 (as shown in Table 7-14C). Due to the fact that the HOs based on the SLERA are slightly above 1 for the mouse, robin, and shrew and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions, Aroclor-1254 is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### 4,4'-DDT

For 4,4'-DDT, the HQs for the American robin exposed to surface and total soil are above 1 at approximately 20. The HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEV derived from the LOAEL value for the brown pelican. It should be noted that the NOAEL SEV identified for the SLERA may overstate potential risks associated with 4,4'-DDT exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control Human and Ecological Risk Division (HERD) range from 0.009 mg/Kg-day to 1.5 mg/Kg-day for birds. The NOAEL SEV identified for this SLERA was 0.0028 mg/Kg-day for birds. Therefore, the NOAEL SEV identified for 4,4'-DDT is a conservative estimate and may overstate potential risks. The alternative HQs based on the maximum detected concentration and the LOAEL SEV are 2 for the American robin (as shown in Table 7-14A). The alternative HQs based on the NOAEL SEV and the mean concentration of 4,4'-DDT in surface and total soil are at 1 for the American robin (as shown in Table 7-14B). The alternative HQs based on the LOAEL SEV and the mean concentration of 4,4'-DDT in surface and total soil are 0.1 for the American robin (as shown in Table 7-14C). Due to the fact that the HQs based on the SLERA are below 1 for all the mammalian receptors and that the alternative HQs for the robin are close to 1 (ranging from 0.1 to 2), and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEVs for birds),

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4,4'-DDT is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### **Antimony**

For antimony, the HQs for all identified receptors exposed to surface and total soil are above 1. An antimony SEV was not identified for birds and therefore, risks to the American robin were not quantified for exposure to antimony. The HQs for the mammalian receptors are based on the maximum detected concentrations and the NOAEL SEVs. The SEVs for antimony are based on the LOAEL value from a drinking water study. Metals tend to be more bioavailable in their soluble forms while less bioavailable in soil. Antimony has been shown to adsorb strongly to most soils with a median percent adsorption of 93% and as much as 100% adsorption in several soil types (ATSDR, 1992). Therefore, bioavailability of antimony is expected to be much lower than that of the toxicity studies from which the SEVs were identified. Further, the alternative HQs based on the LOAEL SEVs and the mean concentration of antimony in surface and total soil for all receptors are at 1 as shown in Table 7-14C. Due to the fact that the alternative HQs are based on the LOAEL SEVs and the mean concentrations of antimony are at 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and SEVs based on drinking water study were used), antimony is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Barium

For barium, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to surface and total soil are slightly above 1 (ranging from 2 to 5) and the HQs for the red fox are below 1. The alternative HQs based on the mean concentrations of barium in surface and total soil are all below 1 (as shown in **Table 7-14B** and **Table 7-14C**). The alternative HQs based on the LOAEL SEV and the maximum barium concentrations in surface and total soil are below 1 for the mouse, shrew, and vole, and are at 3 for the American robin (as shown in **Table 7-14A**). Due to the fact that the HQs based on the SLERA are slightly above 1 (ranging from 2 to 5) for the mouse, robin, shrew, and vole and that all the alternative HQs based on the mean barium concentrations are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), barium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Cadmium

For cadmium, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to surface and total soil are above 1 (ranging from 3 to 10), and the HQs for the red fox are below 1. The alternative HQs based on the maximum detected concentration and the LOAEL SEV are below or at 1 (as shown in Table 7-14A). The alternative HQs based on the LOAEL SEV and the mean concentrations of cadmium in surface and total soil are all below 1 (as shown in Table 7-14C).

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The alternative HQs based on the NOAEL SEV and the mean cadmium concentrations in surface and total soil are below or at 1 for the mouse, robin, and vole and are at 2 for the shrew (as shown in Table 7-14B). All the alternative HQs are below or at 1 except that the HQs based on the NOAEL SEV, and the mean cadmium concentrations are slightly above 1 (2) for the shrew. Further, the SLERA results are based on conservative assumptions (e.g., 100% bioavailability). Therefore, cadmium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Copper

For copper, the HQs for all identified receptors are above 1 (ranging from 4 to approximately 70). The SLERA results are based on the maximum copper concentrations, the NOAEL SEVs, and the 100% bioavailability. Copper binds relatively strongly to soils. This adsorption to soils is less affected by pH than other metals, making copper less likely to become bioavailable in the acidic conditions of an animal's digestive tract (USEPA, 2001b). Further, the alternative HQs based on the mean copper concentrations are below 1 or slightly above 1 (ranging from 0.1 to 4 as shown in Table 7-14B and Table 7-14C). Due to the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability) and that the alternative HQs based on the mean copper concentrations are below 1 or slightly above 1, copper is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Lead

For lead, the HQs for all identified receptors are above 1 (ranging from 5 to approximately 200). The SLERA results are based on the maximum lead concentrations, the NOAEL SEVs, and the 100% bioavailability. The NOAEL SEVs identified for mammals are based on a study of lead acetate. Lead acetate is much more soluble than the other lead compounds expected in soil (e.g., lead carbonates and lead oxides). Therefore, the bioavailability of lead in soil is expected to be much lower than the bioavailability of lead acetate. The oral bioavailability of lead in soil has been more extensively studied than any other metal. USEPA assumes a relative bioavailability factor for lead of 0.6 in its adult lead model (USEPA, 1996a). Further, the alternative HQs based on the mean lead concentration and the LOAEL SEV are below 1 for all receptors (as shown in Table 7-14C). Due to the fact that the alternative HQs based on the mean concentrations and the LOAEL SEVs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), lead is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Silver

For silver, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to surface and total soil are above 1 (6, 7, and 6, respectively), and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentrations and the NOAEL SEVs. The alternative

HQs based on the maximum detected concentration and the LOAEL SEV are below 1 for the mouse, shrew, and vole (as shown in Table 7-14A). The alternative HQs based on the NOAEL SEVs and the mean concentrations of silver in surface and total soil are below 1 for the mouse, shrew, and vole (as shown in Table 7-14B). The alternative HQs based on the LOAEL SEVs and the mean concentrations of silver in surface and total soil are below 1 for the mouse, shrew, and vole (as shown in Table 7-14C). Due to the fact that the HQs based on the SLERA are at 1 for the short-tailed shrew and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), silver is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Thallium

For thallium, the HQs for all receptors are below 1 except that the HQ for the short-tailed shrew exposed to total soil is slightly above 1 at 2. The HQs are based on the maximum detected concentrations and the NOAEL SEVs. The NOAEL SEVs for mammals were derived from the LOAEL value by adjusting the NOAEL/LOAEL multiplier. As discussed in Section 7.6.1, the NOAEL/LOAEL multiplier is likely to overstate potential risks. It should be noted that the NOAEL SEV identified for the SLERA (0.16 mg/Kg-day for the shrew) may overstate potential risks associated with thallium exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control HERD range from 0.48 mg/Kg-day to 1.43 mg/Kg-day for mammals. Further, the alternative HQ based on the maximum detected concentration in total soil and the LOAEL SEV for the shrew is 0.09 (as shown in Table 7-14A). The alternative HQ based on the NOAEL SEV and the mean concentration of thallium in total soil for the shrew is 0.3 (as shown in Table 7-14B). The alternative HQ based on the LOAEL SEV and the mean concentration of thallium in total soil for the shrew is 0.03 (as shown in Table 7-14C). Due to the fact that the HQs based on the SLERA are slightly above 1 and all the alternative HQs are below 1, and the fact that SLERA results are based on conservative assumptions (e.g., conservative SEV), thallium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Zinc

For zinc, the HQs for the red fox exposed to SEAD-121C surface and total soil are below 1 at 0.6. The HQs for the meadow vole are at 1 and the HQs for the other receptors are above 1 at 4, 7, and 6 for the deer mouse, American robin, and short-tailed shrew, respectively. Zinc is an essential nutrient and is relatively nontoxic to most animals because they can physiologically regulate zinc absorption and excretion. Zinc is capable of forming complexes with a variety of organic and inorganic complexing groups. Sorption is the dominant reaction of zinc (ATSDR, 2003). Further, the alternative HQs based on the maximum zinc concentrations and the LOAEL SEVs are 2, 7, 3, and 0.7 for the mouse, robin, shrew, and vole, respectively (as shown in Table 7-14A). The alternative HQs based on the mean zinc concentrations are below 1 for all receptors (as shown in Tables 7-14B and 7-14C). Zinc is not expected to have any significant impacts on ecological receptors at the site and was

not identified as a COC based on the following facts: 1) the alternative HQs based on the mean concentrations are below 1 for all receptors; 2) the SLERA results are based on conservative assumptions (e.g., 100% bioavailability); and 3) zinc is an essential nutrient and organisms can physiologically regulate absorption and excretion.

Based upon the above discussions and the factors presented in Section 7.6.1, no COCs were identified for SEAD-121C surface and total soil.

### 7.6.4 Identification of COCs in SEAD-121C Ditch Soil

Based on the calculated risk estimates for the SLERA, cyanide and several metals (antimony, cadmium, copper, lead, selenium, and zinc) were identified as preliminary COCs in SEAD-121C ditch soil. This section presents further evaluation of the preliminary COCs identified in SEAD-121C ditch soil based on the SLERA results. Upon the refinement described in this section, no COPC was identified as COCs for SEAD-121C ditch soil.

### **Antimony**

For antimony, the HQs for all mammalian receptors exposed to SEAD-121C ditch soil are above 1 except the HQ for the red fox, which is 0.2. Antimony SEV was not identified for birds and therefore, risk to the American robin or great blue heron was not quantified for exposure to antimony. The HQs are based on the maximum detected concentration and the NOAEL SEVs. For mammals, the antimony SEVs are based on the LOAEL value from a drinking water study. Metals tend to be more bioavailable in their soluble forms while less bioavailable in soil. Antimony has been shown to adsorb strongly to most soils with a median percent adsorption of 93% and as much as 100% adsorption in several soil types (ATSDR, 1992). Therefore, bioavailability of antimony is expected to be much lower than that of the toxicity studies from which the SEVs were identified. Further, the alternative HQs based on the LOAEL SEVs for all mammalian receptors are below 1 as shown in Table 7-15A and Table 7-15C. Due to the fact that the alternative HQs based on the LOAEL SEVs are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and SEVs based on drinking water study were used), antimony is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### **Cadmium**

For cadmium, the HQs for the deer mouse, American robin, and short-tailed shrew exposed to SEAD-121C ditch soil are above 1 (4, 4, and 6, respectively). The HQ for the meadow vole exposed to cadmium in ditch soil is at 1, and the HQs for the red fox and great blue heron are below 1. The alternative HQs based on the maximum detected concentration and the LOAEL SEVs are below 1 for all receptors (as shown in **Table 7-15A**). The alternative HQs based on the LOAEL SEV and the mean concentration of cadmium in ditch soil are all below 1 (as shown in **Table 7-15C**). The alternative HQs based on the NOAEL SEV and the mean cadmium concentrations in ditch soil are

below or at 1 for all receptors (as shown in **Table 7-15B**). Further, the SLERA results are based on conservative assumptions (e.g., 100% bioavailability). Therefore, cadmium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Copper

For copper, the HQs for deer mouse, short-tailed shrew, and meadow vole are above 1 (3, 3, and 9, respectively) and the HQs for the American robin, red fox, and great blue heron are below 1. The SLERA results are based on the maximum copper concentration, the NOAEL SEVs, and the 100% bioavailability. Copper binds relatively strongly to soils. This adsorption to soils is less affected by pH than other metals, making copper less likely to become bioavailable in the acidic conditions of an animal's digestive tract (USEPA, 2001b). Further, the alternative HQs based on the mean copper concentrations are below 1 or at 1 for all receptors (as shown in Table 7-15B and Table 7-15C). Due to the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability) and that the alternative HQs based on the mean copper concentration are below or at 1, copper is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Lead

For lead, the HQs for the American robin and meadow vole are above 1 (3 and 4, respectively). The HQs for the short-tailed shrew and great blue heron are at 1, and the HQs for all the other receptors are below 1. The NOAEL SEVs identified for mammals are based on a study of lead acetate. Lead acetate is much more soluble than the other lead compounds expected in soil (e.g., lead carbonates and lead oxides). Therefore, the bioavailability of lead in soil is expected to be much lower than the bioavailability of lead acetate. The oral bioavailability of lead in soil has been more extensively studied than any other metal. USEPA assumes a relative bioavailability factor for lead of 0.6 in its adult lead model (USEPA, 1996a). Further, the alternative HQs based on the LOAEL SEVs are below 1 for all receptors (as shown in Tables 7-15A and 7-15C). Due to the fact that the HQs based on the SLERA are slightly above 1 for the robin and vole and the alternative HQs based on the LOAEL SEVs are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), lead is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### <u>Selenium</u>

The HQs for all receptors exposed to selenium to SEAD-121C ditch soil are below 1 except the HQ for the short-tailed shrew, which is at 1. The HQs are based on the maximum detected concentration, the NOAEL SEV, and 100% bioavailability. The alternative HQs for the shrew are all below 1 (Tables 7-15A, 7-15B, and 7-15C). Due to the fact that the HQs based on the NOAEL SEVs and the maximum selenium concentration are below or at 1 for all receptors and the alternative HQs are all below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100%).

bioavailability), selenium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Zinc

The HQs for all receptors exposed to zinc to SEAD-121C ditch soil are below 1 except the HQ for the American robin, which is at 1. Zinc is an essential nutrient and is relatively nontoxic to most animals because they can physiologically regulate zinc absorption and excretion. Zinc is capable of forming complexes with a variety of organic and inorganic complexing groups. Sorption is the dominant reaction of zinc (ATSDR, 2003). Further, the alternative HQs are all below or at 1 for the American robin (as shown in **Tables 7-15A**, **7-15B**, and **7-15C**). Zinc is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC based on the following facts: 1) the HQs based on the NOAEL SEVs and the maximum detected concentration were below or at 1 for all receptors; 2) the alternative HQs are below or at 1 for all receptors; 3) the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and a foraging factor of 1); and 4) zinc is an essential nutrient and organisms can physiologically regulate absorption and excretion.

Based upon the above discussions and the factors presented in Section 7.6.1, no COCs were identified for SEAD-121C ditch soil.

### 7.6.5 Identification of COCs in SEAD-1211 Surface Water

As discussed in Section 7.5.1.4, surface water COPC concentrations (with the exception of aluminum and iron concentrations) would result in insignificant exposure compared to the soil or ditch soil COPC concentrations. HQs associated with exposure to aluminum and iron in SEAD-121I surface water are below 1 for all receptors; therefore, no COCs were identified for SEAD-121I surface water.

### 7.6.6 Identification of COCs in SEAD-1211 Soil

Based on the calculated risk estimates for the SLERA, nine PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, phenanthrene, and pyrene), one pesticide (4,4'-DDT), cyanide, and several metals (antimony, arsenic, cadmium, chromium, cobalt, copper, lead, manganese, selenium, silver, thallium, and vanadium) were identified as preliminary COCs in SEAD-121I soil as the associated HQs were at least 1 for one or more receptors (see **Table 7-11A**). This section presents further evaluation of the preliminary COCs identified in SEAD-121I soil based on the SLERA results. Upon the refinement described in this section, no COPCs were identified as soil COCs for SEAD-121I soil.

### **PAHs**

The HQs for the American robin and red fox exposed to PAHs in SEAD-121I soil are all below 1. The HQs for the deer mouse are below 1 for all PAHs except that the HQs for the mouse exposed to

phenanthrene and pyrene are slightly above 1 at 2. For the short-tailed shrew, the HQs associated with exposure to benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, and chrysene are at 1 and the HQs associated with exposure to phenanthrene and pyrene are slightly above 1 at 3. For the meadow vole, the HQs for nine PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, phenanthrene, and pyrene) are at 1 or slightly above 1 (ranging from 1 to 5). These HQs are based on the maximum detected concentrations and the NOAEL SEVs derived from the LOAEL value for benzo(a)pyrene, the most toxic PAH. The NOAEL was developed by applying a NOAEL/LOAEL multiplier of 0.1 to the LOAEL. The conservative estimate of the NOAEL/LOAEL multiplier may result in overestimate of potential risks. In addition, Magee et al. (1996) recommended a PAH bioavailability value of 0.29 for the soil oral exposure route based on a review of available studies. Further, the alternative HQs based on the maximum detected concentrations and the LOAEL value for benzo(a)pyrene are below 1 for all receptors exposed to the nine PAHs identified as preliminary COCs (as shown in Table 7-16A). The alternative HQs based on the mean concentrations in soil for all receptors are below I (as shown in Tables 7-16B and 7-15C). Due to the fact that the HQs based on the SLERA are below 1 or slightly above 1 for the mouse, shrew, and vole and all the alternative HOs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., SEV for benzo(a)pyrene was used for other PAHs, 100% bioavailability), PAHs were not expected to have any significant impacts on ecological receptors at the site and were not identified as COCs.

### 4,4'-DDT

For 4,4'-DDT, the HQ for the American robin is above 1 at 7, and the HQs are below 1 for all the other receptors. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The NOAEL SEV for the American robin was based on the LOAEL value for the brown pelican. It should be noted that the NOAEL SEV identified for the SLERA may overstate potential risks associated with 4,4'-DDT exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control HERD range from 0.009 mg/Kg-day to 1.5 mg/Kg-day for birds. The NOAEL SEV identified for this SLERA was 0.0028 mg/Kg-day for birds. Therefore, the NOAEL SEV identified for 4,4'-DDT is a conservative estimate for birds and may overstate potential risks. The alternative HQ based on the maximum detected concentration and the LOAEL SEV is below 1 for the American robin (as shown in Table 7-16A). The alternative HQs based on the mean concentration of 4,4'-DDT in soil are below 1 for the American robin (as shown in Table 7-16B and Table 7-16C). Due to the fact that the alternative HQs are below 1 for all receptors, and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEVs), 4,4'-DDT is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Antimony and Arsenic

For antimony and arsenic, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to SEAD-121I surface soil are above or at 1, and the HQs for all the other receptors are below 1.

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Antimony SEV was not identified for birds and therefore, risks to the American robin was not quantified for exposure to antimony. The HQs are based on the maximum detected concentrations and the NOAEL SEVs. The SEVs for antimony are based on the LOAEL value from a drinking water study, and the SEVs for arsenic are based on a drinking water (plus incidental food intake) study. Metals tend to be more bioavailable in their soluble forms while less bioavailable in soil. Antimony has been shown to adsorb strongly to most soils with a median percent adsorption of 93% and as much as 100% adsorption in several soil types (ATSDR, 1992). Numerous studies of the oral bioavailability of soil-bound arsenic have been conducted (reviewed in Valberg et al., 1997; Ruby et al., 1999). The mean bioavailability of arsenic in soil ranged from 0.03 to 0.48. Therefore, bioavailability of antimony and arsenic is expected to be much lower than that of the toxicity studies from which the SEVs were identified. Further, the alternative HQs based on the LOAEL SEVs and the mean concentrations of antimony and arsenic in surface soil for all receptors are below 1 as shown in Tables 7-16C. Due to the fact that the alternative HQs based on the LOAEL SEVs and the mean concentrations are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and SEVs based on drinking water study were used), neither antimony nor arsenic are expected to have any significant impacts on ecological receptors at the site and were not identified as COCs.

### Cadmium

For cadmium, the HQs for the deer mouse, American robin, and short-tailed shrew exposed to surface soil are above 1 (2, 2, and 3, respectively), and the HQs for the meadow vole and red fox are below 1. The alternative HQs based on the maximum detected concentration and the LOAEL SEV are below 1 for the mouse, robin, and shrew (as shown in **Table 7-16A**). The alternative HQs based on the mean concentration of cadmium in surface soil are all below 1 (as shown in **Tables 7-16B** and **7-16C**). Due to the fact that the HQs based on the NOAEL SEV and the maximum detected concentration are either below 1 or slightly above 1 and the alternative HQs are all below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), cadmium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Chromium

For chromium, the HQ for the American robin is slightly above 1 at 3 and the HQs for all the other receptors are below 1. The alternative HQ for the robin based on the maximum detected concentration and the LOAEL SEV is 2 (as shown in **Table 7-16A**). The alternative HQ based on the NOAEL SEV and the mean concentration of chromium in surface soil for the robin is 0.2 (as shown in **Table 7-16B**). The alternative HQ based on the LOAEL SEV and the mean concentration of chromium in surface soil is 0.1 (as shown in **Table 7-16C**). Due to the fact that the HQs based on the SLERA are below 1 or slightly above 1 for the identified receptors and that the alternative HQs based on the mean chromium concentration are below 1, and the fact that the SLERA results are based on

conservative assumptions (e.g., foraging factor of 1 for the robin), chromium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Cobalt

For cobalt, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to surface soil are above 1 (5, 8, and 9, respectively) and the HQs for the American robin and red fox are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The NOAEL SEVs for mammals were derived from the LOAEL value by adjusting the NOAEL/LOAEL multiplier. As discussed in Section 7.6.1, the NOAEL/LOAEL multiplier is likely to overstate potential risks. Further, the alternative HQs based on the maximum detected concentration and the LOAEL SEVs are below 1 for the mouse, shrew, and vole (as shown in Table 7-16A). The alternative HQs based on the mean concentration of cobalt in surface are all below 1 for the mouse, shrew, and vole (as shown in Table 7-16B and Table 7-16C). Due to the fact that all the alternative HQs are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEV), cobalt is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Copper

For copper, the HQ for the meadow vole is slightly above 1 at 2 and the HQs for all the other receptors are below 1. The SLERA results are based on the maximum copper concentration, the NOAEL SEV, and the 100% bioavailability. Copper binds relatively strongly to soils. This adsorption to soils is less affected by pH than other metals, making copper less likely to become bioavailable in the acidic conditions of an animal's digestive tract (USEPA, 2001b). Further, the alternative HQ based on the maximum detected concentration and the LOAEL SEV is at 1 for the vole (as shown in Table 7-16A). The alternative HQs based on the mean copper concentrations are below 1 (as shown in Table 7-16B and Table 7-16C). Due to the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability) and that all alternative HQs are below or at 1, copper is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Cyanide

For cyanide, the HQ for the American robin is slightly above 1 at 2 and the HQs for all the other receptors are below 1. The alternative HQ for the robin based on the maximum detected concentration and the LOAEL SEV is 0.07 (as shown in **Table 7-16A**). The alternative HQ based on the NOAEL SEV and the mean concentration of cyanide in surface soil for the robin is 0.4 (as shown in **Table 7-16B**). The alternative HQ based on the LOAEL SEV and the mean concentration of cyanide in surface soil is 0.01 (as shown in **Table 7-16C**). Due to the fact that the HQs based on the SLERA are below 1 or slightly above 1 for the identified receptors and that the alternative HQs are all below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., foraging

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factor of one for the robin), cyanide is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Lead

For lead, the HQ for the meadow vole exposed to SEAD-121I surface soil is at 1 and the HQs for all the other receptors are below 1. The NOAEL SEVs identified for mammals are based on a study of lead acetate. Lead acetate is much more soluble than the other lead compounds expected in soil (e.g., lead carbonates and lead oxides). Therefore, the bioavailability of lead in soil is expected to be much lower than the bioavailability of lead acetate. The oral bioavailability of lead in soil has been more extensively studied than any other metal. USEPA assumes a relative bioavailability factor for lead of 0.6 in its adult lead model (USEPA, 1996a). Further, the alternative HQ based on the maximum lead concentrations and the LOAEL SEV is 0.1 for the vole (as shown in Tables 7-16A). The alternative HQs based on the mean lead concentration are below 1 for the vole (as shown in Tables 7-16B and 7-16C). Due to the fact that the HQs based on the SLERA are below or at 1 for all receptors and all alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), lead is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Manganese

For manganese, the HQs for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox exposed to SEAD-121I surface soil are above 1 (ranging from 10 to approximately 300). The HQs are based on the maximum detected concentration, the NOAEL SEVs, and 100% bioavailability. In humans and animals, manganese is an essential nutrient that plays a role in bone mineralization, protein and energy metabolism, metabolic regulation, cellular protection from damaging free radical species, and the formation of glycosaminoglycans (ATSDR, 2000). The alternative HQs based on the mean concentration and the LOAEL SEVs are below 1 for the robin and fox and are at 1, 2, and 4 for the mouse, shrew, and vole, respectively (as shown in Table 7-16C). Due to the fact that the alternative HQs based on the LOAEL SEVs and the mean concentration are below 1 or slightly above 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), manganese is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC. Further discussion of the source of manganese at the site is presented in Section 7.7.3.

### <u>Selenium</u>

The HQs for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox are above 1 (ranging from 5 to 80). The HQs are based on the maximum detected concentration, the NOAEL SEVs, and 100% bioavailability. The alternative HQs based on the mean selenium concentration and the LOAEL SEVs are below 1 or slightly above 1 (the highest at 2) for all receptors (as shown in Table 7-16C). The alternative HQs based on the mean selenium concentration and the NOAEL

SEVs are below or slightly above 1 (the highest at 3) for all receptors (as shown in Table 7-16B). Due to the fact that the alternative HQs based on the mean selenium concentration are below or slightly above 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), selenium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Silver

For silver, the HQ for the short-tailed shrew is at 1, and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The alternative HQ based on the maximum detected concentration and the LOAEL SEV is 0.1 for the short-tailed shrew (as shown in Table 7-16A). The alternative HQs based on the mean concentration of silver in surface soil are below 1 for the shrew (as shown in Tables 7-16B and 7-16C). Due to the fact that the HOs based on the SLERA are below or at one for all receptors and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), silver is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Thallium

For thallium, the HQs for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox exposed to SEAD-121I surface soil are above 1 (ranging from 10 to approximately 100). The HOs are based on the maximum detected concentration and the NOAEL SEVs derived from the LOAEL value (for mammals) or lethal dose value (for birds). It should be noted that the NOAEL SEVs identified for the SLERA for mammals (0.11-0.16 mg/Kg-day) may overstate potential risks associated with thallium exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control HERD range from 0.48 mg/Kg-day to 1.43 mg/Kg-day for mammals. Further, the alternative HQs based on the mean concentration and the LOAEL SEVs are below or at 1 for all receptors (as The alternative HQs based on the NOAEL SEVs and the mean shown in Table 7-16C). concentration of thallium in surface soil are below 1 or slightly above 1 (ranging from 2 to 5) for all receptors (as shown in Table 7-16B). Due to the fact that the alternative HQs based on the mean concentration are below 1 or slightly above 1 and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEVs), thallium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Vanadium

For vanadium, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to surface soil are above 1 (4, 2, 6, and 3, respectively), and the HQ for the red fox is below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The assumption of 100% bioavailability used in the risk assessment might result in overestimate of

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potential risks. For vanadium, bioavailability is very low, usually found to be less than 1% of an administered dose (<a href="http://www.tjclarkinc.com/minerals/vanadium.htm">http://www.tjclarkinc.com/minerals/vanadium.htm</a>). Further, the alternative HQs based on the mean concentration are below or at 1 for all receptors (as shown in Table 7-16B and Table 7-16C). Due to the fact that the alternative HQs based on the mean concentration are below or at 1 and the fact that SLERA results are based on conservative assumptions (e.g., 100% bioavailability), vanadium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

Based upon the above discussions and the factors presented in Section 7.6.1, no COCs were identified for SEAD-121I surface soil.

### 7.6.7 Identification of COCs in SEAD-1211 Ditch Soil

Based on the calculated risk estimates for the SLERA, six PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and pyrene) and several metals (arsenic, cobalt, manganese, selenium, silver, thallium, vanadium, and zinc) were identified as preliminary COCs in SEAD-121I ditch soil as the associated HQs were at least 1 for one or more receptors (see **Table 7-11B**). This section presents further evaluation of the preliminary COCs identified in SEAD-121I ditch soil based on the SLERA results. Upon the refinement described in this section, no COPCs were identified as COCs for SEAD-121I ditch soil.

### **PAHs**

The HQs for the deer mouse, American robin, red fox, and great blue heron exposed to PAHs in SEAD-121I ditch soil are all below 1. The HQs for the short-tailed shrew are below 1 for all PAHs except for the HQs for the shrew exposed to benzo(b)fluoranthene and benzo(k)fluoranthene, which are at 1. For the meadow vole, the HQs associated with exposure to benzo(a)anthracene, benzo(a)pyrene, and pyrene are at 1 and the HQs associated with exposure to benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene are slightly above 1 at 2. These HQs are based on the maximum detected concentrations and the NOAEL SEVs derived from the LOAEL value for benzo(a)pyrene, the most toxic PAH. The NOAEL was developed by applying a NOAEL/LOAEL multiplier of 0.1 to the LOAEL. The conservative estimate of the NOAEL/LOAEL multiplier may result in overestimate of potential risks. In addition, Magee et al. (1996) recommended a PAH bioavailability value of 0.29 for the soil oral exposure route based on a review of available studies. Further, the alternative HOs based on the maximum detected concentrations and the LOAEL value for benzo(a)pyrene are below 1 for all receptors exposed to the six PAHs identified as preliminary COCs (as shown in Table 7-17A). The alternative HQs based on the mean concentrations in soil for all receptors are below 1 (as shown in Tables 7-17B and 7-17C). Due to the fact that the HQs based on the SLERA are at 1 or slightly above 1 for the shrew and vole and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., SEV for benzo(a)pyrene was used for other

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PAHs, 100% bioavailability), PAHs were not expected to have any significant impacts on ecological receptors at the site and were not identified as COCs.

### Arsenic

For arsenic, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to surface soil are above 1 (ranging from 3 to 7), and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The SEVs for arsenic are based on a drinking water (plus incidental food intake) study. Metals tend to be more bioavailable in their soluble forms while less bioavailable in soil. Numerous studies of the oral bioavailability of soil-bound arsenic have been conducted (reviewed in Valberg et al., 1997; Ruby et al., 1999). The mean bioavailability of arsenic in soil ranged from 0.03 to 0.48. Therefore, bioavailability of arsenic is expected to be much lower than that of the toxicity studies from which the SEVs were identified. Further, the alternative HQs based on the mean concentrations of arsenic in ditch soil for all receptors are below or at 1 as shown in Tables 7-17B and 7-17C. Due to the fact that the alternative HQs based on the mean concentration are below or at 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and SEVs based on drinking water study were used), arsenic is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Cobalt

For cobalt, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to SEAD-1211 ditch soil are above 1 (2, 4, and 4, respectively) and the HQs for the American robin, red fox, and great blue heron are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The NOAEL SEVs for mammals were derived from the LOAEL value by adjusting the NOAEL/LOAEL multiplier. As discussed in **Section 7.6.1**, the NOAEL/LOAEL multiplier is likely to overstate potential risks. Further, the alternative HQs based on the maximum detected concentration and the LOAEL SEVs are below 1 for the mouse, shrew, and vole (as shown in **Table 7-17A**). The alternative HQs based on the mean concentration of cobalt in ditch soil are all below 1 for the mouse, shrew, and vole (as shown in **Table 7-17B** and **Table 7-17C**). Due to the fact that all the alternative HQs are all below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEV), cobalt is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Manganese

For manganese, the HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole exposed to SEAD-121I ditch soil are above 1 (ranging from 5 to approximately 10). The HQ for the great blue heron is at 1, and the HQ for the red fox is below 1. The HQs are based on the maximum detected concentration, the NOAEL SEVs, and 100% bioavailability. In humans and animals, manganese is an essential nutrient that plays a role in bone mineralization, protein and energy

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metabolism, metabolic regulation, cellular protection from damaging free radical species, and the formation of glycosaminoglycans (ATSDR, 2000). The alternative HQs based on the mean concentration and the LOAEL SEVs are below 1 for all receptors (as shown in **Table 7-17C**). Due to the fact that the alternative HQs based on the LOAEL SEVs and the mean concentration are below 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), manganese is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC. Further discussion of the source of manganese at the site is presented in **Section 7.7.3.** 

### Selenium

The HQs for the deer mouse, American robin, short-tailed shrew, and meadow vole are above 1 (ranging from 4 to 10), and the HQs for the red fox and great blue heron are below 1. The HQs are based on the maximum detected concentration, the NOAEL SEVs, and 100% bioavailability. The alternative HQs based on the mean selenium concentration and the LOAEL SEVs are below 1 for all receptors (as shown in **Table 7-17C**). The alternative HQs based on the mean selenium concentration and the NOAEL SEVs are below or at 1 for all receptors (as shown in **Table 7-17B**). Due to the fact that the alternative HQs based on the mean selenium concentration are below or at 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), selenium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Silver

For silver, the HQs for the deer mouse, short-tailed shrew, and meadow vole are slightly above 1 (3, 4, and 3, respectively), and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs. The alternative HQs based on the maximum detected concentration and the LOAEL SEVs are below 1 for all receptors (as shown in Table 7-17A). The alternative HQs based on the NOAEL SEV and the mean concentration of silver in ditch soil are below or at 1 for all receptors (as shown in Table 7-17B). The alternative HQs based on the LOAEL SEVs and the mean concentration of silver in ditch soil are below 1 for all receptors (as shown in Table 7-17C). Due to the fact that the HQs based on the SLERA are below or slightly above 1 for the receptors and all the alternative HQs are below 1, and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), silver is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Thallium

For thallium, the HQs for the deer mouse, American robin, short-tailed shrew, meadow vole, and red fox exposed to SEAD-121I ditch soil are above 1 (ranging from 2 to approximately 20). The HQ for the great blue heron is at 1. The HQs are based on the maximum detected concentration and the NOAEL SEVs derived from the LOAEL value (for mammals) or lethal dose value (for birds). It

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should be noted that the NOAEL SEVs identified for the SLERA for mammals (0.11-0.16 mg/Kgday) may overstate potential risks associated with thallium exposure. As an example, the toxicity reference values adopted by Navy/USEPA Region 9 BTAG and recommended by the California Department of Toxic Substances Control HERD range from 0.48 mg/Kg-day to 1.43 mg/Kg-day for mammals. Further, the alternative HQs based on the mean concentration and the LOAEL SEVs are below 1 for all receptors (as shown in Table 7-17C). The alternative HQs based on the NOAEL SEVs and the mean concentration of thallium in ditch soil are below 1 or slightly above 1 (ranging from 1 to 2) for all receptors (as shown in Table 7-17B). Due to the fact that the alternative HQs based on the mean concentration are below 1 or slightly above 1 and the fact that the SLERA results are based on conservative assumptions (e.g., conservative SEVs), thallium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Vanadium

For vanadium, the HQs for the deer mouse, short-tailed shrew, and meadow vole exposed to SEAD-121I ditch soil are at 1 or slightly above 1 (1, 2, and 1, respectively), and the HQs for all the other receptors are below 1. The HQs are based on the maximum detected concentration and the NOAEL The assumption of 100% bioavailability used in the risk assessment might result in overestimate of potential risks. For vanadium, bioavailability is very low, usually found to be less than 1% of an administered dose (http://www.tjclarkinc.com/minerals/vanadium.htm). Further, the alternative HQs based on the mean concentration are below or at 1 for all receptors (as shown in Table 7-17B and Table 7-17C). Due to the fact that the SLERA HQs are below 1 or slightly above 1 and the alternative HQs based on the mean concentration are below or at 1 and the fact that the SLERA results are based on conservative assumptions (e.g., 100% bioavailability), vanadium is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC.

### Zinc

The HQs for all receptors exposed to zinc to SEAD-121I ditch soil are below 1 except for the HQ for the American robin, which is at 1. Zinc is an essential nutrient and is relatively nontoxic to most animals because they can physiologically regulate zinc absorption and excretion. Zinc is capable of forming complexes with a variety of organic and inorganic complexing groups. Sorption is the dominant reaction of zinc (ATSDR, 2003). Further, the alternative HQs are all below or at 1 for the American robin (as shown in Table 7-17A, Table 7-17B, and Table 7-17C). Zinc is not expected to have any significant impacts on ecological receptors at the site and was not identified as a COC based on the following facts: 1) the HQs based on the NOAEL SEVs and the maximum detected concentration were below or at 1 for all receptors; 2) the alternative HQs are below or at 1 for all receptors; 3) the SLERA results are based on conservative assumptions (e.g., 100% bioavailability and a foraging factor of 1); and 4) zinc is an essential nutrient and organisms can physiologically regulate absorption and excretion.

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Based upon the above discussions and the factors presented in Section 7.6.1, no COCs were identified for SEAD-1211 ditch soil.

### 7.7 RISK MANAGEMENT

This risk management section presents the Army's position on whether further evaluation of ecological risks is warranted based on the evaluation presented above as well as other site-specific factors, such as future use of the sites, site background comparison, and site contaminant source management. Impact to habitat based on the future use of the sites is presented in Section 7.7.1. A comparison of the site concentrations to background was conducted for the preliminary inorganic COCs as the rationale supporting the Army's proposal that no additional assessment is needed for the preliminary COCs identified in Step 2B. Comparison of the site data to background data is presented in Section 7.7.2. Section 7.7.3 presents the site contaminant source management.

### 7.7.1 Impact to Habitat Based on Future Site Use

SEAD-121C and SEAD-121I are located in the Planned Industrial/Office Development (PID) parcel. That is, the planned future land use for SEAD-121C and SEAD-121I is industrial development. Based on the future use of the sites, the sites are not expected to support, sustain, or attract ecological receptors and therefore are not expected to be a wildlife habitat. The presence of ecological receptors is expected to be generally curtailed in these areas where habitat conditions are poor and human activity levels are sufficiently disruptive to discourage wildlife use. Therefore, it is the Army's position that no further action is warranted at SEAD-121C or SEAD-121I to mitigate potential risks to ecological receptors.

### 7.7.2 Comparison of Site Data with Background Data

A streamlined evaluation was conducted to compare the concentrations of the preliminary inorganic COCs identified in Step 2B in SEAD-121C soil, SEAD-121C ditch soil, SEAD-121I soil, and SEAD-121I ditch soil to the corresponding SEDA background levels. A discussion of the SEDA background data is provided in Section 6.3.2. Tables 7-18A, 7-18B, 7-19A, and 7-19B summarize the comparison of the descriptive statistics between the site data and SEDA background data for SEAD-121C soil, SEAD-121C ditch soil, SEAD-121I soil, and SEAD-121I ditch soil, respectively.

For SEAD-121C soil, as shown in **Table 7-18A**, the site arithmetic mean concentrations of chromium and thallium are comparable with the corresponding 95% upper confidence limits of the arithmetic means of the SEDA background data (25 mg/Kg vs. 22 mg/Kg for chromium and 0.4 mg/Kg vs. 0.32 mg/Kg for thallium). Therefore, chromium and thallium levels in SEAD-121C soil are considered to be consistent with background levels.

For SEAD-121C ditch soil, as shown in **Table 7-18B**, the site maximum detected concentration of antimony is below the SEDA maximum detected background concentration and the site arithmetic mean concentration of antimony is below the 95% upper confidence limit of the arithmetic mean of

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the SEDA background value. Therefore, antimony level in SEAD-121C ditch soil is consistent with background levels.

For SEAD-121I soil, as shown in **Table 7-19A**, the site arithmetic mean concentrations of antimony, cadmium, and vanadium are below the corresponding 95% upper confidence limits of the arithmetic means of the SEDA background (2.5 mg/Kg vs. 3.3 mg/Kg for antimony, 0.65 mg/Kg vs. 0.74 mg/Kg for cadmium, and 21 mg/Kg vs. 22.9 mg/Kg for vanadium). The site arithmetic mean concentrations of cyanide and lead are comparable with the corresponding 95% upper confidence limits of the arithmetic means of the SEDA background (0.36 mg/Kg vs. 0.30 mg/Kg for cyanide and 30 mg/Kg vs. 27.6 mg/Kg for lead). Therefore, antimony, cadmium, cyanide, lead, and vanadium levels in SEAD-121I soil are considered to be consistent with background levels.

For SEAD-121I ditch soil, as shown in **Table 7-19B**, the site arithmetic mean concentration of vanadium is below the 95% upper confidence limit of the arithmetic mean of the SEDA background (21 mg/Kg vs. 22.9 mg/Kg). Therefore, vanadium level in SEAD-121I ditch soil is consistent with background levels.

In summary, the concentrations of several preliminary inorganic COCs identified in Step 2B are consistent with SEDA background levels. As discussed in **Section 7.6**, these preliminary COCs are not expected to pose significant impact to the ecological receptors at the sites.

### 7.7.3 Contaminant Source Management

The contaminant sources at SEAD-1211 are from activities involving the loading and unloading of materials at the site and in the surrounding buildings. The source of the metal contamination is the strategic stockpiles of ferrous-manganese ore stored in two of the four blocks at the site. However, the ferrous-manganese ore piles are not a waste and thus are not managed under the Comprehensive Environmental Responsibility, Compensation and Liability Act (CERCLA) process. The Army is consolidating the Strategic Stockpiles and the ore piles on site will be removed in the future when any cleanup of the ore pile area will be handled under a different cleanup project. In addition, the highest concentrations of metals are localized to the area surrounding the ore piles. At the time that the strategic piles are removed, residues associated with the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles.

### 7.8 SUMMARY

In accordance with the USEPA guidance (USEPA, 1997c), a SLERA was performed to evaluate potential ecological risks associated with exposure to contaminants in SEAD-121C soil, SEAD-121C ditch soil, SEAD-121C surface water, SEAD-121I soil, SEAD-121I ditch soil, and SEAD-121I surface water. Exposure to groundwater is considered an incomplete exposure pathway; therefore, groundwater at the sites poses no potential risks to the environment. This SLERA was completed in the following steps.

For Steps 1 and 2, NOAEL toxicity values and conservative exposure assumptions were used to calculate screening level HQs. The maximum detected concentrations were compared to screening criteria to identify COPCs (Step 1). Potential exposures and effects resulting from the maximum detected concentrations of COPCs were then evaluated by estimating potential direct and indirect exposures for wildlife receptors - deer mouse, American robin, short-tailed shrew, meadow vole, red fox, and great blue heron (for ditch soil only) and comparing exposures to NOAEL toxicity values (Step 2).

Due to the conservative nature of the assumptions used in Step 1 and Step 2, additional evaluation (Step 3.2) was performed to further characterize potential ecological risks and determine if further evaluation is warranted. Step 3.2, COC refinement, was performed in accordance with the USEPA ERAGS (1997c) and the supplemental guidance of ERAGS (USEPA, 2001a). Some of the additional information used to help characterize risks included using alternative HQ values based on mean concentrations and LOAEL-based SEVs and analysis of factors that may result in potential overestimation of risks.

Upon completion of ERA Steps 1 and 2, there is a SMDP with four possible decisions:

- There is adequate information to conclude that ecological risks are negligible and therefore no need for remediation on the basis of ecological risks;
- The information is not adequate to make a decision at this point and the ERA process should continue to a baseline ERA:
- The information indicates a potential for adverse ecological effects, and a more thorough assessment is warranted; or
- It may be preferable to cleanup the site to the screening values for some sites of relatively small size or where the contamination has a sharply defined boundary rather than to spend time and resources determining a less conservative cleanup number.

No COCs were identified for SEAD-121C soil, SEAD-121C ditch soil, SEAD-121C surface water, SEAD-121I soil, SEAD-121I ditch soil, or SEAD-121I surface water and the rationales are summarized below.

 No preliminary COCs were identified for SEAD-121I surface water. Although preliminary COCs were identified for SEAD-121C soil, ditch soil, and surface water and SEAD-121I soil and ditch soil, the alternative HQs calculated during the refinement of COCs (Step 3.2), especially the HQs based on the mean concentrations and LOAEL SEVs are either below 1 or close to 1 (with the highest at 5). Therefore, no final COCs were identified for any medium at SEAD-121C or SEAD-121I.

- 2. The planned future land use for SEAD-121C and SEAD-121I is industrial development. The sites are not expected to support, sustain, or attract ecological receptors and therefore are not expected to be a wildlife habitat. The presence of ecological receptors is expected to be generally curtailed in these areas where habitat conditions are poor and human activity levels are sufficiently disruptive to discourage wildlife use.
- The concentrations of several preliminary COCs identified in Step 2B (chromium and thallium in SEAD-121C soil; antimony in SEAD-121C ditch soil; antimony, cadmium, cyanide, lead, and vanadium in SEAD-121I soil; and vanadium level in SEAD-121I ditch soil) are consistent with SEDA background.
- 4. The source of the metal contamination at SEAD-121I is the strategic stockpiles of ferrous-manganese ore stored at the site. However, the ferrous-manganese ore piles are not a waste and thus not managed by the CERCLA process. At the time that the strategic piles are removed, residues associated with the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles.

Based on the above discussion, it is the Army's position that soil, ditch soil, surface water, and groundwater at SEAD-121C and SEAD-121I are not expected to significantly impact ecological receptors at the site and no further action is warranted at SEAD-121C or SEAD-121I based on the ecological risk assessment.

## OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C Table 7-1A

## SEAD-121C and SEAD-1211 Remedial Investigation Seneca Army Depot Activity

Rathinali for Contaminant Detetion or Selection		BSL	781	BSL	UST	VKI	VSI	BST	BST	BSL	BSL	BSL		BSE	BSL	380	ASI.	-NSI	15/	ASI	150		NE.	BST	DST.	MBV	ASI	ARE	YSY	BSI
Flag		9	YES	ON.	NO NO	Sign	M	2	NO	ON	DN	1110		O <sub>N</sub>	ON	2	VEN	818	NIN.	YIS	VIN	000	YES	0 N	QV.	1,859	YES	YES	(B)	N 0
Source of Screening Value		Region 5 - Exployed Screening Value	Replies All BTAG - sed faura	Region 5 - Ecological Screening	Region III B I AG - soil faum	Nombre III PATATA Confessor	Heijlor III BTAG - soil hause for	Dates - Indicative Level	Region III BTAG - soil fains	Region III BT AG - toil fatting for	Begion III GTLAG - gold Kaura	Sagrion IJI ETT AG - cost fatten.		Region 5 - Ecological Screening Value	Region 5 - Ecological Screening,	Link Ridge - Diffrate in Terrestrial Practic pair Rev. Totals 1	Remon III et Act : noth thank	Region III BTAG - acit jatma	Repried 117 BTAG Soft from A	Papion III BIAG and James	Region III BUACO SON HUMA	TANKS OF THE PARTY STATES OF THE PARTY STATES OF THE PARTY OF THE PART	Region III (N. Act ), will fame.	Region 5 - Reological Screening	Region 5 - Ecological Servening		RESPONSIT MEAN AND DATE	Report III, BTAG - soll from:		Oat Rabie - Effects on Terrestrial Plants 1997 Rev, Table 1
Value (mg/kg)		2.5		0.094	0.3		10	35	.603	0.1	100	2		1.28	3.24	000	1.0	0.0	10	30.6	000		(0)	0.925	0.239	110	170	0.1	N/A	100
Maximum Background Value <sup>2</sup> (mg/kg)								1								V	1				1 1		3							
Range of Reporting Limits (mg/kg)		0.0022 - 0.03	- 0,0022 - 11,015	0.0022 - 0.012	0.0022 - 0.012	0.0009 a unit	84002 panels	0.0022 - 0.012	0.00064 - 0.012	0.0022 - 0.0033	0.0022 - 0.012	0.0022 - 0.005		0.069 - 1.8	0.069 - 1.8	# F - 1100 II	0.000 - 1.8	0.0715 - 7.8	1000	0,0215 - 0,43	0.01	,	0.0715 - 0.42	0.073 - 1.8	0.0715 - 1.8	N1-110/0	1,072-1.1	0.0765 - 0.83	Ollaw 1.8	0.073 - 1.8
Proquency		22 / 67	30 18	2 / 68	4 / 68	- 60	1 36	2 / 58	100	2 / 56	17.68	13.7.68	ш	1 / 68	13 / 68	147.00	12 × 68	23.7 68	The side	23	2		28 / 66	35 / NII	89 / 8	20 / 08	327 111	157.06	33.7.48	11 / 68
Location of Maximum Concentration		SB121C-4	SBBRMCO	SBDRMO-9	SBUTCH	(glay) kmysakran	SBFRMO-9	SEDEMO-14	SBERMO-24	SBDRMO-9	SBDRMO-9	SEDRMO-9		SBIZIC-2	SBDRMO-12	SEDBMORT	SRDRMO 24	SEDRMO 17	SSDRWO 17	SEDRMO LT	SSEEMO 12	(day)	SSDRMO-12	SS121C-3	SEDRMONA	SHINDNUFFE	WEDI CONTRA	SSLIMO	SSDRMO-17	SBDRMO-24
0.		9			-	-8	-	į,			1				è.			Ĭ					Ë		17	ij		-		4
Metected Concentration 1 (mg/kg)		0.028	1.8	0.0047	0.0048	1	100	0.0076		0.075	0.0027	0.084		0.045	2.5		3	12		100	77	177	7.5	0.2	0.12	17.4	0.1	150	777	0.25
o		-		4	L	1	-	Ì			-	-		4	-	-6		Ľ	Ų	₫	3	-	-	7	-		-	-	-	-,
Minimum Detected Cuncentry tinu 1		0.0032	2000	0.0022	0.002	0.000000	0.001	0,0032	0,0026	0.016	0,6021	0,007		0.045	0.0055	0.008.0	0.942	0.0005	0,000.0	0,000	0.0058	DANNA	030057	0.0072	0.0064	0.014	0,0055	0.08170.	GUNGE	0.0047
Chemiçal	the Organic Combinands	Assime	Benzene	Carbon disulfide	Chloroform	Billed Services	Meta/Para Lypene	Methyl ethyl ketone	Methylene chlonde	Ortha Xylene	Styrene	Tolnene	volatile Organic Compaunds	2.4-Dimitropolyemy	-Methylnaphilishus	Accuapations	Arouphinden	Anthracene	Henzo(a)anthraccoc	Hanno(2 Arymile	Herzo(biflioranthene	neiwork bully being	Begana(k)(Inoranther	BE(2- Ethyllesydiologists)	Butythenrylphiniate	Carlterale	Chysene	Dibearta, Munthracena	Dibutqlimm	Diethychothalate
Number	Ille Organi	7	2	2-0	2	0 000	378	3.3			12.5	88.3	volatile Or	14-2	9-4	***	94-6			I	200	- 1		81.7	8-7	125	00.00	n.	Ú	6-2

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# DECURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C

## SEAD-121C and SEAD-1211 Remedial Investigation

Seneca Army Depot Activity

Rationale for Contaminant Deletion or Selection	BSL	ASN	ASI	Nic.	Add	ASI	BSL	ASL	JBK	- ASIL	ASL	100	OHC.	nic.	JAC	DHC	ASI	ASI	196	DAC	- N8V	ANE	200
Flag	0 <u>N</u>	VES	VES IN	2	VIII	YES	ON.	YES	YES	YES	YES	YES	VES	416	1918	414	VIIS	STA	STA	VIEW	YES	VES	YES
Source of Screening Value	Oak Ridge - Effects on Terrestrial Plants 1997 Rev, Table 1		Copy of 111 MT ACC - onl fature Code Walter Development.	Opportungtion the carthworms, Table 1	Payles (I) RTAG - apil Muna	Region III BTAG - soli Taura	Oak Riggs - Benchmark concentrations for earthworms,	Region III MAG 1011 Inma Region III MTAG 2011 Inma	Ringing III, BTAG - soll flora	Buryon III BTAG - soll flom	Region III BTAG - soil there	Bugger III W. VACCO and Frank	Rigida III NTAG - Joll Buria	Report III DTAG soft frame	Research DVAG for oblording	Benden 3 - Coologocul Streeman	TUSKEYA 2001 matematisto	Region 5 - Ecological Surrening	Regam 5 - Ecological Sermining	Region III B/E/G for chlowline.	The state of the s	Region III D IAT for clickwine Region 5 - Ecological Softwarm	Value Region III UTAG the criticalene
Servening Value (mg/kg)	200	. AM	3.0	00110	\$10	10	20	10	0.1	- 0.0	0.1	0.3	100	103	- 3	0.00009	0.00003	61116	6110	101	N.	D.DONUS	1.0
Maximum Background Value <sup>2</sup> (mg/kg)					I			- { }			N 100 10						1				-	1	
Renge of Reporting Limits 1 (mg/kg)	0.069 - 1.8	0.0711	0,077 - 1,6	0.064	0,0715 1.0	0.0715 - 1.8	0.069 - 1.8	0.072 - 1.8	0.0024 - 0.031/	0,011 - 1,000	0.0021 - 0.038	0,000,0 - 0,0000		0,000017 - 0,0007	0.00003 - 0.0021	0,00077 - 0,0022	Questi nonte	0.000th 0.0000	BLOOD - WYDER			0.0001 - 0.0022	_
Detection Frequency	7 / 68	5.7 68	13 / RK	12	787 68	12		33 BH 40 1 68	1 / 61		E / E	211119	18 / 67	A / AX	W. V. A.	. A. 7 . O.K.	21.00	10 / 51	11 10		47 68	W 12	
Location of Maximum Concentration	SSDRMO-7 (dup)	SOIZIES	SDRMO-12.	Sailone 2	KSDIMICS	(dup)	SB121C-2	SSDRMO-12	SSIZICH	STIDBMO-18	. Natizica	STIDIONIO 18.	MI210 3	Supplyio 16	SHDRAGOTA	26121C-4	STREET STREET	NSDRMO-7	SUDDIVICAS!	THURNOLIG	SBOKMO-16	SS121E-4 SRDRMO-18	SSIZICE
0	1	-		-	i				100		Ì			- 15	-	4		15			2	18	-3
Maximum Detected Concentration	0.13	67000	612	Trains.	160	10	0.0048	門等			0.40	0.044	0,000	0.014	0,003	70,002	1000	61.0	600.6	. 0.003	0.0007	0.0012	0.0028
Ď.	-	5	Ja-			-3	-	-	900	4	Į.	1	1	-	9	8	=	+-		=	Z.		_=
Minimum Detected Cuncentration (mg/kg)	0.0053	9330000	DOME	Same	650000	0.004	0.0048	0.0059	0.05%	0.004	0.009	0,0019	0,00035	0,0045	0000	0.000975	W000	0.00075	0,000	0.0215	0.00.04	0.00012	1100.0
Chemical	Di-n-buryhhhalate	Dir ocelphilaine	HVaruthate		Independ (12.3 and process	Santifinities	N-Ntrasodiplectylamine	Phenaulirene	100	Arocloc 1254	Arodlor-1260	A-COURT	A.P. (193)	Autrin.	Alpha-Chlardine	Dela-BH-	Displain	Endocalino	Endo-utino (t	Endrin	Figuration & Corpore	Garntie Chloniano Hentschie	Heptsellar epoxide
S Namber	4-2	84.0.	14.00			1	in	0.00	36	1117	6	deides GL8	-	2000	0.17.0	Mol	1 16	084	13-65-0	1-1	10	3.74-3	

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## OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL SEAD-121C Table 7-1A

## SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

Rationale for Contaminant Deletion or Selection <sup>4</sup>		INPR	ASL	TINC	VSI	BSI.	ASL	NIT	VSL	ISV	VST	NPE	ASL	NUT	Wal.	Ver	157	MUE	ASI	ASIL	MIT	N/G	ASI.	ASL		E E
COFE Flag		DM	YIS	YES'	YES	GN	YES	ON	YES	YES	VBS	ON	YES	NO	VBS	Yes	A TES	ON	ALC:	YES	DN.	788	YES	YES		28
Source of Screening Value			L'SEPA, 2001, magmallian	USBVA, 2005, plants	USEPA, 2006, Juli inverlebrates	USEPA, 2005, mirroralian	USEPA 2005 magazinikin		USEPA, 2003], avan, Cr.(IV)	USHPA, 2005, plants	USBPA, 2000, sail asverabilities		115EPA, 2005, avian	Region III BTAG	Clak Bidge - ndemographens and	Call Bidger - Benchman congratelium for artiworms,	Chik Ridge: Editoric on Personnal Plants 1097 New, Tuble I	0.00	Dali Rules - Piffers on Permental Planta 1997 Rev. Table 1	Oak Ridge   Effects on Yerretton Plants (997/Res. 7459-)	The state of the s	ON Mage Effects on Tymosolid) Plants (997 feet, Table )	Only Ridge - Bilests on Ferresonal Plants 1997 Rey, Table I	USEPA, 2000, soil mvertebrate		
Value (mg/kg)		MA	0.27	THE STATE OF	330	21	0.36	NA	26	11/1	10	NA	111/1	4,400	000	10	. 18	NA		-	XX	-	in.	020		NA
Navimum Background Value <sup>2</sup> (mg/kg)		20,500	635	21.5	100	1.4	0.2	293,000	52.7	27.1	E.To	38,500	36n	29,100	7,380	0.00	62.7	3,160	2.0	1,57	740	21	1.60	1710		
Range of Reporting Limits 1 (mg/kg)			0.50 - 1.2				0.06 -0.16									0.03 - 0.00 c	1		0.00	0.28 - 0.89	106 141	812.218	-			425-33
Detection Frequency		69 7 89	.43 / 6H	48 / 68		58 ( 58		68 / 68			68.7 65	65 / 65	68 / 6A	65.7 58	19. 1 EG.	62 / 64	3 / 10	68 £ 68	- 5	20 7 (66	56 / 68	12 / 68	M 1 64	56 66		367.56
Location of Maximum Concentration		SBDRMO-13	SSORMO-24	SSIJEMO-24	SSDRNIO 24	SRDRMO-8	SSESSION	SS131C-4	SHORMO-18	SBIZICAL	801216.2	SB1216-2	SSBRMO.24	SRDRMO.T	SSDRMO-11	SEDRMO-18	88)210-3	SB121C-2	SEDRING-IN	SUITOR	SSTRMOLI	SHIRMANICA	Suthithro-13	SHURMONS		SBDRMO-17
o				١.	-		1	and in					ĺ	-	-		1	ı.		1 -3	ķ		==	E	4	L
Maximum Detected Concentration		17,600	236	11.6	2,010	1.7	1.04	296 000	74.8		0520	54.000	000'81	24,900	1151	0.47	70	1 996	10	21.4	19W	1.8	150	3,610		3,600
o.		1	ē	-			100				=				8			-	=	1		-	-	1		7
Minimum Detected Concentration 1		1.730	0.32	4.5	180	0.71	0.06	7 1110	80	3)4	N.B.	4.240	30	\$ 1010	315	10%	11.6	787	No.11	0.0	587	6.0	(10)	20.8		2800
Chemical		Aluminum	Anguseum	Arsenic	Banim	Berthitm	Challenne.	Calcium	Chromitan	Cohalt	Oupper	Iron	Lead	Mintestum	Magement	Menters	Nickei	Polazsiwn	Selentum	- Table	Settlem	Tellion	Vanaction	Zinc		Total Organic Carbon Total Perceleum Mydrocur
S Number	ab	6.5	1	0.38.2	1	0.41.7	Ī	Į.	П		8-054	0.80.6	î	Ľ	9.465	D-072-6	0.000	0.094.7	I MEZ	THO	0.714.5	0.28-11	0.02.2	0-00-0	ter Analytes	9000

es: ield duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.

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# Table 7-1A OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SOIL

### SEAD-121C

## SEAD-121C and SEAD-1211 Remedial Investigation

Seneca Army Depot Activity

S Number	Chemical	Minimin	Maximum	O Location of		Detection Range of Reporting	Maximim	Screening		COPC Rationale for	le for
******		=	Defected Concentration		Maximum Frequency	Limits (mg/kg)	Background	Value (mg/kg)	Source of Servening value	Flag Contaminant Deletion or	iinant on or
E Physiolegic February		n (mg/kg)	n (mg/kg)	_		ò	(mg/kg)			Selection	ion <sup>4</sup>
un) indicates	infizate that the movimum concentration was detected in a dunitions, one. The movimum consentration searched is the assessed which	mtration was detect	ad in a dunication	iv The maximum	"Oncentration"	accusate all si battana	and an				
the sample ar	the sample and its duplicate. Lab duplicates were not included in the assessment. Range of reporting limits were presented for non-detects only.	plicates were not in	cluded in the assess	ment Range of re	porting limits v	vere presented for non-	detects only.				
ne maxinum d	ne maximum detected concentration was used for screening.	vas used for screenii	ng.								
sckground val	sekground value is the maximum detected concentration of the Seneca background dataset.	cted concentration o	of the Seneca backg	round dataset.							
surce of Screening Values:	ning Values:	Ď	USEPA Ecological Soil Screen Levels, 2000, 2003, 2005	oil Screen Levels,	2000, 2003, 20	05					
		5	USEPA Region III BTAG Screen levels	TAG Screen levels							
		ร์	USEPA Region 5 Ecological Soil Screening Levels, December 2003	Mogical Soil Screen	ning Levels, De	scember 2003					
		Ö	ak Ridge, R.A. Efro	ymson, G.W. Sute	r II, B.E. Sam	ole, and D.S. Jones, Pro	liminary Remed	liation Goals	Oak Ridge, R.A. Efroymson, G.W. Suter II, B.E. Sarmle, and D.S. Jones, Preliminary Remediation Goals for Ecological Endpoints, August 1997	st 1997	
			Toxicological Bene	thrusts for Contai	minants of Pote	intial Concern for Effec	ts on Soil and I.	itter Inverteb	Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process, 1997 Revision	1997 Revision	
			Toxicological Beng	:hmarks for Screen	ing Contamina	Toxicological Benehmarks for Screening Contaminants of Potential Concern for Effects on terrestrial Plants, 1997 Revisions	n for Effects on	terrestrial Pla	ints, 1997 Revisions		
		Ŭ	CCME - Canadian Environmental Quality Guidelines, December 2003	ivironmenta! Quali	ty Guidelines,	December 2003					
		Ā	utch, Annexes Circu	alar on target value	's and intervent	Dutch, Annexes Circular on target values and intervention values for soil remediation, February 2000	diation, Februa	ry 2000			
ationale codes		Š	Selection Reason:	Above Screeni	Above Screening Levels (ASL)	(1)					
				No Screening Value (NSV)	Value (NSV)						
				Important Bios	ccumulative C	Important Bioaccumulative Compounds (IBC)					
		ā	Deletion Reason:	Essential Nutrient (NUT)	ent (NUT)						
				Below Screeni	Below Screening Level (BSL)						
				Individual Che	Individual Chemicals Evaluated (ICE)	ed (ICE)					
				Neutral pH Va	Neutral pH Value Expected for Soil (NPH)	or Soil (NPH)					
nitions:		COPC = Chemical	COPC = Chemical of Potential Concern	E							
		Q = Qualifier									

J = Estimated Value

NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

# Table 7-1B OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL

# SEAD-121C SEAD-121I Remedial Investigation Seneca Army Depot Activity

Rationale for Contaminant Deletion or Selection <sup>4</sup>	li	BST	BSL	BSI	Vel	AXI	-ASD	ASIL	ANT.	ASIL	ASI	NA.	ASU	MAD	. 988	184		ASI	B	BSL	BST	ASL	MUT	ASL	ASE
Flag C		ON ON	ON.	NG	VES	YES	YES	YES	YES	YES	VIIS.	VII8	918	YRS	Nus.	YES		NO.	YES	0 0 0	02	YES	NO	£ 5	KER
Source of Screening Value		Region 5 - Ecological Screening Value	Region 5 - Ecolopical	Duch - Indicative Level	Reviou III HTAG - and faum	Region III UTAVI soil from	Region ULUITAGI MALTAMINI	Begrin III BTAKi - soil falsa	Region UF DTAG - sell launa	Pepun III BTAG - soil faun	Replies 111 113 Act - fail thome	respices AR 183 N.G voil Semin	Region III WYAG - Soil Blum	Peydon III BTAG - soil Game	Region III NTAG AND TOWN	Region III bTAG sholl fatter		USERA, 2005, managadian	USBPA, 2005, plants	USEPA, 2005, soil	USEPA, 2005, manutulian	USEPA, 2005, namelian		USEPA, 2005, avian; Cr UV) USEPA, 3705, plants	Tiegeba, 2005, soil
Value (mg/kg)		2.5	0.1	35	0.1	1.0	00	P.9	0.1	100	00	100	111	10	1 0	10		NA 0.3	18	330	21	0.36	NA	97	19
Mackground Value 2 (mg/kg)							10	1	1	-			0.00		-			20,500	2115	159	1.4	7.9	293,000	38.1	62.18
Detection Range of Frequency Reporting Limits I		0.0029 - 0.012	0.0028 - 0.026	0.0029 - 0.026	0.36 - 1.6	0.36 1.7	0,16 -31.7	E. 46 1.7.	G. Mr 1,77	2/2 11/0	0.46 1.7	0.36 1.1	0.30-11.7	0.46 1.7	71-950	0136 - 1.7		108 - 61			0.64 - 0.68	10.03 - 50.03			
Detection Frequency B	Ī	7 / 10	2 / 10	37.10	69.00	27.00	01.72	01.75	77/10	17.10	01 - 10	中位	21 10	1.00.21	27010	01/10	000	30 / 10	10.10	01 / 01	8 / 10	57.10	01 / 01	10 / 10	
Location of Maximum B Concentration		SDDKM0-3	SDDRMO-6	SDDRWOA	SDORMORT	SDDRMO-2	SDDRMO-2	SDDRMO-Z	SDDRMO-2	SDDRMOR	SDDRMO-Z	SDIMMOR	Sporming	STORMOGS	Stankwo-2	SPIDKMG-2		SDDRMO-9	SDDRMAZ	SDDRMO-9	SDDRMO-8	SDDRMO-9	SDDRMO-9	SDDPMO-2 SDDPMO-8	SDIVENO.9
0		1	-	1	Jan 60			1-	15	14	-		33	E	-	-		5			5.			-	1
Maximum Detected Conveniration (mg/kg)		0.15	0.012	0.13	04.0	11.28	111	11.9	101	0.29	6,48	172	3	72.0	5	(a)	O Company	4.4	19	291	8.0	168	161,000	29.8	061')
0		5	7	L	- 8	J.	-	15	1	-	10		1	In.	-			H		5		6		13	1
Minimum Detected Concentration 1 (mg/kg)		0.012	0.005	0,0036	92.6	0.1	678	510	31:0	0.20	0.5%	624	15'0	200	13.0	14.0		2.850	11	36.6	0.2	113	13,200	37	101
										13		1				-		-	-						-
Chemical	Maille Organic Compounds	Acetone	Carbon disulfide	Methyl cityl ketone	mivolatile Organic Compounds	Anthologic	Энтан(п)виделеское	Depret(4)pyrend	Beyond (Horandrape	Betro(gld)perylene	Benzolt ) fluoranthere	Clayene	Plumanthene	Inferio().2.3-ed/pytrate	Phenothran	Pyrene	6	Alunynym	Arsenic	Bariam	Buryffum	Cadmium	Calcium	Chromin	Copper
CAS Number	daille Orga	1-64-1	-15-0	103-3 8	mivolatile	PI BIR	-	10.8	EMIS	1.542	6800	6-10-10	Na440	3000	F.10	0.000	etab	20-90-5	1000	140-39-3	140-41-7	Pub-13-9 Cadmium	140.70-2	10.47.7	100

SENECANPID Area/Report/Draft Final/Risk Assessment/Eco Risk Tables/SEAD-121C/Screening\_121C.xls Ditch Soil

# OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL SEAD-121C

## SEAD-121C and SEAD-1211 Remedial Investigation Seneca Army Depot Activity

Contaminant Contaminant Deletion or Selection	ASE	187	NSV	ASL	MUT	VSI	VSI	ASL	NET	ASI	VSI	TON	AST	ASE,		TOE IN	The same
Cont Deta Set	1		-			-			L						1	1	
Flag	YES	(FES	VES	超	NO	1	YES	VES	2	7165	YES	DN	*168	YES		ON S	200
Screening Source of Screening Value Value (mg/kg)	Region III BTAG for cyanide	Region III BTAG for cyanide		USEPA, 2005, avian	Region III BTAG	Oak Milge-mispopaniates and mispolial process	Cont. Ridge - Benchinary, concernitions for earthwents, Table 1	Odi Ridge Effects on Terrishial Plants (917 Rev. 1350e.1		Coll. Ridge   Effects on Tentestrial Plants 1997 flex, Tentest	Cod Ridge. Effects on Tentestrial Plants 1997 Rev. Toble I		Terrestral Plants 1997 Rev.	USBPA, 2000, soil: inventebrate			
Value (mg/kg)	0.005	. D'OCS	NA	110	4,400	200	370	A	N/A	=		NA	re .	130		NA	NA
Maximum Background Value <sup>2</sup> (mg/kg)			38,100	266	29,100	2,390	0.13	62.3	3,160	£ 5	0,87	169	32.7	136			
Detection Range of Frequency Reporting Limits (mg/kg)	0.55 - 2.63	0.352 - 2.63							-	0.85 - 2.1	0.35 - 1.8					230 43	22 - 21
Detection Frequency	01.7.1	17.10	107.70	10 / 10	10 7 10	10.7.10	10 / 10	0) /0)	10 / 10	0	9	10 / 10	10 10	10 / 10		10 / 10	77 177
Location of Maximum Concentration	Spinance	SDDRMO-4	Sportio-8	SDDRMO-9	SDDRMO-9	SDDRMO-5	SDUBMO-2	SDDRMOS	SDDRMOS	SOURSOOM	SDDRWO.5	SDDRMO4	SDDBMO3	SPDRMO-4	-	SDDRMO-10	SHURMOS
O'	-	-	-	1 -		5	5	-	-	5	H	,					-
Maximum Detected Concentration 1 (mg/kg)	95.5	2.36	27,360	130	17.600	816	0.3	124	1.410	16 51		3.120	F. 6.	56h	-	9.100	2,050
o	-	1-									-	L		-		-	
Minimum Detected Concentration i (mg/kg)	278	2,36	5,650	133	3,340	135	THU UNITE	382	368	0.79	0.825	167	2,0	91.9		4,200	0000
Chemicad	Cyanido, Azesuble	Cyanalo, Total	Iron	Ivesid	19-95-4 Maenesium	Water Mayantes	Wenaury	Nete	Polaggin	52-49-2 Selection	To See	Sodium	Venedium	Zho	ytes	Total Organic Carlton	LOCAL PETFOIGHIN HYDROGENERS
CAS	7,000	8000	39-89-6	39,92.1	39.95.4	11/mer	0-25-61	40-02-0	30.00.7	52-49-29	40.22-4	40.33-5	-	HB-66-6 Zhy	3		07000

Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. (dup) indicates that the maximum concentration was detected in a duplicate pair. The maximum concentration reported is the average value of the sample and its duplicate. Lab duplicates were not included in the assessment. Range of reporting limits were presented for non-detects only. The maximum detected concentration was used for screening.

Background value is the maximum detected concentration of the Seneca background dataset.

Source of Screening Values:

USEPA Ecological Soil Screen Levels, 2000, 2003, 2005
USEPA Region III BTAG Screen levels
USEPA Region III BTAG Screen levels
USEPA Region 5 Ecological Soil Screening Levels, December 2003
Oak Ridge, R.A. Efroymson, G.W. Suter II, B.E. Sample, and D.S. Jones, Preliminary Remediation Goals for Ecological Endpoints, August 1997
Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Screening Contaminants of Potential Concern for Effects on terrestrial Plants, 1997 Revisions
Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on terrestrial Plants, 1997 Revisions

CCME - Canadian Environmental Quality Guidelines, December 2003

SENECAIPID ArealReport\Draft Final\Risk Assessmen\\Eco Risk Tables\SEAD-121C\Screening\_121C.xls Ditch Soil

## OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C DITCH SOIL SEAD-121C Table 7-1B

## SEAD-121C and SEAD-1211 Remedial Investigation Seneca Army Depot Activity

Rationale for	Contaminant	Deletion or	Selection 4	
COPC	Flag			
Screening Source of Screening Value 3 COPC Rationale				
Screening	Value	(mg/kg)		
Maximum	Background	Value 2	(mg/kg)	
Range of	Frequency Reporting Limits Background		(mg/kg)	
Detection	Frequency			
Q Location of Detection	Maximum	oncentration	-	
ò		_	<u> </u>	
Maximum	Detected	Concentration	-	(mg/kg)
ò		=		
Minimum	Detected	Concentration	-	(mg/kg)
Chemical				
CAS	umber			****

Dutch. Annexes Circular on target values and intervention values for soil remediation. February 2000
Selection Reason: Above Screening Levels (ASL)
No Screening Value (ASV)
Important Bioaccumulative Compounds (JBC)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)
Individual Chemicals Evaluated (ICE)
Neutral pH Value Expected for Soil (NPH)
Q = Qualifier
J = Estimated Value Rationale codes

finitions:

### OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-121C SURFACE WATER SEAD-121C Table 7-1C

#### SEAD-121C and SEAD-1211 Remedial Investigation SENECA ARMY DEPOT ACTIVITY

Number	Clemical	Midimum Detected Concentration 1 (ug/L)	o	Detected Concentration , (ug/L)	2 2 B	Lincadien of Maximum Concentration	Detrotion	Reporting Limits (ug/L)	Screening Value (ug/L)	Screening Value	Flag	Rationale for Contaminant Deletion or Selection 3
S-missiatile Organic Com	cassic Compount	4.2		17	18	SWITERALLE	1 .00	10 10	0,0	NY SDECTORS C	347	ISN
7471 W.E. Aluminus 7440.3K-7. Arsenir	Aluminum	19.4		100	(A) 50	SWINGOUT.	17.40		000	NYNDEC CLUN C.	YES	7986
744D-39-3 Barrien	ini	17.0		123	S	SWDRMO-2	10.7 10		10,000	Region Di BTAG	02	BST
7440-41-7 Berylliun	linn	0.12		0.86	1 5	SWDRMO-7	J	10-10	1.100	NYSDEC Class C	NO.	DAY:
7440-450 Cateman	thing	0,46	ŀ	19.5	50	SWDRMO.2	01 / 00	100 × 60	DAY.	SRWOC, CCC	NO.	AM
7440-47-2 (Tanymin	rathra	690	i	170	8	SWDRMC	ю	90 90 1	10	BRWOC, CCC for	844	189
7440-49-4 ( ceta)) 7440-49-4 ( Coppes	- E	1.7	-	the de	ESE	SWDBMO-2	35	036 1360	(+==	NVSDLC Clear NRWOC, CCC	VIII VIII	55
WATER THOM		6,6	1	116,000	\$ 5	SWIDSMINS.	01 10	173-153	8	NYSDIC Class C	VIII	AST
7410.05 - Main	Mainteinm	11,100	7	26.300	D V	SWDRMOG	10.7 10		NA V	CHANCE SALV	ON	FATT
7439-96-5 Man	Mongameste	3.2		2,380	S	SWDRMO-2			14,500	Region III BTAO (@hardness=36	Q.	DAL
JASQUE Mercury	el .	19,00		aE.	(A) (A)	SWIREMOG	34 10	18 - 0 - 10 mg/s	10000	NAVADIO: COM PARA CONTRACTOR CONT	20 P	A51 A51
7440:09-7 Poiss	Potanition	3,070	5	5.350	TA CO	SWIJEMOS	10.1.70		N.N.		Ne	MET
737 44.2 Selenum 7440-22-4 Silver	Selenium	N.N.	=	0 30	55 (0	SWDRMOZ			970	NYSTAR Clark C	YES	IBC ASI.
740-73-5 Sedian	un	4.490		133,690	I S	SWDRMO-1			12A		NO	TUN
7440-28-tt "Thellung	Carl	25		6.3	(S)	SWDRMO-4		5.4 5.4	8	SPSDEC Class C	NG	BSI
740-63-5 Varies	Vanakim	- 69'O		133	To 50	SWDRMO-2- SWDRMO-2	3 10	0 0	28	NYSDECCIMAC	YES	199
2			1								1	16.0
SADOZO Tena	Total Petrolesiti, Hydricarbrini	5,080		0.080	8	SWDRMO-2	5.7	1000 - 1000	NA		9	KE

Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.

Lab duplicates were not included in the assessment. Range of reporting limits were presented for non-detects only.

The maximum detected concentration was used for screening.

NYSDEC. 1998 with addendum. New York State Ambient Water Ouality Standards. Class C for Surface Water.

USEPA. 2002. National Recommended Water Ouality Criteria (NRWOC): 2002.

USEPA Region III. 1995. Region III BTAG Screening Levels.

Selection Reason:

No Screening Levels (ASL)

No Screening Lavels (ASL)

Important Bioaccumulative Correcounds (IBC)
Essential Nutrient (NUT)
Below Screening Level (BSL)
Individual Chemicals Evaluated (ICE)
Neutral pH Value Expected for Soil (NPH)

Deletion Reason:

Hardness for surface water was assumed to be 100 mg/L (CaCO<sub>3</sub>).

COPC = Chemical of Potential Concern
Q = Qualifier

CCC = Criterion Continuous Concentration J = Estimated Value

0CCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE SOIL SEAD-1211

Chemical	Minimum Detected Cuncentration	0	Maximum Detected Concentration	o	Location of Maximum Concentration	Detection Frequency	Hange of Reporting Limits <sup>1</sup> (mg/kg)	Maximum Background Value <sup>2</sup> (mg/kg)	Screening Value (mg/kg)	Source of Screening Value	Flag	Katin Contz Dele Sele
anic Compounds												
Acetone	0.0022	2	0.11		SS1211-15	26 / 35	0.003 - 0.0715		2.5	Region 5 - Ecological Screening Value	ON NO	E
Senzene	0,0046	L	0.0405	-	SS1211-29 (dup)	6/ 35	0.0023 - 0.0034		0.1	Region IJI BTAG - soil fausa	ON	F
Ethyl benzenc	0.0021	I	0.0078		551211-15	57.35	0.0023 - 0.0034		0.1	Region III BTAG - soil faints	NC	2
Meta/Para Nylene	0.0021	5	0.0063	1	SS1211-29 (dup)	5 / 35	0.0023 - 0.0034		0.1	Region III BTAG - stal fanna for xylene	NO	Н
Medial other kettone	0.0036		0.00	Ĺ	SSI28415	97 15	0.0023 - 0.0034		35	Dutch - Indicative Level	ON	LA.
Merhylene chlorade	0.0016	5	m	-	SB1211-4	31.	0.0023 - 0.0034		D.3	Region ID BTAG - smi faura	DN	
Ortho Xylene	0.0033	-	0.0036	-	SS1211-29 (dup)	5 / 35	0.0023 - 0.0034		0.1	Region III BTAG - soil fauna for sylene	ON	
Colyence	0.0028	1	0.0305	-	8S1211-29 (dup)	67 35	0.0023 - 0.0034		0.1	Region Hi BTAG - soil fauna	ON	1
Organie Compounds 2-Methyinaphthalene	0.054	E	0.26	15	581211-20	3 / 39	0.35 - 7.4		3.24	Region 5 - Ecological Screening,	ON	
		- 1			The state of the s					Value	1	
Seona platheoe	0,053		9.1		SSI211-20	17 / 39	0.30 2,2		2	Oak Ridge's Effects on Termelful Plants 1997 Rev. Table I	VES	
Acetumbilitylong	0.064	-	0.56		881211-22	27 39	12.04 - 7.4		100	Region III DTAG - anti-forms	NO.	18
Anthracory:	0.009		4		02112188	20 / JK	W. No 1, 8		100	Replan H U LAV - soil fritted	VIS	-
Benzek(a)anthrasene	0.043	4	411	0	881211-20	Q.	16.19 - D.3R	1	10	Region III MTAG - 19th Souns	VI'S	10
Benzo(u)psvene	0.061		21		88121120		W.0 -		10	Region III NTAG - and numa .	VILK	1
(Intro(b)) Inorantieno	0,062	2	120		851211-20	3	m		3	Bagion IO BTAIX - and faum	VIII.	6
Honzo(glir)penylene	5000	-1	20	1	55121120	31	579		100	Remon III BTACL - and familia	807	-
Back-Strother, Ophibalite	0.059	4	. 01	1	\$5020-01	14/10	16 (8 - 18 - 18 - 18 - 18 - 18 - 18 - 18 -		0.925	Herdre 5 Perfogaci Servering	1 % E	
Untylbenzylpinhalae	0,055	7.	0.13	-	SB1211-1	2 / 36	0.35 - 8.8	100	0.239	Region 5 - Ecological Acreeming	NO	
Christopic	90:0	7	8.0		02-1171-SS	20 7 10	0.36 1.8		NA		SUV.	*
Chrysank	9,0624	-	o ·	3	88120-30	23	0.37 = 0.30	4-	10	Region III BTALL - toll taus-	NIS.	7
Olbert (a,ft)militateme Dibertelfun	0.073	~~	100		\$\$1211-20 \$\$1211-20	97 39	0.10 22	-	ēž	Region III BTAG - tail favre	VES	36
Diethyiphthatare	0.64		0.64	5	351211-29 (dup)	1 / 39	0.34 - 7.4		001	Oak Pilder - Effects on Terrestrial Plants 1997 Rev,	8	
Di-re-buryphthalate	0.045	0	0.045	-	SS1211-1	1 / 38	0.34 - 7.4		200	Oak Ridge - Effects on Terrestrial Plants 1997 Rev,	8	
Uvoranc	0.0047		12	Es.	881211-20 881211-20	2 / L	0.95 9.2 0.95 9.2		09	Peyton III BTAG - soil Banh Oak Ridge - Benfilmari symentifilma for soilbooterns,	25	T

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OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE SOIL SEAD-1211

		concentrations for earthworms,					: 			
-	NO NO	Oak Ridge - Benchmark	0.1	0.13		35 / 35	SB1211-1	0.07	0.01	lercury
	884	Dal Ridge - migraorpanisms	1001	2,380		16 2 38	581211-29 (dap)	310,500	7.77	danganese
-	ON	Region III BTAG	4,400	29,100			881211-27	22,300 1.	4,430	Aspresum
	VES	USEPA, 2005, avian	111	266			881211-25	113	9	-ping
1	2		××	38,600		18/35	(qup) 67-1171SS	58,400	3,728	rois
8	YES	I tylon III W I AG for conside	5000		100 9250	31 38	381211-29 (dup)	200	0.559	Symide, Total
1	YES	DELLA, 2005, soil inverteinmen	19	62.8		307	SS1211.29 (dup)	209	10.4	hipper
1	YES.	USPPA, 2005, plant	11	29.1		15.	\$51211-29 (dup)	205 5 3	4.6	Wald.
	300	tree of the state of the state of	VZ.	293,000		35 / 35	551211-26	298,000	5,370	Michalm
	YES	USEPA, 1915, marrimatian	1136	2.0	0.11.0001.00		SHITING	0.0	ľ	admillim
E	ON.	USEPA, 2005, marrinalian	.21	1.4	0.17 - 0.17	100	\$81211-5	9970	0.10	leryllium
ш	ON	USEPA, 2005, soil invertebrates	330	159		35 / 35	SS1211-26	207	38.2	Janum
1	YES	USEPA, 2005, plants	18	21.5	0.06 - 73		SB1211-28 SB1211-2 (dup)	32.5	0.00	унитопу Атэетик
Z	200		VZ	20,500		I faul	SB1211.5	13,200	1510	Маттин
1	VES	Region III II I/A/I for entendene	1/0		0.0003	8/ 3E	881711-21	2000	190011	tephablar eposide
	ARIA	Region III D. Act for objections	0.0		120018 - 0,002A	27/ 12	SSENIETI	0,03	0,1996.5	militar
	504	Region 5 Danbageof Servering	E.1		0,0078 - 0,002		381211-20	DANA I	0.0026	Polestin I
1000	VES VES	Region III BTAG - soil during Region III II AG - soil funga Region III BTAG - soil funga 1 STUA IIII manuseller	0.1			3/3/2/2 2/1/2/2	SS1211-23 SS1211-21 SS1211-20	0.044 NO 0.049 J	0.011 NJ 0.024 NJ 0.0012 1	ASDE ASDT ASDT Aston
==	YES	Region III BTAG - soil flora	0.1		0.018 - 0.022	27.35	SSIZIFA	0.03 0.04n	0.0083	Vinctor-1254 Angler-1260
<<<<	X 1 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Region III BTAG - soll filtum Region III BTAG - soll filtum Region III BTAG - soll filtum Region III BTAG - soll filtum	3 5 6 6		0.35 7.4 0.37 - 0.38 0.37 - 0.38	25 1 35 1 35 1 35 1 35 1 35 1 35 1 35 1	SS1211-20 SS1211-20 SS1211-20 SS1211-23	- 5 A S	0.000 0.003 0.003 7 0.007 1.007 1.007	ndeno(1.1.1.4.1)pwyca Usbytynicze Ysens
Conta Delet Selec	5.1	Source of Screening Value	Value (mg/kg)	Maximum Background Value <sup>2</sup> (mg/kg)	Detection Bange of Frequency Reporting Limits <sup>1</sup> (mg/kg)	Prequency 1	Maximum Concentration	Maximum Q Detected Concentration	Minimum Q Detected Concentration 1 (mg/kg)	Chemical
Ration	COPC	10	Screening	Maximum	Range of	Detection	Locallim of		Minimum O	Chemical

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### OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE SOIL. SEAD-1211 Table 7-2A

#### SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Chemical	Minimum Detected Concentration 1 (mg/kg)	O May De Conce	Maximum Q Detected Concentration (mg/kg)	Q Location of Maximum Concentration	Detection Frequency	Detection Range of Frequency Reporting Limits (mg/kg)	Maximum Background Value <sup>2</sup> (mg/kg)	Screening Value (mg/kg)	Source of Screening Value	COPC Ration Flag Conta Delet Selet	Ration Conta Delet Selec
lower	1		312	SS1211-29 (dup), SS1211-33	35 / 35		623	30	Cak Ridge - Effects on Terrestrial Plants 1997 Rev. Tuble 1	YES	<
oussium	634		1,300	581211-30	35 / 35		3,160	VV		ON	Z
elemin	(Car		140	(dul) व्हनाटाइड	20 / 35	0.43 - 0.61	£(		Oak Ridge - Effects on Torrestrial Plants 1997 Rev. Table 1	YES	4
ülver	0.20		   	SB)2(1-2 (dap)	47.24	03 - 1.2	0.87	P)	Oak Ridge - Effects on Terrestrial Plants 1997 Rev. Table 1	YES	9
othum	117		372	SB1211-1	29 / 35	106 - 595	269	VX.		ON	Z
halifum			163	SS[211-29 (dig))	2	0.32 - 1.2	đ		Dak Ridge - Effects on Terrestrial Plants 1997 Kev, Table 1	YES	
/www.	6.5		182	381211-29 (dup)	35 / 35		327		Oak Ridge - Effects on Terrestrial Plants 1997 Rev. Table 1	YES	*
Sinc	42.75		329	581211-33	357,38		126	120	USEPA, 200X, soil invertebrate	YES	
tes Vial Organic Carbon	3,000		8,900	581211-6	35 / 35			NA		ON	1
fotal Petroleum Hydrocarbons	100	1.	2,200	SS1211-27	10 / 35	43 - 48		NA		NO	-

concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only. ates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation. tes were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The

um detected concentration was used for screening.

I value is the maximum detected concentration of the Seneca background dataset.

USEPA Ecological Soil Screen Levels, 2000, 2003, 2005
USEPA Region III BTAG Screen levels

USEPA Region 5 Ecological Soil Screening Levels, December 2003

Oak Ridge, R.A. Efroymson, G.W. Suter II, B.E. Sample, and D.S. Jones, Preliminary Remediation Goals for Ecological Endpoints, August 1997

Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process, 1997 Revision

Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on terrestrial Plants, 1997 Revisions

CCME - Canadain Environmental Quality Guidelines, December 2003

Dutch, Annexes Circular on target values and intervention values for soil remediation, February 2000 Selection Reason: Above Screening Levels (ASL)

No Screening Value (NSV)

odes

Important Bioaccumulative Compounds (IBC)

Deletion Reason:

Individual Chemicals Evaluated (ICE) Essential Nutrient (NUT) Below Screening Level (BSL)

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### Table 7-2A OCCURRENCE, DISTRIBUTION AND SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE SOIL SEAD-1211

### SEAD-121C AND SEAD-1211 RI REPORT

#### Seneca Army Depot Activity

Chemical	Minimum	ò	Maximum	0	Location of	Detection	Range of	Maximum		Screening Source of Screening Value 3	3 COPC Ration	Ration
	Detected		Detected		Maximum	Frequency	Frequency Reporting Limits 1	Background	Value		Flag	Contar
	Concentration		Concentration		Concentration	-	(mg/kg)	Value 2	(mg/kg)			Deleti
	-							(mg/kg)				Select
	(mg/kg)		(mg/kg)									

Neutral pH Value Expected for Soil (NPH)

Q = Qualifier

J = Estimated Value

N3 = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

Table 7-2B
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF ECOLOGICAL POTENTIAL CONCERN IN SEAD-1211 DITCH SOIL
SEAD-1211

Chemical	Mioimum Detected Concentration	0	Maximum Detected Concentration i (mg/kg)	0	Location of Maximum Concentration	Detection Frequency	Range of Reporting Limits <sup>1</sup> (mg/kg)	Maximum Background Value <sup>2</sup> (mg/kg)	Screening Value (mg/kg)	Source of Screening Value (mg/kg)	Flag	Conta Conta Delet Selec
anic Compounds	00.00	1	0.15	-	SD1211-8	10 / 10			2.5	Region 5 - Ecological	S	8
			2							Screening, Value	2	
Венгени	0.0012	40	0.039	-	SD1211-8	3 10	0.0032 - 0.0037		0.1	Region III BTAG - soil	9	B
Giftyl benzene	0.0052		0.0052	-	SD1211-8	1 / 10	0.0027 - 0.0044		F/0	Region III BTAG - soil	NO	B
Meta/Para Xylene	0.0048		0.0048	-	SD(2)1-8	1 / 10	0.0027 - 0.0044		0.1	Region III BTAG - soil	NO NO	B
Methyl ethyl ketone	0.0072		0.078		SD1211-8	2 / 10	0.0031 - 0.0044		35	Dutch - Indicative Level	NO NO	В
Jrtha Xylene	0.003	1	0.003		SD1211-8	1 1 10	0.0027 - 0.0044		0.1	Region III BTAG - soil	NO	B
Tolorne	0.0017	-	0.026		SD1211-8	2 / 10	0.0031 - 0.0044		0.1	Region III BTAG - soil	NO	В
Organie Compounds 2-Methylnaphthalene	0.033	-	0.17	-	SD1211-7 (dup)	2 / 12	0.38 - 4.4		3.24	Region 5 - Ecological	NO NO	B
3.3-Dicitionbenzione	0.315	-	0.315		SD1211-7 (dap)	1 / 12	0.38 - 4.4		0.646	Region 5 - Ecological	NO NO	B
Aceyuphthank	9900		0.74		SD12 (1-7 (dap)	0 12	0.38 - 0.40		90	Oak Ridge - Effects on Tropourial Plants 1997	VES	10
Acetaphihylene	920'0	a	260		SDIZITZBBS	# / <del>*</del>	0.38 - 0.53	1-	100	Region III BTAG - soil	YES	(6)
Anthracene	100	1	1 111	1	SDIZHTERS	21 / 6	0.38 - 0.46		100	Regrow III 97 AG- aul	NES	V 5
Bestzo(a)anthracene	0,049	4	*	-	SDIZ112EBS	10 / 12	0.38 - 0.46		10	Region III HTAG - soll	VIS	
Benzo(n)pyrane	0.29	1	16	9-2	SDI211-ZERS	01/6	0,58 - 0,46.	1	10	Region III BTAM - soll	YES	
Пенто(b) пимпитепе	0.044	-	EL.	4	SDIZITZEBS	21, 730	0.46 - 0.46		0.1	Region III BTAG world	Nes.	4
Benzo(glit)perylene	- 100	-	121	H	SDITHTINGS	21.76	0.18, + 0,46		1'0	Rogion III MIAC - soil	NES	
Berevill) Tuerantiene	NI 0	1	R		SDIZHZEBS	97.12	0,38 - 0.46		0.0	Rogion III BTAG - soil	T VES	100
Bist 2-Ethylnexyl)phthalate	0.025	-	0.093	-	SD1211-7 (dup)	3 / 12	0.39 - 4.4		0.925	Region 5 - Ecological	No.	
Hijo formetiglishalaje	0,42	-	0.42	-	SD4211-7 (date) 17 12	1 / 12	0.00 - 300		0.239	Reuton 5 - Ecological Streening Value	YES	2

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Table 7-2B
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF ECOLOGICAL POTENTIAL CONCERN IN SEAD-1211 DITCH SOIL
SEAD-1211

Chemical	Minimum Detected Concentration 1 (mg/kg)	o ·	Maximum Detected Concentration 1 (mg/kg)	0	Location of Maximum Concentration	Detection Frequency	Range of Reporting Limits <sup>1</sup> (mg/kg)	Manimum Background Value <sup>2</sup> (mg/kg)	Screening Value (mg/kg)	Source of Screening Value <sup>3</sup> (mg/kg)	Flag	Ration Conta Delet Selec
L'arbasole	10		911		SDITHTERS	97.12	0.38 - 0.46		NA.	The second second second	VES	Z
Chrysene	0.34		78		SD1211-2E08		0.33 - 0.46	-	0.0	Reportil DTAG - sart fattis	3	Ś
Dibenz(ad)anthracene	0,086	5	*		SDITHTERS	37.12	038 - 033		10	Replan III BRAG - well	KES	4
Dibenzofuran	0.058	6	9350		SD12167 (dnp)	5 // 12	0.38 - 4.4		NA.		YES	Z
Di-n-octylphthalate	0.42	~	0.42	-	SD1211-7 (dup)	1 / 12	0.38 - 4.4		402	Region 5 - Ecological	NO	Д
Ploypurthene	6600	2	75		S03711710S	0 /11	0.40 - 0.46		('0')	Region (URTAG - toil	YES	V
Disortho	0.053	5	0.64)		SF)211-7 (daip)	97.12	0.018-1040		30	Code Ridge - Benchmark constructions for earthworms, Table 1	VES	B
Indeno(1,2,3-ud)pyrene.	0.09%	13	142		Spirit-rins	47.12	0.38 - 0.40	-	1.0	Region (IVBTAG - soll	YES	5
Isophorpne	0.315	5	0.315	-	SD1211-7 (dup)	1 / 12	0.38 - 4.4		139	Region 5 - Ecological	0N	Д.
Vophisplene	590'0	-	0.35	-	(प्रका) १,५१३ (प्रका)	21.12	0.38 - 4.4		10	Region III BUNG - and	VES	
Nitrobenzene	0.315	-	0.315	-	SD1211-7 (dup)	1 / 12	0.38 - 4.4		131	Region 5 - Ecological	NO.	Ш
Phesanthrope	0,05	-	6.25	1	SD(211-7 (dup)	21/ /11	0.46 - 0.46	0,00	7.0	Regres III BIAG - soil	YES	
Phenol	0.315	-	5100		SD1211-7 (dup)	21.7.1	N.40 404.0		10.1	Region HEBTAG - 611	YES	
Pyrene	W/000	-	41	1- 1	Spizitzios	20 7 10	0.46 - 0.46		13	Region III BTAG - soil frums	NES	
Anselon-1254	0.067		290:0		Somo	17.10	0.012 0.022		0.1	Region HI III ACL - soil	YES	1
Arredor-1260	0.014	-	0,014		SD1233-7 (dup)	17.10	0.00023 - 0.0033		-6	Temen III HTAG - soft	VICS	
A,42BDE	0.0076	4	0.0076	-	SD12.F1-7 (dup)	2 /1	0,00024 - 0,00033	7.00	0.1	Region III.nTAG -soil	VES	
Aluminum Apanic Barium	4,180	-	104	1	SD1211-6 SD1211-8 SD1211-8	10 / 10 10 / 10 10 / 10		20,500 21.5 159	NA 180	USEPA, 2005, plants USEPA, 2005, soil invertebrate	CN SILV	2 4 8

NSENECA (PID Area\Report\Draft Final\Risk Assessment\Eco Risk Tables\SEAD-1211\Screening\_121Lxls.xls\Ditch Soil

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF ECOLOGICAL POTENTIAL CONCERN IN SEAD-1211 DITCH SOIL SEAD-1211 Table 7-2B

	Minimum Detected Concentration	0	Maximum Q Detected Concentration 1 (mg/kg)		Location of Maximum Concentration	Detection Frequency	Range of Reporting Limits 1 (mg/kg)	Maximum Background Value <sup>2</sup> (mg/kg)	Screening Value (mg/kg)	Source of Sereening Value 3 (mg/kg)	Flag	Ratio Conta Dele Sele
+-	0.3		99.0	-	SD121I-6	10 / 10		1.4	21	USEPA, 2005,	NO	
	8'0		8.0	7/3	SD12167 (dup),	01 77	01.4 - 0.19	5.5	0.36	USEPA, 2005,	VES	1
	8,990		127,500	n.	SD1211-7 (dop)	10 / 10		293,000	NA 36	HERPA 2008 ander CV	ON	4
-	and a	T	100	- '	Constant of					(VI)	9	
1-	ALE .		130	1	SDIZILA	01 /01		52 ×	1 50	USEPA, 2005, soil	22	
ŧ.	001.01	İ	10 400	ŀ.	Chidita			38 600	NA	Hivericolaits	ON	1
-8	- 16	T.	93.3	E	SD1211-6	10.7 10.		266	11	TISEPA, 2005, avian	VES	1
H			11,300		SD1211-5	10 / 10		29,100	4,400	Region III BTAG	NO	
	303	Ė.	14,900)	-	SD1211-8	90 7 00		2.380	100	Call, Ridge microspanent and	X¥S	
	0.02		8110		Spirits	01 76	0.12 - 0.19	613	Eq.	Oak Ridge- Benchmark concentrations for carchworps, Table 1	NIA.	
-	16.4		381	-	snizitis	00 / 101		62.3	30	Oak Ridge - Bflects on Terrestrial Plants 1997 Rev. Table 1	YES	
	541		1,450	H	SD1211-6	10 / 10		3,160	NA	T AND THE PERSON OF THE PERSON	ON	ĺ,
	18	12 -	<b>S</b>		SD1211-8	17.10	0.48 - 0.68	8	_	Oak Ridge - Effects on Torrestrud Plants, 1997 (Rev. Table )	VES	
	27.5	-	500	-	SD1211-8	3 (0)	07) -044	0.87	п	Oak Ridge - Effects on Terrestral Plants 1997 Rev. Table 1	YES	
	162		266	H	SD1211-10	03 / 8	118 - 132	269	NA		NO	
-	140		213		50(1)18		£0 = 0 £0	27	= -	Cak Ridge - Effects on Terrestrial Plant, 1997 Rev. Table (	VIIS	7. :
- 3:	- ac		T (8)		SDILLIN	01 7 01		12,7	rı	Oak Ridge - Effects on Terrestrial Plants 1997 Rev. Table 1	Wils	
lov 1	573		532		Spizitio	01 / 01		126	120	USEPA, 2000, soil overtebrate	Yes	
+-1	2,800	T	7,200	-	SD1211-1	10 / 10			NA		NO	

s\SENECAVPID Area\Report\Draft Final\Risk Assessment\Eco Risk Tables\SEAD-121\Screening\_121Lx\s.x\s\Ditch Soil

#### Table 7-2B

# OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF ECOLOGICAL POTENTIAL CONCERN IN SEAD-1211 DITCH SOIL

#### **SEAD-1211**

#### SEAD-121C AND SEAD-1211 RI REPORT

Seneca Army Depot Activity

NO		NA		52 - 66	5 / 10	SD121I-9 5 / 10		910		150	Total Petroleum Hydrocarbons
			)					(mg/kg)		(mg/kg)	
Flag Conta	Valuc³ (mg/kg)	Value (mg/kg)	Background Value	Limits <sup>1</sup> (mg/kg)	Frequency 1	Maximum Concentration		Detected Concentration		Detected Concentration	
COPC Ratio	Location of Detection Range of Reporting Maximum Screening Source of Screening COPC Ratio	Screening	Maximum	Range of Reporting	Detection	Location of	õ	Maximum	ò	Minimum	Chemical

icates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation, ates were not included in the assessment. (dup) indicates that the maximum concentration was detected in a duplicate pair. The

concentration reported is the average value of the sample and its duplicate. Range of reporting limits were presented for nondetects only.

num detected concentration was used for screening.

Screening Values:

d value is the maximum detected concentration of the Seneca background dataset.

Screening Values:

USEPA Ecological Soil Screen Levels, 2000, 2003, 2005

USEPA Region III BTAG Screen levels

USEPA Region 5 Ecological Soil Screening Levels, December 2003

Oak Ridge, R.A. Efroymson, G.W. Suter II, B.E. Sample, and D.S. Jones, Preliminary Remediation Goals for Ecological Endpoints, August 1997

Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process, 1997 Revision

Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on terrestrial Plants, 1997 Revisions

CCME - Canadain Environmental Quality Guidelines, December 2003

Dutch, Annexes Circular on target values and intervention values for soil remediation, February 2000

Selection Reason:

codes

Important Bioaccumulative Compounds (IBC) Above Screening Levels (ASL) No Screening Value (NSV)

Essential Nutrient (NUT) Deletion Reason:

Below Screening Level (BSL)

Individual Chemicals Evaluated (ICE) Neutral pH Value Expected for Soil (NPH)

COPC = Chemical of Potential Concern

Q = Qualifier

J = Estimated Value NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-1211 SURFACE WATER Table 7-2C

### SEAD-121C AND SEAD-1211 RI REPORT

#### Seneca Army Depot Activity

Rathmale for Contaminant Deletion or Selection 3		1881	BSI		184	BSI	BSC	VSI	NUL	1180	HSI	TIBIC	ASS	ISV	Title	BSI	OBC.	NUL	000	MIT	156	ASE
Flag		NO	ON	1000	YES	NO	NG	YES	ON	SSIA.	SOC	VES	Nus	VES	NO	NG	YES	NG	VER	NG	NO	YES
Source of Kereining Value 2		Region III INTAG	Report III BTAG	- Subsection Contraction	NYSDEC Class C	Region III BTAG	NYSDEC Class C	NRWOC, CCC		NRWOC. COC for	NYSDEC Class C	NRWOC, CCC NVBNBC Class C	NVSDBC/Clas.C.	NRWOCLCC		Regard III BTAG	NAWOC CCC NYSDEC, Class C		PERSONAL CHARLE		SYSTEM Chase	NYNDEC'ClassiC
Value (ug/L)		370	3.980.0	-	100	19,000	1,100	0.42	VZ	- Morri	MI	10	100	5.8	NA	14.500	100	NA	979	MA	14	(8)
Reporting Limits 1 (ug/L)		10 - 10	10 - 10		The same of	6.6 - 6.6	0.1 0.1	0.4 LO.N.		0.6 - 1.4	0.6 - 0.7	3.6 + 5.6	17.3. 11.1	21.12			19.2		1-3		11.00	
Frequency 1		111	11.7		777	617	613	147	717	5/7	21.7	679	5.7	4, 7	717	717	1/1	717	117	7/7	7 15	7.1.7
Maximum Maximum Concentration		SW1211-10	5W1211-6	A morning	5W1211-6	SW1211-1	SW1211-6	SW1211-TO	SW1211-1	SW1211-6	SW1211-6	SW1211-6	SW11111-6	SW1211-6	SWIZIE	SW1211-6	5W(2)16	SWIZII-6	8W121157	SWITTEIN	SW1233-6	SWITH-6
Maximum Detected Concentration (ug/L)		()			2,050	49.2	0.28	150	74,200	9	3	11.2	3,410	36.3	11,100	306	3.6	0.640	111	38.500	3.9	190
Minimum Detected Concentration (ug/L)		I III	1.1		23.9	12.5	0.34	0.54	18.000		3.8		32.3	43	3.635	0.8	3.5	645	2,45	2,240	2.1	12.5
Cheminal	Semiyolafile Organic Compounds	Butyfhercylphthalate	206-44-0 Fluoracher		Alluminum	Barium	Bervillum	Cathriting	Call um	7440-47-3  Cholmmin	Cale M			Lead	Magnesium	7439-96-5 Manyanese	Metal	Printestorn	8 lenum	Sorlium	Variadium	Zim
Number	Semiyolati	115-68-7	206-44-0	Nietals	7429-90-5 1-Aluminum	7440-39-3	744041-7		7440-70-2 Call um	7440-47-3	7440-48-4   Cabett	1/40-50-8	7439-89-6 Lich	7439-92-1 Lead	7439-95-4	7439.96-5	7440-0240	7440.09-7	Part (Sale)	744(1-23-5 Sodium)	7440-62-2 Vanadium	7440-66-6 Zim

1. Field duplicates were averaged and regarded as one entry. Half the reporting limits were assumed for non-detects for the average calculation.

Range of reporting limits were presented for nondetects only.

Laboratory duplicates were not included in the assessment. The maximum detected concentration was used for screening.

NYSDEC. 1998 with addendum. New York State Ambient Water Quality Standards, Class C for Surface Water.

USEPA. 2002. National Recommended Water Quality Criteria: 2002.

USEPA Region III. 1995. Region III BTAG Screening Levels.

Hardness for surface water was assumed to be 100 mg/L (CaCO3).

Selection Reason: Above Screening Levels (ASL) No Screening Value (NSV)

3. Rationale codes

Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)
Individual Chemicals Evaluated (ICE)
Neutral pH Value Expected for Soil (NPH)
COPC = Chemical of Potential Concern
Q = Qualifier
J = Estimated Value Important Bioaccumulative Compounds (IBC)

Definitions:

### Policy Goals, Ecological Assessment and Measurement Endpoints, and Decision Rules SEAD-121C and SEAD-121I RI Report Table 7-3

### Seneca Army Depot Activity

Policy Goals	Assessment Endpoint	Measurement Endpoint	Decision Rule
Goal: The protection of gical species in undeveloped capable of sustaining wildlife ations in the vicinity of the	Assessment Endpoint: Survival and reproduction of wildlife populations in the area of the sites. Four mammalian receptors (deer mouse, short-tailed slurew, meadow vole, and red fox) and one avian receptor (American robin) were selected to represent terrestrial populations at the sites. An additional avian receptor (great blue heron) was selected to evaluate potential exposure to ditch soil and surface water.	Assessment Endpoint: Survival and reproduction of wildlife populations in the area of the sites. Four mammalian receptors (deer mouse, short-tailed shrew, meadow vole, and red fox) and one avian receptor (American robin) were selected to represent terrestrial populations at the sites. An additional avian receptor (great blue heron) was selected to evaluate potential exposure to ditch soil and surface water.	Decision Rule for Assessment Endpoint ratios of estimated exposure dose predicte from COPC EPCs to NOAEL screening ecotoxicity values for adverse effects on identified receptors (HQs) are <1. then Assessment Endpoint is met and ecologica species are not at risk. If ratios are > 1, the COPC is retained as a preliminary COC for further evaluation. Final COCs are recommended based on an evaluation of the available weight of evidence.

= Chemical of potential concern

• Chemical of concern

Exposure point concentration

Hazard quotient

L = No observed adverse effect level

#### Table 7-4

#### CONVERSION FACTORS

#### SEAD-121C and SEAD-121I RI Report

#### Seneca Army Depot Activity

Category of Uncertainty	Conversion Factor <sup>(1)</sup>
Study Duration Conversion Factor <sup>(a)</sup>	
Chronic studies, equilibrium attained	1
Subchronic studies	10
Subacute studies	10
Acute studies	10
Single dose	10
Unknown	10
Endpoint Conversion Factor (for NOAEL endpoint)	
No-observed-effect level	1
No-observed-adverse-effect level	1
Lowest-observed-effect level	10
Lowest-observed-adverse-effect level	10
Effective concentration lethal to 50 percent of test population	10
Unknown	10
Endpoint Conversion Factor (for LOAEL endpoint)	
No-observed-effect level	0.1
No-observed-adverse-effect level	0.1
Lowest-observed-effect level	1
Lowest-observed-adverse-effect level	1
Effective concentration lethal to 50 percent of test population	10
Unknown	10

SEV = Screening Ecotoxicity Values

NOAEL = No Observed Adverse Effect Level

LOAEL = Lowest Observed Adverse Effect Level

- (1) The product of the appropriate conversion factor from each uncertainty category becomes the conversion factor applied to develop the constituent-specific SEV.
- (a) For the purposes of the Ecological Screening Level Risk Assessment, the following study duration definitions were applied:

Chronic - Greater than 90 days (gestation day studies considered chronic exposure).

Subchronic - From 30 to 90 days.

Subacute - From 7 to 29 days.

Acute - Less than 7 days.

	COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose	Total (CE)	
MOAEL/oral garage/days-6-12 of gestation/reproduction   Sample et al., 1996   263.6   10	olatile Organic Compounds				(6)4		(11)27
The compounds	nzene	mouse	LOAEI/oral gavage/days6-12 of gestation/reproduction	Sample et al., 1996	263.6	01	2.7
No AEL/Graft (Sample et al., 1996         2.1         1           Regarder Compounds         No AEL/Graft (Sample et al., 1996         2.19.2         1           Of ED/Saution of Compounds         Sample et al., 1996         2.19.2         1           Offer (Sample et al., 1996)         Include (Sample et al., 1996)         10         10           Offer (Sample et al., 1996)         Include (Sample et al., 1996)         10         10           Offer (Sample et al., 1996)         Include (Sample et al., 1996)         Inclu	nyl benzene	rat	NOAELJoral gavage/182 days/oral bioassay	Wolf et al., 1956, as cited in IRIS, 1991	97.1	-	
In Organise Compounds	eta/Para Xylene	mouse	NOAEL/oral gavage/days 6-15 of gestation/reproduction	Sample et al., 1996	2.1		2.
true         MOAEL/Good consumption of months/reproduction for 2-methylphenol         Sample et al., 1996         110         10           true         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           ylene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           branck/alpyrene used as surregate         branck/alpyrene used as surregate         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           cherack/alpyrene used as surregate         branck/alpyrene used as surregate         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           noranthene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           perylene         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           perylene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           pertracol/alpyrene used as surrogate         trit         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           <	mivolatile Organic Compound	İs					
cnee         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           wouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           characolpyprare used as surrogate         Bonzoch/pyprare used as surrogate         Sample et al., 1996         10         10           thracene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           trene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           trene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           perzylene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           herzylene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           herzylphthalate         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           panthracene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction,         Sample	or 4-methylphenol	mink	NOAEL/food consumption/6 months/reproduction for 2-methylphenol	Sample et al., 1996	219.2	_	2.
DAEL/gestation days 7-16 crit. Lifestage/Reproduction, Sample et al., 1996   10   10	enaphthene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	01	,d
House   LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, Sample et al., 1996   10   10	enaphthylene	mouse	LOAEL/gestation days 7-16 cril. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	g-100
Induse         LOAEU/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           Arene         Inouse         LOAEU/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           prorylene         mouse         LOAEU/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           prorylene         mouse         LOAEU/gestation days 7-16 crit. Lifestage/Reproduction,         Sample et al., 1996         10         10           herzo(a)pyrene used as surrogate         LOAEU/gestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           herzo(a)pyrene used as surrogate         nouse         NOAEU/gost onsumption/105 days/reproduction         Sample et al., 1996         18.3         1           phithbalate         rat         IDS/doral         Sax, 1984         500         100           rat         LOAEU/gestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           panthmacere         mouse         LOAEU/gestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           rat         mouse         LOAEU/gestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996	ıthracene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	
rene         mouse         LOAEUgestation days 7-16 crit. Lifestage/Reproduction, perula, 1996         Sample et al., 1996         10         10           norranthene         mouse         LOAEUgestation days 7-16 crit. Lifestage/Reproduction, perulate         Sample et al., 1996         10         10           perylene         mouse         LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         Sample et al., 1996         10         10           lhexylphthalate         mouse         LOAEUgestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         18.3         1           lhexylphthalate         mouse         NOAEL/Giet, 6 months/body weight         NTP, 1983, as cited in RIS, 159         1           phthalate         rat         LOAEUgestation days 7-16 crit. Lifestage/Reproduction, sample et al., 1996         10         10           mouse         LOAEUgestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           ran         LOAEUgestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           ran         LOAEUgestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           ran         mouse         LOAEUgestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996 </td <td>:nzo(a)anthracene</td> <td>mouse</td> <td>LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate</td> <td>Sample et al., 1996</td> <td>10</td> <td>01</td> <td>1.</td>	:nzo(a)anthracene	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	1.
uoranthene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, bernzo(a)pyrene used as surrogate         Sample et al., 1996         10         10           uperylene         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, bernzo(a)pyrene used as surrogate         Sample et al., 1996         10         10           uoranthene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, bernzo(a)pyrene used as surrogate         Sample et al., 1996         18.3         1           Ihexyl)phthalate         mouse         NOAEL/giet, 6 months/body weight         NTP, 1985, as cited in IRIS, 159         1           Iphthalate         rat         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         Sample et al., 1996         10         10           nouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         Sample et al., 1996         10         10           ran         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         Sample et al., 1996         10         10           ran         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         LoAEL/gestation days 7-16 crit. Lifestage/Reproduction, sample et al., 1996         10         10	nzo(a)pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction	Sample et al., 1996	10	91	1.
perylene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         LoAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         LoAEL/gestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           Ihexyl)phthalate         mouse         NOAEL/giet, 6 months/body weight         NTP, 1985, as cited in RIS, 159         1         1           Iphthalate         rat         NOAEL/giet, 6 months/body weight         NTP, 1985, as cited in RIS, 159         1         100           Iphthalate         rat         LD50/oral         Sax, 1984         500         100         100           Inouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         LoAEL/gestation days 7-16 crit. Lifestage/Reproduction, sample et al., 1996         10         10           ran         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, sample et al., 1996         10         10           ran         benzo(a)pyrene used as surrogate         LoAEL/gestation days 7-16 crit. Lifestage/Reproduction, sample et al., 1996         10         10           ran         benzo(a)pyrene used as surrogate         NOAEL/105 days         10         10         10	snzo(b)fluoranthene	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	0	<del></del>
uoramthene         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         Sample et al., 1996         10         10           Ihcxyl)phthalate         mouse         NOAEL/flood consumption/105 days/reproduction         NTP, 1985, as cited in RIS, 159         159         1           Alphthalate         rat         NOAEL/flood consumption/105 days/reproduction         Sax, 1984         500         100           Incompanie         LD50/oral         Sax, 1984         500         100         100           Incompanie         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           Incompanie         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction         Sample et al., 1996         10         10           Incompanie         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         Sample et al., 1996         10         10           Incompanie         Mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         NOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate         10         10         10	snzo(ghi)perylene	ทางเเรย	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	<u> </u>
Ihexyl)phthalate         mouse         NOAEL/food consumption/105 days/reproduction         Sample et al., 1996         18.3         1           //phthalate         rat         NOAEL/diet, 6 months/body weight         NTP, 1985, as cited in IRIS, 159         159         1           //phthalate         rat         LD50/oral         500         100         100           //phthalate         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, and the et al., 1996         10         10         10           //pathalate         mouse         LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate benzo(a)pyrene used as surrogate crit. Lifestage/Reproduction, and the et al., 1996         10         10         10	enzo(k)fluoranthenc	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	
Alphthalate         rat         NOAEL/diet, 6 months/body weight         NTP, 1985, as cited in IRIS, 159         159         1           Indeptity and the proof of process of the proof of the proo	s(2-Ethylhexyl)phthalate	mouse	NOAEL/food consumption/105 days/reproduction	Sample et al., 1996	18.3	_	
Tait   LD50/oral   Sax, 1984   500   100   100	atylbenzylphthalate	rat	NOAEL/diet, 6 months/body weight	NTP, 1985, as cited in IRIS, 1993	159		_
mouse LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, Sample et al., 1996 10 10 benzo(a)pyrene used as surrogate cne mouse LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, Sample et al., 1996 10 10 benzo(a)pyrene used as surrogate mouse NOAEL/105 days 10 crit. Lifestage/Reproduction, Sample et al., 1996 10 10 loadely 100 10 10 loadely 100 10 10 10 10 10 10 10 10 10 10 10 10	ırbazolc	rat	LD50/oral	Sax, 1984	800	100	6.
mouse LOAEL/gestation days 7-16 crit. Lifestage/Reproduction Sample et al., 1996 10  LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, Sample et al., 1996 10  benzo(a)pyrene used as surrogate  mouse NOAEL/105 days 7500	ırysene	monse	LOAEU gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	10	
mouse LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, Sample et al., 1996 10 benzo(a)pyrene used as surrogate mouse NOAEL/105 days 7500	ibenz(a,h)anthracene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction	Sample et al., 1996	01	01	_
mouse NOAEL/105 days	benzofuran	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	<del>-</del>
	-n-octylphthalate	mouse	NOAEL/105 days	USEPA, 1999	7500	-	7

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COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose	Total	,
				(mg/ng/day)	1	(mg/
noranthene	monse	LOAEL/13 wks/hepatic effects	ATSDR, 1995	125	01	J.
uorene	mouse	LOAEL/13 wks/hepatic effects	ATSDR, 1995	125	10	1
exachlorobenzene	rat	NOAEL/chronic(>247days)	USEPA, 1999	9.1	-	1.
deno(1,2,3-cd)pyrene	mouse	LOAEL/gestation days 7-16 crit. 1.ifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	01	-
aphthalene	mouse	LOAEL/diet, 81 wks/respiratory	ATSDR, 1995	71.6	. 01	7.
icnauthrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	01	1.
netrol	rat	NOAEL/oral gavage, gestation/developmental	NTP, 1983, as cited in IRIS, 2002	09	_	7.
теле	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	-
CBs	AN THE TRANSPORTER OF THE PROPERTY OF THE PROP					
roclor-1242	mink	LOAEL/diet, 7 months/reproduction	Sample et al., 1996	69.0	10	8
roclor-1254	mink	NOAEL/diet, 4.5 months/reproduction	Sample et al., 1996	0.137	-	I
roclor-1260	mink	NOAEL/diet, 4.5 months/reproduction, Aroclor-1254 used as a	Sample et al., 1996	0.137	-	-
14.10AAM. 4	111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	surrogate				
ssticides						
4-DDD	mouse	NOAEL/78 weeks, respiratory, female	ATSDR, 2002	142	-	garante.
4'-DDE	rat	NOAEL/5 weeks	USEPA, 1999	10	10	
4'-DDT	rat	NOAEL/2 yr reproduction, oral	Sample et al., 1996	8.0	_	9
ldrin	Tat	NOAEL/diet, 3 generations/reproduction	Sample et al., 1996	0.2	_	2
lpha-Chlordane	monse	NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate	Sample et al., 1996	4.58	_	4
elta-BHC	rat	NOAEL/diet, 13 weeks/growth, blood chemistry, organic histology, beta-BHC used as a surrogate	Sample et al., 1996	4	_	4
ieldrin	rat	LOAEL/diet, 3 generations/reproduction	Sample et al., 1996	0.2	10	2
ndosulfan I	rat	NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate	Sample et al., 1996	1.5	10	
ndosulfan II	rat	NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate	Sample et al., 1996	1.5	10	-
ndrin	mouse	LOAEL/120 d, reproduction	Sample et al., 1996	0.92	10	6
ndrin ketone	mouse	LOAEL/120 d, reproduction, endrin used as surrogate	Sample et al., 1996	0.92	10	5.
amma-Chlordane	mouse	NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate	Sample et al., 1996	4.58		4

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#### NOAEL SCREENING ECOTOXICITY VALUES - DEER MOUSE SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-5A

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose	Total	
				(mg/kg/day)	CF <sup>(1)</sup>	(mg
eptachior	mink	LOAEL/181 d, reproduction	Sample et al., 1996	-	10	-
cptachlor epoxide	mink	LOAEL/181 d, reproduction, heptachlor used as a surrogate	Sample et al., 1996		10	_
10rganics			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
luminum	mouse	LOAEL/mouse over 3 generations, >1 yr/reproduction	Sample et al., 1996	19.3	10	7
ntimony	mouse	LOAEL/lifetime/lifespan, longevity	Sample et al., 1996	1.25	10	-
rsenic		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	1.04	_	_
arium		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	51.8	_	5
admium	rat	NOAEL/6 wks through mating and gestation/reproduction	Sample et al., 1996	-		-
hromium	rat	NOAEL/90 d and 2 yr/reproduction, longevity, Cr(III)	Sample et al., 1996	2737	_	3
hromium, Hexavalent	rat	NOAEL/1 yr/body weight and food consumption	Sample et al., 1996	3.28	-	3
obalt	rabbit	LOAEL/over 2 wks/cardiac, for cobalt sulfate	RTECS, 2004	140	001	_
opper	mink	NOAEL/357 d/reproduction	Sample et al., 1996	11.7	-	_
yanide	rat	NOAEL/diet, gestation and lactation/reproduction	Sample et al., 1996	68.7	-	<i>σ</i> 5
uo	Child	Based on the dictary reference intake for a child	Marilyn 2001	0.67	_	
ead	Rat	Reproductive / 3 generations oral / NOAEL	Sample et al. 1996	8	1	6
fanganese	rat	NOAEL/through gestation for 224 day/reproduction	Sample et al. 1996	88	_	
fercury	mink	NOAEL/1 yr/reproduction, mercuric sulfide	Sample et al. 1996	0:1	_	
lickel	Rat	Reproduction / 3 generations diet / NOAEL	Sample et al. 1996	40	_	7
elenium	rat	NOAEL/1yr through 2 generations/reproduction	Sample et al. 1996	0.20	_	
ilver	mouse	LOAEL/125 days/hypoactivity	USEPA, 1999	3.75	10	
hallium	rat	LOAEL/60 days/testicular function	USEPA, 1999	1.31	10	
anadium		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	4.16	_	,
inc	Rat	Reproduction / day 1-16 of gestation diet / NOAEL	Sample ct al. 1996	160		

OAEL = No Observed Adverse Effect Level

OPC = Chemical of Potential Concern

The Conversion Factor

EV = Screening Ecotoxicity Values

Service Table 7-4

Service Table 7-4

Service Total CF

Service Total CF

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COLO (1153) CIBARISHI CIRCUMO (1154)	Duration / Effect (survival, growth, reproduction)	Source	Effect Dose	Total	
			(mg/kg/day)	CF <sup>(1)</sup>	(mg/

#### Scaling Factors for Toxicity Values:

 $SEV_w = SEV_t * (bw_t / bw_w)^{(1-b)}$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively,

and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

For birds, the scaling factor was 1.

	of orders, the security factor was 1.	
om Test	To:	Body Weight
ecies	Deer Mouse	(kg)
deJ	Lab Mouse 1.04	0.03
	Rat 1.21	0.35
	Mink 1.29	year
	Rabbit 1.39	3.8
	Child 1.51	15
. 7	Hamster 1.13	0.11
Dee	Dear Mouse 1 00	0.0148

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### NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-5B

COPC	Test	Endpoint / Duration / Effect (survival,	Source	Effect Dose	Total	SEV
	Organism	growth, reproduction)		(mg/kg/day)	$CF^{(1)}$	(mg/kg/day
Volatile Organic Compounds						
Benzene	mouse	LOAEUoral gavage/days6-12 of gestation/reproduction	Sample et al., 1996	263.6	10	2.75E+01
Ethyl benzene	rat	NOAEL/oral gavage/182 days/oral bioasay	Wolf et al., 1956, as cited in IRIS, 1991	97.1		1.17E+02
Meta/Para Xylenc	mouse	NOAEL/oral gavage/days 6-15 of gestation/reproduction	Sample et al., 1996	2.1		2.19E+00
Semivolatile Organic Compounds	s					
3 or 4-methylphenol	mink	NOAEI/food consumption/6 months/reproduction for 2-methylphenol	Sample et al., 1996	219.2	pood.	2.82E+02
Acenaphthene	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	10	1.04E+00
Acenaphthylene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	1.04E+00
Anthracene	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	1.04E+00
Benzo(a)anthracene	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	1.04E+00
Вепго(а)ругепе	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction	Sample et al., 1996	10	10	1.04E+00
Benzo(b)fluoranthene	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	10	1.04E+00
Benzo(ghi)perylene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	1.04E+00

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SEV (mg/kg/day
Benzo(k)fluoranthene	mouse	LOAE1/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrcne used as surrogate	Sample et al., 1996	10	10	1.04E+00
Bis(2-Ethylhexyl)phthalate	mouse	NOAEL/food consumption/105 days/reproduction	Sample ct al., 1996	18.3	_	1.91E+01
Butyłbenzylphthalate	rat	NOAEL/diet, 6 months/body weight	NTP, 1985, as cited in IRIS, 1993	159	-	1.92E+02
Carbazole	rat	LD50/orai	Sax, 1984	500	100	6.04E+00
Chrysene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	1.04E+00
Dibenz(a,h)anthracene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrcne used as surrogate	Sample et al., 1996	10	10	1.04E+00
Dibenzofuran	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	1.04E+00
Di-n-octylphthalate	nouse	NOAEL/105 days	USEPA, 1999	7500	-	7.82E+03
Fluoranthene	mouse	LOAEL/13 wks/hepatic effects	ATSDR, 1995	125	10	1.30E+01
Fluorene	mouse	LOAEL/13 wks/hepatic effects	ATSDR, 1995	125	10	1.30E+01
Hexachlorobenzene	rat	NOAEL/chronic(>247days)	USEPA, 1999	1.6	-	1.93E+00
Indeno(1,2,3-cd)pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrcne used as surrogate	Sample et al., 1996	10	10	1.04E+00
Naphthalene	mouse	LOAEL/diet, 81 wks/respiratory	ATSDR, 1995	71.6	10	7.46E+00
Phenanthrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	10	1.04E+00
Phenol	rat	NOAEL/oral gavage, gestation/developmental	NTP, 1983, as cited in IRIS, 2002	09	_	7.25E+01
Pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	1.04E+00

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COPC	Test	Endpoint / Duration / Effect (survival,	Source	Effect Dose	Total	SEV
	Organism	growth, reproduction)		(mg/kg/day)	$\mathbf{CF}^{(1)}$	(mg/kg/da
PCBs						
Aroclor-1242	mink	LOAEL/diet, 7 months/reproduction	Sample et al., 1996	69.0	01	8.88E-02
Aroclor-1254	mink	NOAEL/diet, 4.5 months/reproduction	Sample et al., 1996	0.137	-	1.76E-01
Aroclor-1260	mink	NOAEL/diet, 4.5 months/reproduction, Aroclor-1254 used as a surrogate	Sample et al., 1996	0.137	_	1.76E-01
Pesticides						
4,4'-DDD	mouse	NOAEL/78 wecks, respiratory, female	ATSDR, 2002	142	-	1.48E+02
4,4'-DDE	rat	NOAEL/5 weeks	USEPA, 1999	01	10	1.21E+00
4,4'-DDT	rat	NOAEL/2 yr reproduction, oral	Sample et al., 1996	8.0		9.66E-01
Aldrin	rat	NOAEL/diet, 3 generations/reproduction	Sample et al., 1996	0.2		2.42E-0]
Alpha-Chlordane	mouse	NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate	Sample et al., 1996	4.58		4.77E+0
Delta-BHC	rat	NOAEL/diet, 13 wecks/growth, blood chemistry, organi histology, beta-BHC used as a surrogate	Sample et al., 1996	4		4.83E+00
Dieldrin	rat	LOAEL/dict, 3 generations/reproduction	Sample et al., 1996	0.2	10	2.42E-0.
Endosulfan 1	rat	NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate	Sample et al., 1996	1.5	10	1.81E-0
Endosulfan II	rat	NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate	Sample et al., 1996	1.5	01	1.81E-0
Endrin	mouse	LOAEL/120 d, reproduction	Sample et al., 1996	0.92	01	9.59E-0
Endrin ketone	mouse	LOAEL/120 d, reproduction, endrin used as surrogate	Sample et al., 1996	0.92	01	9.59E-0
Gamma-Chlordane	mouse	NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate	Sample et al., 1996	4.58	_	4.77E+0
Heptachlor	nıink	LOAEL/181 d, reproduction	Sample et al., 1996	_	10	1.29E-0

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### NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-5B

COPC	Test	Endpoint / Duration / Effect (survival,	Source	Effect Dose	Total	SEV
	Organism	growth, reproduction)		(mg/kg/day)	$\mathrm{CF}^{(1)}$	(mg/kg/day
Heptachior epoxide	mink	LOAEL/181 d, reproduction, heptachlor used as a surrogate	Sample et al., 1996		10	1.29E-01
Inorganics						
Aluminum	mouse	LOAEL/mouse over 3 generations, >1 yr/reproduction	Sample et al., 1996	19.3	10	2.01E+00
Antimony	mouse	LOAEL/lifetime/lifespan, longevity	Sample et al., 1996	1.25	10	1.30E-01
Arsenic		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	1.04	-	1.04E+00
Barium		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	51.8		5.18E+01
Cadmium	rat	NOAEL/6 wks through mating and gestation/reproduction	Sample et al., 1996		-	1.21E+00
Chromium	rat	NOAEL/90 d and 2 yr/reproduction, longevity, Cr(III)	Sample et al., 1996	2737		3.31E+03
Chromium, Hexavalent	rat	NOAEL/1 yr/body weight and food consumption	Sample et al., 1996	3.28		3.96E+00
Cobalt	rabbit	LOAEL/over 2 wks/cardiac, for cobalt sulfate	RTECS, 2004	140	100	1.95E+00
Copper	mink	NOAEL/357 d/reproduction	Sample et al., 1996	11.7	_	1.51E+01
Cyanide	rat	NOAEL/diet, gestation and lactation/reproduction	Sample et al., 1996	68.7		8.30E+01
Iron	Child	Based on the dictary reference intake for a child	Marilyn 2001	29.0		1.01E+00
Lead	Rat	Reproductive / 3 generations oral / NOAEL	Sample et al. 1996	∞	-	9.66E+00
Mangancse	rat	NOAEL/through gestation for 224 day/reproduction	Sample et al. 1996	88	-	1.06E+02
Mercury	mink	NOAEL/1 yr/reproduction, mercuric sulfide	Sample et al. 1996	1.0	7	1.29E+00
Nickel	Rat	Reproduction / 3 generations diet / NOAEL	Sample et al. 1996	40	_	4.83E+01
Selenium	rat	NOAEL/1yr through 2 generations/reproduction	Sample et al. 1996	0.20	-	2.42E-01
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#### NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-5B

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose Total SEV (mg/kg/day)	Total CF <sup>(1)</sup>	SEV (mg/kg/day
Silver	mouse	LOAEL/125 days/hypoactivity	USEPA, 1999	3.75	01	3.91E-01
Thallium	rat	LOAEI/60 days/testicular function	USEPA, 1999	1.31	10	1.58E-01
Vanadium		The geometric mean of the NOAEL values for	USEPA, 2005	4.16	-	4.16E+00
		reproduction and growth				
Zinc	Rat	Reproduction / day 1-16 of gestation diet / NOAEL	Sample et al. 1996	091	grand	1.93E+02

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

(1) For CFs, see Table 7-4

(2) SEV = Effective Dose x Scaling Factor / Total CF

### Scaling Factors for Toxicity Values:

 $SEV_w = SEV_t * (bw_t / bw_w)^{\wedge}(1-b)$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively,

and b is the allometric scaling factor (b=0.94 for mannmals, Sample et al., 1999)

From Test	To:	Body Weight
Species	Short-Tailed Shrew	(kg)
Lab Mouse	1.04	0.03
Rat	1.21	0.35
Mink	1.29	,
Rabbit	1.39	3.8
Child	1.51	15
Hamster	1.13	0.11
Short-Tailed Shrew	1.00	0.015

#### References:

Agency for Toxic Substances and Disease Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html. Sample ct al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

#### NOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-5B

COPC	Test	Endpoint / Duration / Effect (survival,	Source	Effect Dose	Total	SEV
	Organism	growth, reproduction)		(mg/kg/day)	$CF^{(1)}$	(mg/kg/day

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

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TABLE 7-5C

NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON

SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(3)</sup>	SE' (mg/kg/
Volatile Organic Compounds						
Benzene		Ecotoxicity values not identified	not identified			
Ethyl benzene		Ecotoxicity values not identified	ot identified			
Meta/Para Xylene	Japanese quail	NOAEL/diet, 5 days	Hill and Camardese, 1986	667		6.67E
Semivolatile Organic Compounds	S	The state of the s				
3 or 4-Methylphenol	red-winged blackbird	LD50/diet, 18 hours/mortality	Schafer et al., 1983	96	100	9.60E
Acenaphthene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Acenaphthylene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Anthracene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Benzo(a)anthracene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eísler, 1987	285	10	2.85E
Benzo(a)pyrene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Benzo(b)fluoranthene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Benzo(ghi)perylene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Benzo(k)fluoranthene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Bis(2-Ethylhexyl)phthalate	ringed dove	NOAEL/diet 4 weeks/reproduction	Sample et al., 1996	-:	-	1.10E
Butylbenzylphthalate	ringed dove	NOAEL/diet 4 weeks/reproduction, bis(2- ethylhexyl)phthalate used as a surrogate	Sample et al., 1996	***************************************		1.10E
Carbazole	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Chrysene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E

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### TABLE 7-5C NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SE'
Dibenz(a,h)anthracene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Dibenzofuran	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Di-n-octylphthalate	ring-necked pheasant	LD50/oral in diet, 5-days exposure; 3-days observation	Hill et al., 1975	1160	100	1.16E
Fluoranthene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Fluorene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Hexachlorobenzene	coturnix quail	NOAEL/5 days	USEPA, 1999	22.5	10	2.25E
Indeno(1,2,3-cd)pyrene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	2.85E
Naphthalcne	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	01	2.85E
Phenanthrene	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	10	. 2.85E
Phenol	red-winged blackbird	LD50/oral, 18 hrs/mortality	Schafer et al., 1983	113	100	1.13E
Рутепе	mallard	LOAEL/diet 7 months/physiological for mixed PAHs	Eisler, 1987	285	01	2.85E
PCBs	The state of the s	A service reconstitution and the service services and the services are the services and the services and the services and the services and the services and the services are the services and the services and the services are the services and the services are the services and the services are the services and the services are the services and the services are the services and the services are the services and the services are the services and the				
Aroclor-1242	screech owl	NOAEL/diet, 2 generations/reproduction	Sample et al., 1996	0.41	-	4.10E
Aroclor-1254	ring-necked pheasant	LOAEL/oral via gelatin capsule, 17 weeks/reproduction	Sample et al., 1996	1.8	10	1.80
Aroclor-1260	ring-nccked pheasant	LOAEL/oral via gelatin capsulc, 17 weeks/reproduction, Aroclor-1254 used as a surrogate	Sample et al., 1996	8.1	10	1.80
Pesticides						
4,4'-DDD	Coturnix quail	Acute (5 days) LOAEL (mortality), 4,4'-DDE used as surrogate	USEPA, 1999	84.5	001	8.451
4,4'-DDE	Coturnix quail	Acute (5 days) LOAEL (mortality)	USEPA, 1999	84.5	100	8.451

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# TABLE 7-5C NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SE (mg/kg/
4,4'-DDT	brown pelican	LOAEL/diet, 5 yr, reproduction	Sample et al., 1996	0.028	10	2.801
Aldrin	starling	LD50/oral, 18 hours/mortality	Schafer et al., 1983	5	100	5.001
Alpha-Chlordane	red-winged blacklyird	NOAEL/diet, 84 days/mortality	Sample et al., 1996	2.14		2.14E
Delta-BHC	Japanese quail	NOAEL/diet, 90 days/reproduction for BHC mixed isomers	Sample et al., 1996	0.563	-	5.631
Dieldrin	ратп owl	NOAEL/diet, 2 years/reproductions	Sample et al., 1996	0.077	_	7.701
Endosulfan 1	gray patridge	NOAEL/4 weeks critical lifestage, reproduction, endosulfan used as surrogate	Sample et al., 1996	0.	_	1.00
Endosulfan II	gray patridge	NOAEL/4 weeks critical lifestage, reproduction, endosulfan used as surrogate	Sample et al., 1996	10		1.001
Endrin	mallard duck	NOAEL/>200d, reproduction	Sample et al., 1996	0.3	-	3.001
Endrin ketone	mallard duck	NOAEL/>200d, reproduction, endrin used as a surrogate	Sample et al., 1996	0.3	-	3.001
Gamma-Chlordane	red-winged blackbird	NOAEL/diet, 84 days/mortality	Sample et al., 1996	2.14	-	2.14
Heptachlor	quail	heptachlor used as a surrogate	USEPA, 1999	6.5	100	6.50
Heptachlor epoxide	quail	LOAEL/5 days, mortality, heptachlor used as a surrogate	USEPA, 1999	6.5	100	6.50
Inorganics					1 to 1 to 1 to 1 to 1 to 1 to 1 to 1 to	
Aluminum	ringed dove	NOAEL/4 months/reproduction	Sample et al., 1996	1.601	-	1.10
Antimony		Screening Ecological Value not available	lue not available			
Arsenic	cowbird	NOAEL/7 months/mortality	Sample et al., 1996	2.46	-	2.46
Barium	chick	NOAEL/4 wk/mortality	Sample et al., 1996	208.26	10	2.08
Cadmium	mallard ducks	NOAEL/90 d/reproduction	Sample et al., 1996	1.45	_	1.45

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NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-5C

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SE'
Chromium		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	2.66	-	2.66E
Chromium, Hexavalent	black duck	NOAEL/10 month/reproduction for Cr(III)	Sample et al., 1996	proof	-	1.00E
Cobalt	chicken	Toxic dietary concentration	NRC 1994	100	-	1.00E
Соррег	chick	NOAEL/10 weeks/growth, mortality	Sample et al., 1996	47	-	4.70E
Cyanide	day-old chick	NOAEL/diet, 8 weeks/survival, growth, histology, hemoglobin, hematocrit, and lymphocyte number	Gomez et al. 1988, as cited in Eisler, 1987	4	10	4.00E
Iron	Chicken	Toxic dictary concentration	NRC, 1994	4500	_	4.50E
Lead	American Kestrels	NOAEL/7 months/reproduction	Sample et al. 1996	3.85	-	3.85E
Manganese	Japanese quail	NOAEL/75 d/growth, aggressive behavior	Sample et al. 1996	617	01	9.77E
Mercury	Japanese quail	NOAEL/1 yr/reproduction, mercuric chloride	Sample et al. 1996	0.45	1	4.50E
Nickel	mallard duckling	NOAEL/90 d/mortality, growth, behavior	Sample et al. 1996	77.4	-	7.74E
Selenium	mallard duck	NOAEL/78 days/reproduction	Sample et al. 1996	0.5	_	5.00E
Silver	mallard	NOAEL/14 days	USEPA, 1999	1780	10	1.78E
Thallium	wild bird	Lowest lethal dose to wild bird	RTECS, 2004	37	100	3.70E
Vanadium	mallard duck	NOAEL/12 wks/mortality, body weight, blood chemistry	Sample et al. 1996	11.4	-	1.145
Zinc	Leghorn hen and New Hampshire rooster	NOAEL/44 wks	USEPA, 1999	130.9		1.31E

NOAEL = No Observed Adverse Effect Level
COPC = Chemical of Potential Concern
CF = Conversion Factor
SEV = Screening Ecotoxicity Values
(1) For CFs, see Table 7-4

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#### NOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-5C

(mg/kg/	$CF^{(1)}$	(mg/kg/day)	Source	growth, reproduction)	Test Organism	COPC
SE	Total	Effect Dose		Endpoint / Duration / Effect (survival,		

(2) SEV = Effective Dose x Scaling Factor / Total CF

References:

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National Research Council. 1994. Nutrient Requirements of Poultry. USEPA. ECOTOX Database. On-line resources available at http://www.epa.gov/ecotox/

	Test	Endpoint / Duration / Effect (survival.		Effect Dose	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)	$\mathrm{CF}^{(1)}$	(mg/kg/day) <sup>(2)</sup>
Volatile Organic Compounds						
Вепzene	mouse	LOAEI/oral gavage/days6-12 of gestation/reproduction	Sample et al., 1996	263.6	10	2.59E+01
Ethyl benzene	rat	NOAEL/oral gavage/182 days/oral bioasay	Wolf et al., 1956, as cited in IRIS, 1991	97.1	-	1.11E+02
Meta/Para Xylene	mouse	NOAEL/oral gavage/days 6-15 of gestation/reproduction	Sample et al., 1996	2.1	-	2.07E+00
Semivolatile Organic Compounds						
3 or 4-methylphenol	mink	NOAEL/food consumption/6 months/reproduction for 2-methylphenol	Sample et al., 1996	219.2	puss	2.66E+02
Acenaphthene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	9.84E-01
Accnaphthylene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	9.84E-01
Anthracene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	9.84E-01
Benzo(a)anthracenc	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	9.84E-01
Benzo(a)pyrenc	mouse	LOAE/L'gestation days 7-16 crit. Lifestage/Reproduction	Sample et al., 1996	10	10	9.84E-01
Benzo(b)fluoranthene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	9.84E-01
Benzo(ghi)perylene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	10	9.84E-01
Benzo(k) fluoranthene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	9.84E-01
Bis(2-Ethylhexyl)phthalatc	mouse	NOAEL/food consumption/105 days/reproduction	Sample et al., 1996	18.3		1.80E+01

	Test	Endpoint / Duration / Effect (survival,		Effect Dose	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)	CF <sup>(1)</sup>	(mg/kg/day) <sup>(2)</sup>
Butylbenzyłphthalate	rat	NOAEL/diet, 6 months/body weight	NTP, 1985, as cited in IRIS, 1993	6\$1		1.81E+02
Carbazole	rat	LD50/oral	Sax, 1984	500	100	5.70E+00
Chrysene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction. benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	9.84E-01
Dibenz(a,h)anthracene	mouse	LOAEU gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	9.84E-01
Dibenzofuran	mouse	LOAEL gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	0	0	9.84E-01
Di-n-octylphthalate	mouse	NOAEL/105 days	USEPA, 1999	7500	-	7.38E+03
Fluoranthene	топѕе	LOAEL/13 wks/hepatic effects	ATSDR, 1995	125	10	1.23E+01
Fluorene	mouse	LOAEL/13 wks/hepatic effects	ATSDR, 1995	125	10	1.23E+01
Hexachlorobenzene	rat	NOAEL/chronic(>247days)	USEPA, 1999	1.6	_	1.83E+00
Indeno(1,2,3-cd)pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	10	9.84E-01
Naphthalene	mouse	LOAEL/diet, 81 wks/respiratory	ATSDR, 1995	71.6	10	7.05E+00
Phenanthrene	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	10	9.84E-01
Phenol	rat	NOAEL/oral gavage, gestation/developmental	NTP, 1983, as cited in IRIS, 2002	09	-	6.84E+01
Pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	9.84E-01
PCBs						
Aroclor-1242	mink	LOAEL/diet, 7 months/reproduction	Sample et al., 1996	69.0	01	8.38E-02
Aroclor-1254	mink	NOAEL/diet, 4.5 months/reproduction	Sample et al., 1996	0.137		1.66E-01
Aroclor-1260	mink	NOAEL/diet, 4.5 months/reproduction, Aroclor-1254 used as a surrogate	Sample et al., 1996	0.137	1	1.66E-01
Pesticides						
4,4'-DDD	mouse	NOAEL/78 weeks, respiratory, female	ATSDR, 2002	142	-	1.40E+02
4,4'.DDE	rat	NOAEL/5 weeks	USEPA, 1999	10	10	1.14E+00

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COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SEV (mg/kg/day) <sup>(2)</sup>
4,4'.DDT	rat	NOAEL/2 yr reproduction, oral	Sampic et al., 1996	8.0	~	9.13E-01
Aldrin	rat	NOAEL/diet, 3 generations/reproduction	Sample et al., 1996	0.2		2.28E-01
Alpha-Chlordane	mouse	NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate	Sample et al., 1996	4.58	-	4.51E+00
Delta-BHC	rat	NOAEL/diet, 13 weeks/growth, blood chemistry, organi histology, beta-BHC used as a surrogate	Sample et al., 1996	4	-	4.56E+00
Dieldrin	rat	LOAEL/diet, 3 generations/reproduction	Sample et al., 1996	0.2	01	2.28E-02
Endosulfan I	rat	NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate	Sample et al., 1996	1.5	10	1.71E-01
Endosulfan II	rat	NOAEL/30 days, reproduction, blood chemistry, cndosulfan used as surrogate	Sample et al., 1996	1.5	10	1.71E-01
Endrin	тоизе	LOAEL/120 d, reproduction	Sample et al., 1996	0.92	10	9.06E-02
Endrin ketone	тоше	LOAEL/120 d, reproduction, endrin used as surrogate	Sample et al., 1996	0.92	10	9.06E-02
Gamma-Chlordanc	тоизе	NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate	Sample et al., 1996	4.58	_	4.51E+00
Heptachlor	mink	LOAEL/181 d, reproduction	Sample et al., 1996	-	10	1.21E-01
epoxide	mink	LOAEL/181 d, reproduction, heptachlor used as a surrogate	Sample et al., 1996	geral	10	1.21E-01
Inorganics		The state of the s				
Aluminum	mouse	LOAEL/mouse over 3 generations, >1 yr/reproduction	Sample et al., 1996	19.3	10	1.90E+00
Antimony	mouse	LOAEL/lifetime/lifespan, longevity	Sample et al., 1996	1.25	10	1.23E-01
Arsenic		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	1.04	-	1.04E+00
Ватіит		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2003	51.8	-	5.18E+01
Cadmium	rat	NOAEL/6 wks through mating and gestation/reproduction	Sample et al., 1996	-	yeen	1.14E+00
Chromium	rat	NOAEL/90 d and 2 yr/reproduction, longevity, Cr(III)	Sample et al., 1996	2737	-	3.12E+03

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SEV (mg/kg/day) <sup>(2)</sup>
Chromium, Hexavalent	rat	NOAEL/1 yn/body weight and food consumption	Sample et al., 1996	3.28	-	3.74E+00
Cobalt	rabbit	LOAEL/over 2 wks/cardiac, for cobalt sulfate	RTECS, 2004	140	100	1.84E+00
Copper	mink	NOAEL/357 d/reproduction	Sample et al., 1996	11.7		1.42E+01
Cyanide	rat	NOAEL/diet, gestation and lactation/reproduction	Sample et al., 1996	68.7	_	7.84E+01
Iron	Child	Based on the dietary reference intake for a child	Marilyn 2001	0.67	-	9.58E-01
Lead	Rat	Reproductive / 3 generations oral / NOAEL	Sample et al. 1996	∞	-	9.13E+00
Manganesc	rat	NOAEL/through gestation for 224 day/reproduction	Sample et al. 1996	88	-	1.00E+02
Mercury	mink	NOAEL/1 yr/reproduction, mercuric sulfide	Sample et al. 1996	1.0	-	1.21E+00
Nickel	Rat	Reproduction / 3 generations diet / NOAEL	Sample et al. 1996	40	-	4.56E+01
Selenium	rat	NOAEL/1yr through 2 generations/reproduction	Sample et al. 1996	0.20		2.28E-01
Silver	mouse	LOAEL/125 days/hypoactivity	USEPA, 1999	3.75	10	3.69E-01
Thallium	rat	LOAEL/60 days/testicular function	USEPA, 1999	1.31	10	1.49E-01
Vanadium		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	4.16		4.16E+00
Zinc	Rat	Reproduction / day 1-16 of gestation diet / NOAEL	Sample et al. 1996	091	-	1.83E+02

NOAEL = No Observed Adverse Effect Level COPC = Chemical of Potential Concern

CF = Conversion Factor
SEV = Screening Ecotoxicity Values
(1) For CFs, see Table 7-4
(2) SEV = Effective Dose x Scaling Factor / Total CF

Scaling Factors for Toxicity Values:

SEV<sub>w</sub> = SEV<sub>1</sub> \* (bw<sub>1</sub> / bw<sub>w</sub>) ^(1-b)

Where bw is the body weight, and t and w represent the test and wildlife species, respectively, and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

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#### NOAEL SCREENING ECOTOXICITY VALUES - MEADOW VOLE SEAD-121C and SEAD-1211 RI Report Seneca Army Depot Activity TABLE 7-5D

	Test	Endpoint / Duration / Effect (survival,		Effect Dose Total	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)   CF <sup>(1)</sup>   (mg/kg/day) <sup>(</sup>	$CF^{(1)}$	(mg/kg/day)
From Test	T0:		Weight			
Species	Red Fox	The state of the s	(kg)			
Lab Mouse 0.98	86.0		0.03			
Rat	Rat 1.14		0.35			
Mink 1.21	1.21					
Rabbit 1.32	ι 1.32		3.8			
Chile	Child 1.43		15			
Hamster 1.06	r 1.06		0.11			
Mcadow Vole	Volc 1.00		3.90E-02			

(2)

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	Test	Endpoint / Duration / Effect (survival,	ţ	Effect Dose	Total	SEV
Volatile Organic Communds	Organism	growth, reproduction)	Source	(mg/kg/day)		(mg/kg/day
Benzene	топѕе	LOAEL/oral gavage/days6-12 of gestation/reproduction	Sample et al., 1996	263.6	10	1.97E+01
Ethyl benzene	rat	NOAEL/oral gavage/182 days/oral bioasay	Wolf et al., 1956, as cited in IRIS, 1991	97.1		8.40E+01
Meta/Para Xylene	mouse	NOAEL/oral gavage/days 6-15 of gestation/reproduction	Sample et al., 1996	2.1	_	1.57E+00
Semivolatile Organic Compounds	S	L : Application of the control o				
3 or 4-methylphenol	mink	NOAEI /food consumption/6 months/reproduction for 2-methylphenol	Sample et al., 1996	219.2	wand	2.02E+02
Acenaphthene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01
Acenaphthylene	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01
Anthracene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01
Benzo(a)anthracene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	01	7.46E-01
Вепго(а)ругепе	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction	Sample et al., 1996	10	10	7.46E-01
Benzo(b)fluoranthene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01
Benzo(ghi)perylenc	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01

	-	Dadmaine / Dunastion / Defeat fanguituel		Effort Dogo	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)	$CF^{(1)}$	(mg/kg/day
Benzo(k)fluoranthene	mouse	LOAEL/gcstation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01
Bis(2-Ethylhexyl)phthalate	mouse	NOAEL/food consumption/105 days/reproduction	Sample et al., 1996	18.3	-	1.37E+01
Butylbenzylphthalate	rat	NOAEL/diet, 6 months/body weight	NTP, 1985, as cited in IRJS, 1993	159	_	1.38E+02
Carbazole	rat	LD50/oral	Sax, 1984	500	100	4.32E+00
Chrysene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01
Dibenz(a,h)anthracene	mouse	LOAEU gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01
Dibenzofuran	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01
Di-n-octylphthalate	monse	NOAEL/105 days	USEPA, 1999	7500	_	5.60E+03
Fluoranthene	monse	LOAEL/13 wks/hepatic effects	ATSDR, 1995	125	10	9.33E+00
Fluorene	mouse	LOAEL/13 wks/hepatic effects	ATSDR, 1995	125	10	9.33E+00
Hexachlorobenzene	rat	NOAEL/chronic(>247days)	USEPA, 1999	1.6	_	1.38E+00
Indeno(1,2,3-cd)pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01	01	7.46E-01
Naphthalene	mouse	LOAEL/diet, 81 wks/respiratory	ATSDR, 1995	71.6	10	5.34E+0(
Phenanthrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01
Phenoi	rat	NOAEL/oral gavage, gestation/deve.opmental	NTP, 1983, as cited in IRIS, 2002	09	-	5.19E+0
Pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	10	7.46E-01

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	Test	Endpoint / Duration / Effect (survival,	•	Effect Dose	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)	$CF^{(1)}$	(mg/kg/day
PCBs						
Aroclor-1242	mink	LOAEL/diet, 7 months/reproduction	Sample et al., 1996	69:0	10	6.36E-02
Aroclor-1254	mink	NOAEL/diet, 4.5 months/reproduction	Sample et al., 1996	0.137		1.26E-01
Aroclor-1260	mink	NOAEL/diet, 4.5 months/reproduction, Aroclor-1254 used as a surrogate	Sample et al., 1996	0.137	_	1.265-01
Pesticides						
4,4'-DDD	mouse	NOAEL/78 weeks, respiratory, female	ATSDR, 2002	142	-	1.06E+02
4,4'-DDE	rat	NOAEL/5 weeks	USEPA, 1999	10	10	8.65E-01
4,4'-DDT	rat	NOAEL/2 yr reproduction, oral	Sample et al., 1996	8.0	-	6.92E-01
Aldrin	rat	NOAEL/dict, 3 generations/reproduction	Sample ct al., 1996	0.2		1.73E-01
Alpha-Chlordane	mouse	NOAEL/diet, 6 generations/reproduction, chlordane used as a surrogate	Sample et al., 1996	4.58		3.42E+00
Delta-BHC	rat	NOAEL/diet, 13 weeks/growth, blood chemistry, organi histology, beta-BHC used as a surrogate	Sample et al., 1996	4		3.46E+00
Dieldrin	rat	LOAEL/diet, 3 generations/reproduction	Sample et al., 1996	0.2	10	1.73E-02
Endosulfan I	rat	NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate	Sample et al., 1996	1.5	01	1.30E-01
Endosulfan II	rat	NOAEL/30 days, reproduction, blood chemistry, endosulfan used as surrogate	Sample et al., 1996	1.5	01	1.30E-01
Endrin	mouse	LOAEL/120 d, reproduction	Sample et al., 1996	0.92	01	6.87E-02
Endrin ketone	mouse	LOAEL/120 d, reproduction, endrin used as surrogate	Sample et al., 1996	0.92	10	6.87E-02
Heptachlor epoxide	mink	LOAEL/181 d, reproduction, heptachlor used as a surrogate	Sample et al., 1996	1	10	9.21E-02
Gamma-Chlordane	mouse	NOAEL/dict, 6 generations/reproduction, chlordane used as a surrogate	Sample et al., 1996	4.58	-	3.42E+00

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COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SEV (mg/kg/day
Heptachlor	mink	LOAEL/181 d, reproduction	Sample et al., 1996	,	10	9.21E-02
Heptachlor epoxide	mink	LOAEL/181 d, reproduction, heptachlor used as a surrogate	Sample et al., 1996	gaong	01	9.21E-02
Inorganics	Mark and the state of the state					
Aluminum	mouse	LOAEL/mouse over 3 generations, >1 yr/reproduction	Sample et al., 1996	19.3	10	1.44E+00
Antimony	mouse	LOAEL/lifetime/lifespan, longevity	Sample et al., 1996	1.25	10	9.33E-02
Arsenic		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	1.04		1.04E+00
Barium		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2003	51.8	-	5.18E+01
Cadmium	rat	NOAEL/6 wks through mating and gestation/reproduction	Sample et al., 1996		_	8.65E-01
Chronium	rat	NOAEL/90 d and 2 yr/reproduction, longevity, Cr(III)	Sample et al., 1996	2737	-	2.37E+03
Chromium, Hexavalent	Tat	NOAEL/1 yr/body weight and food consumption	Sample et al., 1996	3.28		2.84E+00
Cobalt	rabbit	LOAEL/over 2 wks/cardiac, for cobalt sulfate	RTECS, 2004	140	100	1.40E+00
Copper	mink	NOAEL/357 d/reproduction	Sample et al., 1996	11.7		1.08E+01
Cyanide	rat	NOAEL/diet, gestation and lactation/reproduction	Sample et al., 1996	68.7	-	5.94E+01
Iron	Child	Based on the dietary reference intake for a child	Marilyn 2001	0.67		7.26E-01
Lead	Rat	Reproductive / 3 generations oral / NOAEL	Sample et al. 1996	80		6.92E+00
Manganese	rat	NOAEL/through gestation for 224 day/reproduction	Sample et al. 1996	88	-	7.61E+01
Mercury	mink	NOAEL/1 yr/reproduction, mercuric sulfide	Sample et al. 1996	1.0	gane	9.21E-01
Nickel	Rat	Reproduction / 3 generations diet / NOAEL	Sample et al. 1996	40		3.46E+01

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#### 1.73E-01 2.80E-01 1.13E-01 4.16E+00 1.38E+02

(mg/kg/da)

 $CF^{(1)}$ Total

(mg/kg/day) Effect Dose

0.20

Sample et al. 1996

Source

Endpoint / Duration / Effect (survival,

growth, reproduction)

Organism Test

COPC

rat

Selenium

Silver

NOAEL/1yr through 2 generations/reproduction

10 0

> 4.16 1.31

USEPA, 2005 USEPA, 1999

160

Sample et al. 1996

Reproduction / day 1-16 of gestation diet / NOAEL

Rat

Zinc

The geometric mean of the NOAEL values for

reproduction and growth

LOAEL/60 days/testicular function LOAEL/125 days/hypoactivity

mouse

rat

Vanadium Thallium

3.75

USEPA, 1999

SEV

### NOAEL SCREENING ECOTOXICITY VALUES - RED FOX SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-5E

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Lev
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Observed
= No
AEL
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COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values
(1) For CFs, see Table 7-4
(2) SEV = Effective Dose x Scaling Factor / Total CF

## Scaling Factors for Toxicity Values:

 $SEV_w = SEV_t * (bw_t / bw_w)^{-(1-b)}$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively,

and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

Weight (kg)	0.03	0.35	1	3.8	15	0.11	3.94
To: Red Fox	Lab Mouse 0.75	Rat 0.86	Mink 0.92	Rabbit 1.00	Child 1.08	Hamster 0.81	Red Fox 1.00
From Test Species							

### NOAEL SCREENING ECOTOXICITY VALUES - RED FOX SEAD-121C and SEAD-1211 RI Report Seneca Army Depot Activity TABLE 7-5E

	Test	Endpoint / Duration / Effect (survival,		Effect Dose	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)	$CF^{(1)}$	(mg/kg/day

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## TABLE 7-6A LOAEL SCREENING ECOTOXICITY VALUES - DEER MOUSE SEAD-121C and SEAD-1211 RI Report Seneca Army Depot Activity

COPC	Test	Endpoint / Duration / Effect (survival,	Source	Effect Dose	Total	SEV
	Organism	growth, reproduction)		(mg/kg/day)	$CF^{(l)}$	(mg/kg/day) <sup>(2)</sup>
Volatile Organic Compounds						
Meta/Para Xylene	rat	LOAEL/oral gavage, 103 weeks/decreased body weight and decreased survival	NTP, 1986 as cited in IRIS, 2003	200	_	6.05E+02
Semivolatile Organic Compounds	2		and the state of t			
Phenanthrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	01		1.04E+01
Pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	_	1.04E+01
PCBs		TO THE REAL PROPERTY AND A STREET OF THE PROP	The state of the s			
Aroclor-1254	mink	LOAEL/dict, 4.5 months/reproduction	Sample et al., 1996	0.685	_	8.82E-01
Inorganics						
Aluminum	mouse	LOAEL/mouse over 3 generations, >1 yr/reproduction	Sample et al., 1996	19.3	_	2.01E+01
Antimony	mouse	LOAEL/lifetime/lifespan, longevity	Sample et al., 1996	1.25	_	1.30E+00
Arsenic	mouse	LOAEL/3 generations >1 yr/reproduction	Sample et al., 1996	1.26	_	1.31E+00
Barium		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	51.8	0.1	5.18E+02
Cadmium	rat	LOAEL/6 weeks critical lifestage	Sample et al., 1996	10	-	1.21E+01
Cobalt	rabbit	LOAEL/over 2 wks/cardiac, for cobalt sulfate	RTECS, 2004	140	10	1.95E+01
Соррег	mink	LOAEL/357 d/reproduction	Sample et al., 1996	15.14	-	1.95E+01
Iron	Child	Based on the dietary reference intake for a child	Marilyn 2001	0.67	0.1	1.01E+01
Lead	rat	Reproductive / 3 generations oral / LOAEL	Sample et al. 1996	08	_	9.67E+01
Мапganese	rat	LOAEL/through gestation for 224 day/reproduction	Sample et al. 1996	284		3.43E+02
Selenium	rat	LOAEL/1yr through 2 generations/reproduction	Sample et al. 1996	0.33		3.99E-01
Silver	mouse	LOAEU125 days/hypoactivity	USEPA, 1999	3.75		3.91E+00
Thallium	rat	LOAE1/60 days/testicular function	USEPA, 1999	1.31		1.58E+00
Vanadium	rat	LOAEL/60 d prior to gestation, plus through gestation, delivery, and lactation/reproduction	Sample et al. 1996	2.1	~~	2.54E+00

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### LOAEL SCREENING ECOTOXICITY VALUES - DEER MOUSE SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-6A

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose Total SEV (mg/kg/day) (Teli)	Total CF <sup>(1)</sup>	SEV (mg/kg/day) <sup>(2</sup>
Zinc	rat	Reproduction / day 1-16 of gestation dict / LOAEL	Sample et al. 1996	320	п	3.87E+02

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor
SEV = Screening Ecotoxicity Values
(1) For CFs, see Table 7-4
(2) SEV = Effective Dose x Scaling Factor / Total CF

## Scaling Factors for Toxicity Values:

 $SEV_w = SEV_t * (bw_t/bw_w)^{(1-b)}$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively,

Sample et al., 1999) and b is the allometric scaling factor (b=0.94 for manmals.

	and o is the another to scaling factor $(0^{-0.54})$ for than this scale of all, 1999)	., 1999)
From Test	To:	Body Weight
Species	Deer Mouse	(kg)
Lab Mo	Lab Mouse 1.04	0.03
	Rat 1.21	0.35
X	Mink 1.29	1
Ra	Rabbit 1.39	3.8
5	Child 1.51	15
Нап	Hamster 1.13	0.11
Deer Mo	Deer Mouse 1.00	0.0148

#### References:

Agency for Toxic Substances and Discase Registry (ATSDR). On-line resources available at http://www.atsdr.cdc.gov/toxpro2.html

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## TABLE 7-6B LOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

	Test	Endpoint / Duration / Effect (survival,		Effect Dose	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)	$CF^{(1)}$	(mg/kg/day
Volatile Organic Compounds						
Meta/Para Xylene	rat	LOAEL/oral gavage, 103 weeks/decreased body weight and decreased survival	NTP, 1986 as cited in IRIS, 2003	500	-	6.04E+02
Semivolatile Organic Compounds	8					
Benzo(a)anthracene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	_	1.04E+01
Benzo(a)pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction	Sample et al., 1996	10	_	1.04E+01
Benzo(b)fluoranthene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	-	1.04E+01
Benzo(ghi)perylene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrcne used as surrogate	Sample et al., 1996	10		1.04E+01
Benzo(k)fluoranthene	mouse	LOAEUgestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	yama	1.04E+01
Chrysene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10		1.04E+01
Phenanthrene	mouse	LOAEL/gestation days 7-16 cnt. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10		1.04E+01
Рутепе	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10		1.04E+01
PCBs						
Aroclor-1254	mink	LOAEL/diet, 4.5 months/reproduction	Sample et al., 1996	0.685	-	8.81E-01
Inorganics	***************************************					
Antimony	mouse	LOAEL/lifetime/lifespan, longevity	Sample et al., 1996	1.25	_	1.30E+00

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### LOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-6B

	Test	Endpoint / Duration / Effect (survival.		Effect Dose	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)	$\mathbf{CF}^{(1)}$	(mg/kg/day
Arsenic	mouse	LOAEL/3 generations >1 yr/reproduction	Sample et al., 1996	1.26	-	1.31E+00
Barium		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	51.8	0.1	5.18E+02
Cadmium	rat	LOAEL/6 weeks critical lifestage	Sample et al., 1996	0	_	1.21E+01
Cobalt	rabbit	LOAEL/over 2 wks/cardiac, for cobalt sulfate	RTECS, 2004	140	10	1.95E+01
Copper	mink	LOAEL/357 d/reproduction	Sample et al., 1996	15.14	-	1.95E+01
Iron	Child	Based on the dictary reference intake for a child	Marilyn 2001	0.67	0.1	1.01E+01
Lead	rat	Reproductive / 3 generations oral / LOAEL	Sample et al. 1996	80	_	9.66E+01
Manganesc	rat	LOAEL/through gestation for 224 day/reproduction	Sample et al. 1996	284		3.43E+02
Selenium	rat	LOAEL/1yr through 2 generations/reproduction	Sample et al. 1996	0.33	_	3.99E-01
Silver	mouse	LOAEL/125 days/hypoactivity	USEPA, 1999	3.75	_	3.91E+00
Thallium	rat	LOAEL/60 days/testicular function	USEPA, 1999	1.31	_	1.58E+00
Vanadium	rat	LOAEL/60 d prior to gestation, plus through gestation, delivery, and lactation/reproduction	Sample et al. 1996	2.1		2.54E+00
Zinc	rat	Reproduction / day 1-16 of gestation diet / LOAEL	Sample et al. 1996	320	-	3.87E+02

NOAEL = No Observed Adverse Effect Level COPC = Chemical of Potential Concern

CF = Conversion Factor
SEV = Screening Ecotoxicity Values
(1) For CFs, see Table 7-4
(2) SEV = Effective Dose x Scaling Factor / Total CF

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## LOAEL SCREENING ECOTOXICITY VALUES - SHORT-TAILED SHREW SEAD-121C and SEAD-1211 RI Report Seneca Army Depot Activity

	Test	Endpoint / Duration / Effect (survival,		Effect Dose	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)	$CF^{(1)}$	(mg/kg/day

Values:
Toxicity
for
Factors
Scaling

 $SEV_{w} = SEV_{t} * (bw_{t} / bw_{w})^{-}(1-b)$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively,

	and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)	
From Test	To:	<b>Body Weight</b>
Species	Short-Tailed Shrew	(kg)
La	Lab Mouse 1.04	0.03
	Rat 1.21	0.35
	Міпк 1.29	-
	Rabbit 1.39	3.8
	Child 1.51	15
	Hamster 1.13	0.11
Short-Tail	Short-Tailed Shrew	0.015

#### References:

Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

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LOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report TABLE 7-6C

Seneca Army Depot Activity

PCBs Aroclor-1254 ring-nec	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SEV (mg/kg/d
	ring-necked pheasant	LOAEL/oral via gelatin capsule, 17 weeks/reproduction	Sample et al., 1996	1.8	-	1.80E+
Pesticides			THE PARTY OF THE P	The state of the s	444	
4,4'-DDT brown pelican	oelican	LOAEL/diet, 5 yr, reproduction	Sample et al., 1996	0.028	-	2.80E-
Inorganics						
Antimony		Screening Ecological Value not available	lue not available			
Arsenic		LOAEI/7 months/mortality	Sample et al., 1996	7.38		7.38E+
Barium		LOAEL/4 wk/mortality	Sample et al., 1996	416.53	10	4.17E+
Cadmium mallard ducks	ducks	LOAEL/90 d/reproduction	Sample et al., 1996	20.03	-	2.00E+
Chromium black duck	uck	LOAEL/10 month/reproduction for Cr(III)	Sample et al., 1996	5	-	5.00E+
Copper		LOAEL/10 weeks/growth, mortality	Sample et al., 1996	61.7	-	6.17E+
Cyanide		LOAEL/diet, 20 days/growth, HCN	Eisler	135	10	1.35E-
Iron	1	Toxic dietary concentration	NRC, 1994	4500		4.50E-
Lead	American Kestrels	NOAEL/7 months/reproduction	Sample et al. 1996	3.85	0.1	3.85E-
Mangancse Japanese quai	se quail	NOAEL/75 d/growth, aggressive behavior	Sample et al. 1996	776	-	9.77E-
Selenium mallard duck	duck	LOAEL/78 days/reproduction	Sample et al. 1996		_	1.00E
Thallium		LOAEL/diet, acute/survivalship	Schafer, 1972	5.3	10	5.30E
Vanadium mallard duck	duck	NOAEL/12 wks/mortality, body weight, blood chemistry	Sample et al. 1996	11.4	0.1	1.14E-
Zinc white L	white Leghorn hen	LOAEL/44 wks, reproduction	Sample et al. 1996	130.9	-	1.31E

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

CF = Conversion Factor

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## TABLE 7-6C

## LOAEL SCREENING ECOTOXICITY VALUES - AMERICAN ROBIN AND GREAT BLUE HERON SEAD-121C and SEAD-121I RI Report

## Seneca Army Depot Activity

		Endpoint / Duration / Effect (survival,		Effect Dose	Total	SEV
COPC	Test Organism	growth, reproduction)	Source	(mg/kg/day)	$CF^{(1)}$	(mg/kg/c

SEV = Screening Ecotoxicity Values

(1) For CFs, see Table 7-4

(2) SEV = Effective Dose x Scaling Factor / Total CF

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## TABLE 7-6D LOAEL SCREENING ECOTOXICITY VALUES - MEADOW VOLE SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

DdOD	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SEV (mg/kg/da)
Volatile Organic Compounds	D					
Meta/Para Xylene	ral	LOAEL/oral gavage, 103 weeks/decreased body weight and decreased survival	NTP, 1986 as cited in IRIS, 2003	500	-	5.70E+02
Semivolatile Organic Compounds	S					
Anthracene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	_	9.84E+00
Benzo(a)anthracene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as sumogate	Sample et al., 1996	01		9.84E+00
Benzo(a)pyrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction	Sample et al., 1996	10	-	9.84E+0(
Benzo(b)fluoranthene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10		9.84E+0(
Benzo(ghi)perylene	mousc	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	02	_	9.84E+0
Benzo(k)fluoranthene	mousc	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10		9.84E+0
Chrysene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10		9.84E+0
Phenanthrene	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	_	9.84E+0
Рутепе	mouse	LOAEL/gestation days 7-16 crit. Lifestage/Reproduction, benzo(a)pyrene used as surrogate	Sample et al., 1996	10	-	9.84E+0

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## LOAEL SCREENING ECOTOXICITY VALUES - MEADOW VOLE SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-6D

COPC	Test Organism	Endpoint / Duration / Effect (survival, growth, reproduction)	Source	Effect Dose (mg/kg/day)	Total CF <sup>(1)</sup>	SEV (mg/kg/da)
Inorganics Aluminum	mouse	LOAEL/mouse over 3 generations, >1 yr/reproduction	Sample et al., 1996	19.3	-	1.90E+01
Antimony	mouse	LOAEL/lifetime/lifespan, longevity	Sample et al., 1996	1.25		1.23E+00
Arsenic	mouse	LOAEL/3 generations >1 yr/reproduction	Sample et al., 1996	1.26	- Participation of the Partici	1.24E+00
Barium		The geometric mean of the NOAEL values for reproduction and growth	USEPA, 2005	51.8	0.1	5.18E+02
Cadmium	rat	LOAEL/6 wecks critical lifestage	Sample et al., 1996	10	-	1.14E+01
Cobalt	rabbit	LOAEL/over 2 wks/cardiac, for cobalt sulfate	RTECS, 2004	140	10	1.84E+01
Copper	mink	LOAEL/357 d/reproduction	Sample et al., 1996	15.14		1.84E+01
Iron	Child	Based on the dietary reference intake for a child	Marilyn 2001	0.67	0.1	9.58E+00
Lead	rat	Reproductive / 3 generations oral / LOAEL	Sample et al. 1996	80	-	9.13E+01
Manganese	rat	LOAEL/through gestation for 224 day/reproduction	Sample et al. 1996	284		3.24E+02
Selenium	rat	LOAEL/1yr through 2 generations/reproduction	Sample et al. 1996	0.33	-	3.76E-01
Silver	mouse	LOAEL/125 days/hypoactivity	USEPA, 1999	3.75	-	3.69E+00
Thallium	гат	LOAEU60 days/testicular function	USEPA, 1999	1.31		1.49E+00
Vanadium	rat	LOAEL/60 d prior to gestation, plus through gestation, delivery, and lactation/reproduction	Sample et al. 1996	2.1	_	2.40E+00
Zinc	rat	Reproduction / day 1-16 of gestation diet / LOAEL	Sample et al. 1996	320	_	3.65E+02

NOAEL = No Observed Adverse Effect Level COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values

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### <u>a</u>

### LOAEL SCREENING ECOTOXICITY VALUES - MEADOW VOLE SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-6D

SEV	(mg/kg/da	
Total	$CF^{(1)}$	
Effect Dose	(mg/kg/day)	
	Source	
Endpoint / Duration / Effect (survival,	growth, reproduction)	
Test	Organism	
	COPC	

For CFs, see Table 7-4
 SEV = Effective Dose x Scaling Factor / Total CF

## Scaling Factors for Toxicity Values:

 $SEV_{w} = SEV_{t} * (bw_{t} / bw_{w})^{(1-b)}$ 

Where bw is the body weight, and t and w represent the test and wildlife species, respectively,

and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

From Test	To:	Weight
Species	Red Fox	(kg)
	Lab Mouse 0.98	0.03
	Rat 1.14	0.35
	Mink 1.21	1
	Rabbit 1.32	3.8
	Child 1.43	15
	Hamster 1.06	0.11
	rat 1.14	0.35
-	Meadow Vole 1.00	3.90E-02

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Sample et al., 1996. Toxicological Benchmarks for Wildlife: 1996 Revision.

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## LOAEL SCREENING ECOTOXICITY VALUES - RED FOX SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-6E

	Test	Endpoint / Duration / Effect (survival.		Effect Dose	Total	SEV
COPC	Organism	growth, reproduction)	Source	(mg/kg/day)	$CF^{(1)}$	(mg/kg/day
Volatile Organic Compounds						
Meta/Para Xylene	rat	LOAEL/oral gavage, 103 weeks/decreased body weight and decreased survival	NTP, 1986 as cited in IRIS, 2003	500		4.32E+02
Inorganics		The state of the s				
Antimony	mouse	LOAEL/lifetime/lifespan, longcvity	Sample et al., 1996	1.25		9.33E-01
Arsenic	mouse	LOAEL/3 generations >1 yr/reproduction	Sample et al., 1996	1.26		9.40E-01
Соррег	mink	LOAEL/357 d/reproduction	Sample et al., 1996	15.14	_	1.39E+01
Iron	Child	Based on the dietary reserence intake for a child	Marilyn 2001	0.67	0.1	7.26E+00
Lead	rat	Reproductive / 3 generations oral / LOAEL	Sample et al. 1996	80		6.92E+01
Manganese	rat	LOAEL/through gestation for 224 day/reproduction	Sample et al. 1996	284	_	2.46E+02
Selenium	rat	LOAEL/1yr through 2 generations/reproduction	Sample et al. 1996	0.33	-	2.85E-01
Thallium	rat	LOAEI/60 days/testicular function	USEPA, 1999	1.31	-	1.13E+00
Vanadium	rat	LOAEL/60 d prior to gestation, plus through gestation, delivery, and lactation/reproduction	Sample et al. 1996	2.1		1.82E+00

NOAEL = No Observed Adverse Effect Level COPC = Chemical of Potential Concern

CF = Conversion Factor

SEV = Screening Ecotoxicity Values
(1) For CFs, see Table 7-4
(2) SEV = Effective Dose x Scaling Factor / Total CF

Scaling Factors for Toxicity Values:  $SEV_{\rm w} = SEV_{\rm t} * (bw_{\rm t} \, / \, bw_{\rm w}) \, ^{\wedge}(1\text{-}b)$ 

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### LOAEL SCREENING ECOTOXICITY VALUES - RED FOX SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-6E

(mg/kg/day	$CF^{(1)}$	(mg/kg/day)	Source	growth, reproduction)	Organism	COPC
SEV	Total	Effect Dose		Endpoint / Duration / Effect (survival,	Test	

Where bw is the body weight, and t and w represent the test and wildlife species, respectively,

and b is the allometric scaling factor (b=0.94 for mammals, Sample et al., 1999)

Rabbit 1.00 3.8 Child 1.08 15 Harnster 0.81
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#### References:

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Sample, B.E., and C.A. Arenal. 1999. Allometric Models for Inter-species Extrapolation of Wildlife Toxicity Data. Bull Environ Contam Toxicol. 62:653-663.

#### Table 7-7A Exposure Point Concentration for SEAD-121C Soil

#### SEAD-121C

#### SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

СОРС	Surface Soil (0-2 ft bgs.) Maximum Detected Concentration (mg/kg)	Surface Soil (0-4 ft bgs.) Maximum Detected Concentration (mg/kg)
Volatile Organic Compounds	(***	
Benzene	0.041	1.8
Ethyl benzene	3.3	24
Meta/Para Xylene	4.4	130
Semivolatile Organic Compounds		
Acenaphthene	2.6	2.6
Acenaphthylene	2.5	2.5
Anthracene	7.1	7.1
Benzo(a)anthracene	10	10
Benzo(a)pyrene	8.7	8.7
Benzo(b)fluoranthene	12	12
Benzo(ghi)perylene	3.2	3.2
Benzo(k)fluoranthene	7.5	7.5
Carbazole	4.2	4.2
Chrysene	9.1	9.1
Dibenz(a,h)anthracene	0.47	0.47
Dibenzofuran	1.7	1.7
Di-n-octylphthalate	0.023	0.023
Fluoranthene	27	27
Fluorene	3.5	3.5
Hexachlorobenzene	0.0085	0.0085
Indeno(1,2,3-cd)pyrene	0.97	0.97
Naphthalene	0.4	1.9
Phenanthrene	29	29
Pyrene PCBs	34	34
Aroclor-1242	0.058	0.058
Aroclor-1254	0.93	0.93
Aroclor-1260	0.085	0.20
Pesticides	0.065	0.20
4,4'-DDD	0.044	0.044
4,4'-DDE	0.069	0.069
4,4'-DDT	0.1	0.1
Aldrin	0.014	0.014
Alpha-Chlordane	0.063	0.063
Delta-BHC	0.002	0.002
Dieldrin	0.041	0.041
Endosulfan I	0.19	0.19
Endosulfan II	0.009	0.009
Endrin	0.022	0.023
Endrin ketone	0.0075	0.0097
Gamma-Chlordane	0.0012	0.0012
Heptachlor	0.014	0.014
Heptachlor epoxide	0.0028	0.0028
Metals		444
Antimony	236	236
Arsenic	11.6	11.6
Barium	2,030	2,030
Cadmium	29.1	29.1
Chromium	74.8	74.8
Cobalt	17	19.7
Copper	9,750	9,750
Lead	18,900	18,900
Manganese	858	858
Mercury	0.47	0.47
Nickel Selenium	224 1.3	224 1.3

#### Table 7-7A Exposure Point Concentration for SEAD-121C Soil SEAD-121C

#### SEAD-121C and SEAD-121I Remedial Investigation Seneca Army Depot Activity

COPC	Surface Soil (0-2 ft bgs.) Maximum Detected Concentration (mg/kg)	Surface Soil (0-4 ft bgs.) Maximum Detected Concentration (mg/kg)
Silver	21.8	21.8
Thallium	1.1	1.8
Vanadium	25.4	27
Zinc	3,610	3,610

#### Table 7-7B Exposure Point Concentration for SEAD-121C Ditch Soil SEAD-121C SEAD-121C and SEAD-1211 Remedial Investigation Seneca Army Depot Activity

COPC	Ditch Soil Maximum Detected Concentration (mg/kg)
Semivolatile Organic Compounds	
3 or 4-Methylphenol	0.79
Anthracene	0.25
Benzo(a)anthracene	1.1
Benzo(a)pyrene	0.9
Benzo(b)fluoranthene	1.1
Benzo(ghi)perylene	0.29
Benzo(k)fluoranthene	0.58
Chrysene	1.2
Fluoranthene	2.1
Indeno(1,2,3-cd)pyrene	0.27
Phenanthrene	1.1
Pyrene	2.1
Inorganics	
Antimony	4.9
Arsenic	6.1
Cadmium	14.3
Chromium	29.8
Cobalt	15.8
Copper	1,190
Cyanide	2.36
Lead	436
Manganese	918
Mercury	0.3
Nickel	42.7
Selenium	2.5
Silver	2.6
Vanadium	29.1
Zinc	566

#### Table 7-7C

#### Exposure Point Concentration for SEAD-121C Surface Water SEAD-121C

#### SEAD-121C and SEAD-1211 Remedial Investigation SENECA ARMY DEPOT ACTIVITY

COPC	Surface Water Maximum Detected Concentration (ug/L)
Semivolatile Organic Compounds	
Bis(2-Ethylhexyl)phthalate	4.2
Metals	
Aluminum	8,760
Arsenic	50.3
Cadmium	19.5
Chromium	129
Cobalt	47
Copper	1,160
Iron	110,000
Lead	839
Mercury	2.1
Nickel	154
Selenium	4.6
Silver	8
Vanadium	233
Zinc	6,910

#### Table 7-8A

#### Exposure Point Concentration for SEAD-1211 Surface Soil SEAD-1211

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

СОРС	Surface Soil (0-2 ft bgs.) Maximum Detected Concentration (mg/kg)
Semivolatile Organic Compou	nds
Acenaphthene	6.1
Acenaphthylene	0.56
Anthracene	12
Benzo(a)anthracene	28
Benzo(a)pyrene	23
Benzo(b)fluoranthene	29
Benzo(ghi)perylene	29
Benzo(k)fluoranthene	21
Bis(2-Ethylhexyl)phthalate	1.6
Carbazole	6.8
Chrysene	32
Dibenz(a,h)anthracene	4.6
Dibenzofuran	2
Fluoranthene	62
Fluorene	4.2
Indeno(1,2,3-cd)pyrene	8.1
Naphthalene	0.63
Phenanthrene	52
Pyrene	64
PCBs	
Aroclor-1254	0.03
Aroclor-1260	0.046
Pesticides	
4,4'-DDE	0.034
4,4'-DDT	0.039
Aldrin	0.012
Dieldrin	0.034
Endosulfan I	0.095
Endrin	0.03
Heptachlor epoxide	0.055
	0.000
Inorganics Antimony	7.5
Arsenic	32.1
Cadmium	
Chromium	6.6
	439
Cobalt	205.5
Copper	209
Cyanide, Total	2.00
Lead	122
Manganese	310,500
Nickel	342
Selenium	146
Silver	3.1
Thallium	163
Vanadium	182
Zinc	329

#### Table 7-8B

#### Exposure Point Concentration for SEAD-1211 Ditch Soil SEAD-1211

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

СОРС	Ditch Soil Maximum Detected Concentration (mg/kg)
Semivolatile Organic Compounds	100
·	0.74
Acenaphthene	0.74
Acenaphthylene	
Anthracene	1.8
Benzo(a)anthracene	16
Benzo(a)pyrene	22
Benzo(b)fluoranthene	12
Benzo(ghi)perylene Benzo(k)fluoranthene	23
Butylbenzylphthalate	0.42
	1.6
Carbazole Chrysene	25
Dibenz(a,h)anthracene	5
Dibenzofuran	0.356
Fluoranthene	0.330
Fluorene	0.645
	12
Indeno(1,2,3-cd)pyrene	
Naphthalene Phenanthrene	0.35
Phenol	0.23
	17
Pyrene	1/
PCBs Aroclor-1254	0.067
Aroclor-1254 Aroclor-1260	0.007
	0.014
Pesticides	0.0076
4,4'-DDE	0.0076
Metals	104
Arsenic	
Cadmium	0.8
Chromium	83.9
Cobalt	91.9
Copper	130
Lead	93.3
Manganese	14,900
Mercury	0.18
Nickel	153
Selenium	18
Silver	10.5
Thallium	21.5
Vanadium	69.4
Zinc	532

#### Table 7-8C

#### Exposure Point Concentration for SEAD-1211 Surface Water SEAD-121I

#### SEAD-121C AND SEAD-121I RI REPORT

Seneca Army Depot Activity

COPC	Surface Water Maximum Detected Concentration (ug/L)
Metals	
Aluminum	2,050
Cadmium	0.54
Chromium	6
Copper	11.2
Iron	3,410
Lead	26.3
Nickel	3.6
Selenium	2.45
Zinc	190

Receptor Intake Rates and Dietary Fractions SEAD-121C and SEAD-1211 RI Report Seneca Army Depot Activity Table 7-9

	Foraging Range	Food Intake Rate (IR)	Plant Diet	Invertebrate	Invertebrate Small Animal	Soil/Sediment Ingestion Rate	Water Intake	Body	(
Receptor	(acres)	(kg wet/day)	Fraction	Diet Fraction	Diet Fraction   Diet Fraction   (kg DW/day)   Rate (L/day)   Weight (kg)	(kg DW/day)	Rate (L/day)	Weight (kg)	Sou
Deer Mouse (a)	1.50E-01	8.87E-03	37%	61%	%0	2.13E-05	2.23E-03	1.48E-02	USEPA USEPA
American Robin (b)	2.72E-01	3.55E-02	7%	93%	%0	1.14E-03	1.10E-02	8.00E-02	USEPA USEPA
Short-tailed Shrew (c)	7.41E-02	9.30E-03	5%	87%	%8	2.04E-04	2.27E-03	1.50E-02	USEPA
Mcadow Volc (d)	9.14E-02	1.71E-02	100%	%0	%0	2.80E-03	8.19E-03	3.90E-02	USEPA 2000.
Red Fox (e)	2.37E+02	6.62E-01	7%	7%	%98	5.95E-03	3.40E-01	3.94E+00	USEPA USEPA
Great Blue Heron (f)	1.48E+00	4.01E-01	%0	2%	%86	1.96E-02	1.00E-01	2.23E+00	USEP

(a) Deer inouse body weight, Food IR, water IR, and soil IR from USEPA, 1999. Others from USEPA, 1993. Foraging range based on average of adult MF in Virginia.

Dietary fractions based on summer months in Virginia.

(b) For purposes of this assessment, the American robin dietary composition was assumed to be insectivorous. Body weight, Food IR, water IR, and soil IR from USEPA, 1999. Others from USEPA, 1993. Foraging range is larger than its territory, which is the range given above.

(c) Short-tailed shrew body weight, Food IR, water IR, and soil IR from USEPA, 1999. Others from USEPA, 1993. Foraging range based on the lower range of New York/old field location.

Dietary fractions based on summer months in Virginia.

(d) Meadow vole body weight from USEPA, 2000. Feeding rate, dict fractions, and soil ingestion rate from USEPA, 2005.

Feeding rate was converted to wet weight based on the assumption of 80% moisture in plants. Others from USEPA, 1993. Foraging range for meadow vole in Massachusetts/grassy meadow.

(e) Red Fox body weight, Food IR, water IR, and soil IR from USEPA, 1999. Others from USEPA, 1993. Winter dietary fractions for red fox in Maryland were used.

Foraging range based on adult female all year (mean). Dietary fractions based on average for the year. (f) Great blue heron parameters from USEPA, 1993. Sediment ingestion rate was assumed 2% of diet (dry weight).

Diet (dry weight) was calculated using equation provided in USEPA, 1993.

Diet (kg/day, dry) =  $0.0582 \times Body$  Weight<sup>0.65</sup>

- 1. USEPA. 2005. Guidance for Developing Ecological Soil Screening Levels. Revised February 2005.
  - 2. USEPA 2000. Guidance for Developing Ecological Soil Screening Levels. Draft.
- USEPA, 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities. Peer Review Draft. November.
   USEPA, 1993. Wildlife Exposure Factors Handbook.
- 5. Nagy. 1999. Energetics of Free-ranging Mammals, Reptiles, and Birds. Ann. Rev. Nutr. 19: 247-277.

## TABLE 7-10A RECEPTOR NOAEL HAZARD QUOTIENTS FOR SOIL EXPOSURE- SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

	Retained as	;	;	American	\$	Short-Tailed					
	COC(I)	Surface Soil	Deer Mouse Total Soil	Surface Soil	American Kobin Total Soil	Surface Soil	Short-1 alled Shrew Total Soil	Meadow Vole Surface Soil	Meadow vote Total Soil	Ked Fox Surface Soil	Ked Fox Total Soil
COPC	Y/N	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ
rganic Compounds									L		1
zene	z: 2	3 E 03	1.E-02	N/A	N/A	3.6-04	1.E-02	4. E-1)4	2.E-02	3.E-04	2.E-02
Xylene	· >	2.E-01	7.E+00	8.E-04	2.E-02	4.5-01	1.E+01	3.5-03	8.E+00	3.5.01	3.E-02 9.E+00
ile Organic Compounds	2										
hene	z	9.E-02	9.E-02	4.E-03	4.E-03	1.E-01	1.E-01	2.E-01	2.E-01	1.E-02	I.E.02
hylene	z	8.E-02	8.E-02	4.E-03	4.E-03	1.E-01	1.5-01	2.E-01	2.E-01	9.E-03	9.E-03
	z	2.E-01	2.E-01	1.E-02	1.E-02	4.E-01	4.E-01	6.E-01	6.E-01	2.E-02	2.E-02
inthracene	z	1.E-01	1.E-01	9.E-03	9.E-03	3.E-01	3.E-01	7.E-01	7.E-01	3.E-02	3.E-02
yrcnc	z	2.E-01	2.E-01	1.E-02	1.E-02	4.E.01	4.E.01	6.E-01	6.E-01	3.E-02	3.E-02
Nuoranthene	z	3.E-01	3.E-01	2.E-02	2.E-02	6.E-01	6.E-01	9.E-01	9.E-01	4.E-02	4.E-02
i)perylene	z	8.E-02	8.E-02	5.E-03	5.E-03	2.E-01	2.E-01	2.E-01	2.E-01	1.E-02	1.E-02
Duoranthene	z	2.E-01	2.E-01	1.E-02	1.E-02	4.E-03	4.E-01	6.E-01	6.E-01	3.E-02	3.E-02
yllicxyl)phthalate	z	3.E-05	3.E-05	5.E-04	5.E-04	3.E-05	3.E-05	5.E-05	5.E-05	3.E-05	3.E-05
	z	2.E-02	2.E-02	6.E-03	6.E-03	6.E-02	6.E-02	7.E-02	7.E-02	9.E-02	9.E-02
	z	1.E-01	1.E-01	1.E-02	1.E.02	3.E-01	3.E-01	7.E-01	7.E-01	2.E-02	2.E-02
h)anthracene	z	1.E-02	1.E-02	7.E-04	7.E-04	2.E-02	2.E-02	3.E-02	3.E-02	2.E-03	2.E-03
uran	z	4.E-02	4.E-02	2.E-03	2.E-03	1.E-01	1.E-01	1.E-01	1.E-01	2.E-01	2.E-01
lphthalate	z	2.E-08	2.E-08	4.E-05	4.E-05	2.E-07	2.E-07	2.E-07	2.E-07	4.E-07	4.E-07
enc	z	6.E-02	6.E-02	4.E-02	4.E-02	1.E-01	1.E-01	2.E-01	2.E-01	7.E-03	7.E-03
	z	9.E-03	9.E-03	5.E-03	5.E-03	1.E-02	1.E-02	2.E-02	2.E-02	1.E-03	1.E-03
robenzene	z	8.E-05	8.E-05	1.E-04	1.E-04	2.E-04	2.E-04	3.E-04	3.E-04	1.E-05	1.E-05
2,3-cd)pyrene	z	3.E-02	3.E-02	2.E-03	2.E-03	5.E-02	5.E-02	7.E-02	7.E-02	4.E-03	4.E-03
ine	z	2.E-03	1.E-02	6.E-04	3.E-03	3.E-03	1.E-02	6.E-03	3.E-02	3.E-04	I.E-03
cne	<b>&gt;</b>	9.E-01	9.E-01	4.E-02	4.E-02	1.E+00	1.E+00	2.E+00	2.E+00	1.E-01	1.E-01
	>	9.E-01	9.E-01	5.E-02	5.E-02	2.E+00	2.E+00	3.E+00	3.E+00	1.E-01	1.E-01
		4.E+00	4.E+00	2.E-01						,	
242	z	3.E-01	3.E-01	7.E-02	7.E-02	4.E-01	4.E-01	5.E-02	5.E.02	1.E-02	1.E-02
254	>	2.E+00	2.E+00	2.E+00	2.E+00	3.E+00	3.E+00	4.E-01	4.E-01	1.E-01	1,E-01
260	z	2.E-01	5.E-01	2.E-01	5.E-01	3.E-01	7.E-01	4.E-02	9.E-02	1.E-02	2.E-02
	z	1.E-04	1.E-04	3.E-02	3.E-02	2.E-04	2.E-04	2.E-05	2.E-05	7.E-06	7.E-06
	z	3.E-02	3.E-02	4.E-02	4.E-02	4.E-02	4.E-02	4.E-03	4.E-03	1.E-03	1.E-03
	٨	5.E-02	S.E-02	2.E+01	2.E+01	7.E-02	7.E-02	8.E-03	8.E-03	2.E-03	2.E-03
;	Z	3.E-03	3.E-03	1.E-02	1.E-02	6.E-03	6.E-03	8.E-03	8.E-03	1.E-02	1.E-02
Jordane	z	2.E-04	2.E-04	9.E-04	9.E-04	7.E-04	7.E-04	1.E-03	1.E-03	1.E-03	1.E-03
: : :	z	1.E-05	1.E-05	1.E-04	1.E-04	3.E-05	3.E-05	4.E-05	4.E-05	5.E-05	5.E-05
	z	4.E-02	4.E-02	2.E-02	2.E-02	1.E-01	1,E-01	1.E-01	1.E-01	2.E-01	2.E-01
Į u	z	4.E-02	4.E-02	8.E-04	8.E-04	8.E-02	8.E-02	1.E-01	1.E-01	1.E-01	1.E-01
1 u	z	2.E-03	2.E-03	4.E-05	4.E-05	4.E-03	4.E-03	5.E-03	5.E-03	6.E-03	6.E-03
	z	5.E-03	6.E-03	3.E-03	3.E-03	1.E-02	2.E-02	2.E-02	2.E-02	2.E-02	2.E-02
tone	z i	2.E-03	2.E-03	9.E-04	1.E-03	S.E-03	7.E-03	7.E-03	9.E-03	8.E-03	1.E-02
hlordane	z	4.E-06	4.E-06	2.E-05	2.E-05	1.E-05	1.E-05	2.E-05	2.E-05	2.E-05	2.E-05
JC.	z	6.E-02	6.E-02	1.E-01	1.E-01	8.E-02	8.E-02	9.E-03	9.E-03	3.E-03	3.E-03
or epoxide	z:	1.E-02	1.E-02	3.E-02	3.E-02	2.E.02	2.E-02	2.E-03	2.E-03	5.E-04	5.E-04

FECA'PID Area\Repon\Draft Final\Risk Assessmen\Feo Risk Tables\SEAD-121C\Ecorisk\_121C\_soil.xls.xls\HQ\_Soil

## TABLE 7-10A RECEPTOR NOAEL HAZARD QUOTIENTS FOR SOIL EXPOSURE- SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

COPC	Retained as Preliminary COC <sup>(1)</sup>	Deer Mouse Surface Soil NOAEL HQ	Deer Mouse Total Soil NOAEL HQ	American Robin Surface Soil NOAEL HQ	American Robin Total Soil NOAEL HQ	Short-Tailed Shrew Surface Soil NOAEL HQ	Short-Tailed Shrew Total Soil NOAEL HQ	Meadow Vole Surface Soll NOAEL HQ	Meadow Vole Total Soil NOAEL HQ	Red Fox Surface Soil NOAEL HQ	Red Fox Total Soil NOAEL HQ
11 11											
E	>	7.E-01	7.E-01	1.E-02	1.E-02	7.E-01	7.E-01	1,E+00	1.E+00	5.E-01	5.E-01
	>	Z.E+02	2.E+02	N/A	N/A	2.E+02	2.E+02	2.E+02	2.E+02	1.E+03	1,E+01
	z	5.E-01	5.E-01	3.E-01	3.E-01	8.E-01	8.E-01	8.E-01	8.E-01	4.E-02	4.E-02
	>-	2.E+00	2.E+00	5.E+00	5.E+00	2.E+00	2.E+00	3.E+00	3.E+00	1.E-01	1.E-01
	^	9.E+00	9.E+00	8.E+00	8.E+00	1.E+01	1.E+01	3.E+00	3.E+00	5.E-01	5.E-01
	z	1.E-04	1.E-04	5.E-01	S.E.01	4.E-04	4.E-04	2.E-03	2.E-03	8.E-05	8.E-05
	z	4.E-01	5.E-01	1.E-02	1.E-02	7.E-01	8.E-01	7.E-01	8.E-01	8.E-02	9.E-02
	>	2.E+01	2.E+01	7.E+00	7.E+00	2.E+01	2.E+01	7.E+01	7.E+01	4.E÷00	4,E+00
	>	2.E+01	2,E+01	3.E-03	3.E-03	2.E+01	2.E+01	2.E+01	2.E+03	1.E+01	1.E+01
	>	3.E+01	3.E+01	1.E+02	1.E+02	6.E+01	6.E+01	2.E+02	2.E+02	5.E+00	5.E+00
Sc	z	3.E-01	3.E-01	3,E-01	3.E-01	4.E-01	4.E-01	8.E-01	8.E-01	3.E-02	3.E-02
	z	7.E-03	7.E-03	3.E-02	3.E-02	2.E-02	2.E-02	3.E-02	3.E-02	2.E-02	2.E-02
	z	5.E-02	5.E-02	7.E-02	7.E-02	1.E-01	1.E-01	4.E-01	4.E-01	2.E-02	2.E-02
	z	4.E-01	4.E-01	3.E-01	3.E-01	7.E-01	7.E-01	4.E-01	4.E-03	5.E-02	5.E-02
	<b>&gt;</b>	6.E+00	6.E+00	1.E-02	1.E-02	7.E+00	7.E+00	6.E+00	6.E+00	4.E-01	4.E-01
	<b>&gt;</b>	6.E-01	9.E-01	3.E-01	5.E-01	9.E-01	2.E+00	5.E-01	9.E-01	1.E-01	2.E-01
=	z	5.E-01	5.E-01	2.E-01	3.E-01	8.E-01	9.E-01	5.E-01	5.E-01	3.E-02	3.E-02
	.>	4.E+00	4.E+00	7.E+00	7.E+00	6.E+00	6.E+00	1.E+00	1.E+00	6.E-01	6.E-01

No Observed Adverse Effect Level
remical of Potential Concen
reming Ecotoxicity Value

Id Quotient (Exposure/SEV)

Quotient (Exposure/SEV)

considered a preliminary CVC if NOAEL HQ > 1 or HQ=1 for any receptor
sed on the maximum detected concentrations.

#### TABLE 7-10B

#### RECEPTOR NOAEL HAZARD QUOTIENTS FOR DITCH SOIL EXPOSURE- SEAD-121C DITCH SOIL SEAD-121C AND SEAD-1211 RI Report

Seneca Army Depot Activity

COPC	Retained as Preliminary COC <sup>(1)</sup> Y/N	Deer Mouse Ditch Soil NOAEL HQ	American Robin Ditch Soil NOAEL HQ	Short-Tailed Shrew Ditch Soil NOAEL HQ	Meadow Vole Ditch Soil NOAEL HQ	Red Fox Ditch Soil NOAEL HQ	Great Blue Heron Ditch Soil NOAEL HQ
Semivolatile Organic Com	pounds						
3 or 4-Methylphenol	N	5.E-04	6.E-02	4.E-04	1.E-03	7.E-04	2.E-01
Anthracene	N	8.E-03	4.E-04	1.E-02	2.E-02	9.E-04	8.E-05
Benzo(a)anthracene	N	1.E-02	1.E-03	3.E-02	8.E-02	3.E-03	3.E-04
Benzo(a)pyrene	N	2.E-02	1.E-03	4.E-02	7.E-02	3.E-03	3.E-04
Benzo(b)fluoranthene	N	3.E-02	2.E-03	5.E-02	8.E-02	4.E-03	4.E-04
Benzo(ghi)perylene	N	8.E-03	4.E-04	1.E-02	2.E-02	9.E-04	9.E-05
Benzo(k)fluoranthene	N	2.E-02	1.E-03	3.E-02	4.E-02	2.E-03	2.E-04
Bis(2-Ethylhexyl)phthalate	N	3.E-05	5.E-04	3.E-05	5.E-05	3.E-05	2.E-04
Chrysene	N	2.E-02	1.E-03	4.E-02	9.E-02	3.E-03	4.E-04
Fluoranthene	N:	5.E-03	3.E-03	8.E-03	1.E-02	6.E-04	7.E-04
Indeno(1,2,3-cd)pyrene	N	8.E-03	4.E-04	1.E-02	2.E-02	1.E-03	9.E-05
Phenanthrene	N	3.E-02	2.E-03	5.E-02	9.E-02	4.E-03	4.E-04
Pyrene	N	6.E-02	3.E-03	1.E-01	2.E-01	7.E-03	7.E-04
Metals							
Aluminum	Y	7.E-01	1.E-02	7.E-01	1.E+00	5.E-01	4.E-03
Antimony	Y	3.E+00	N/A	5.E+00	4.E+00	2.E-01	N/A
Arsenic	N	3.E-01	2.E-01	4.E-01	4.E-01	2.E-02	2.E-02
Cadmium	Y	4.E+00	4.E+00	6.E+00	1.E+00	2.E-01	1.E-01
Chromium	N	5.E-05	2.E-01	2.E-04	7.E-04	4.E-05	1.E-01
Cobalt	N	4.E-01	1.E-02	7.E-01	7.E-01	7.E-02	2.E-03
Copper	Y	3.E+00	8.E-01	3.E+00	9.E+00	5.E-01	3.E-01
Cyanide	Y	1.E-02	3.E+00	2.E-02	5.E-03	6.E-03	1.E+00
lron	Y	2.E+01	3.E-03	2.E+01	2.E+01	1.E+01	1.E-03
Lead	Y	7.E-01	3.E+00	1.E+00	4.E+00	1.E-01	1.E+00
Manganese	N	3.E-01	4.E-01	4.E-01	9.E-01	3.E-02	9.E-02
Mercury	N	4.E-03	2.E-02	1.E-02	2.E-02	1.E-02	4.E-02
Nickel	N	9.E-03	1.E-02	2.E-02	7.E-02	4.E-03	6.E-03
Selenium	Y	9.E-01	5.E-01	1.E+00	8.E-01	9.E-02	6.E-02
Silver	N	7.E-01	2.E-03	9.E-01	8.E-01	5.E-02	1.E-04
Vanadium	N	6.E-01	3,E-01	9.E-01	5.E-01	4.E-02	3.E-02
Zinc	N Y	6.E-01	1.E+00	9.E-01	2.E-01	1.E-01	1.E-01

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern
(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor (2) HQs based on the maximum detected concentrations.

Note: HQ>1 and HQ=1 are in bold.

#### **TABLE 7-11A** RECEPTOR NOAEL HAZARD QUOTIENTS FOR SOIL EXPOSURE- SEAD-1211 SOIL SEAD-121C AND SEAD-121I RI Report

Seneca Army Depot Activity

COPC	Retained as Preliminary COC <sup>(1)</sup> Y/N	Deer Mouse Surface Soil NOAEL HQ	American Robin Surface Soil NOAEL HQ	Short-Tailed Shrew Surface Soil NOAEL HQ	Meadow Vole Surface Soil NOAEL HQ	Red Fox Surface Soil NOAEL HQ
Semivolatile Organic Compounds						
Acenaphthene	N	2.E-01	1.E-02	3.E-01	6.E-01	2.E-02
Acenaphthylene	N	2.E-02	9.E-04	3.E-02	5.E-02	2.E-03
Anthracene	Y	4.E-01	2.E-02	6.E-01	1.E+00	4.E-02
Benzo(a)anthracene	Y	4.E-01	3.E-02	10-3.8	2.E+00	7.E-02
Benzo(a)pyrene	Y	6.E-01	3.E-02	1.E+00	2.E+00	7.E-02
Benzo(b)fluoranthene	Y	8.E-01	4.E-02	1.E+00	2.E+00	9.E-02
Benzo(ghi)perylene	Y	8.E-01	4.E-02	1.E+00	2.E+00	9.E-02
Benzo(k)fluoranthene	Y	6.E-01	3.E-02	1.E+00	2.E+00	7.E-02
Bis(2-Ethylhexyl)phthalate	N	1.E-03	5.E-02	3.E-03	7.E-03	2.E-04
Carbazole	N	4.E-02	1.E-02	9.E-02	1.E-01	1.E-01
Chrysene	Y	5.E-01	3.E-02	1.E+00	2.E+00	9.E-02
Dibenz(a,h)anthracene	N	1.E-01	7.E-03	2.E-01	3.E-01	2.E-02
Dibenzofuran	N	5.E-02	3.E-03	1.E-01	2.E-01	2.E-01
Fluoranthene	N	1.E-01	9.E-02	2.E-01	4,E-01	2.E-02
Fluorene	N	1.E-02	7.E-03	2,E-02	3.E-02	1.E-03
Indeno(1,2,3-cd)pyrene	N	2.E-01	1.E-02	4.E-01	6.E-01	3.E-02
Naphthalene	N	4.E-03	1.E-03	5.E-03	1.E-02	4.E-04
Phenanthrene	Y	2.E+00	8.E-02	3.E+00	4.E+00	2.E-01
Pyrene	Y	2.E+00	1.E-01	3,E+00	5,E+00	2.E-01
PCBs		2.2.00	112-01			
Aroclor-1254	N	7.E-02	8.E-02	1.E-01	1.E-02	3.E-03
Aroclor-1260	N	1.E-01	1.E-01	2.E-01	2.E-02	5.E-03
Pesticides		1.5-01	1.5-01		E.L. VI	3.5.03
4,4'-DDE	N	1.E-02	2.E-02	2.E-02	2.E-03	6.E-04
4,4'-DDT	Y	2.E-02	7.E+00	3.E-02	3.E-03	9.E-04
Aldrin	N	3.E-03	1.E-02	5.E-03	7.E-03	8.E-03
Dieldrin	N	3.E-02	2.E-02	9.E-02	1.E-01	1.E-01
Endosulfan I	N	2.E-02	4.E-04	4.E-02	5.E-02	7.E-02
Endrin	N	7.E-03	4.E-03	2.E-02	3.E-02	3.E-02
Heptachlor epoxide		2.E-01	5.E-01	3.E-01	3.E-02	1.E-02
Metals	N	2.5-01	J.E-01	3.E-01	3,E-02	1.E-02
Aluminum	N	2.E-01	3.E-03	2.E-01	2.E-01	1.E-01
Antimony	Y	5.E+00	N/A	8.E+00	5.E+00	4.E-01
Arsenic	Y	1.E+00	8.E-01	2.E+00	2,E+00	I.F01
Cadmium	Y	2.E+00	2.E+00	3.E+00	6.E-01	1.E-01
Chromium	Y	7.E-04	3.E+00	3.E-03	1.E-02	5.E-04
Cobalt	Y	5,E+00	1.E-01	8.E+00	9,E+00	9.E-01
Copper	Y	5.E-01	1.E-01	5.E-01	2.₺+00	8.E-02
Cyanide	Y	1.E-02	2.E+00	2.E-02	4.E-03	5.E-03
Iron	N	5.E-01	1.E-04	5.E-01	7.E-01	4.E-01
Lead	Y	2.E-01	9.E-01	4.E-01	1,E+00	4.E-02
Manganese	Y	9.E+01	1.E+02	1.E+02	3.E+02	1.E+01
Nickel	N	7.E-02	1.E-01	2.E-01	6.E-01	3.E-02
Selenium	Y	5,E+01	3.E+01	8.E+01	5.E+01	5.E+00
Silver	Y	8.E-01	2.E-03	1.E+00	9.E-01	6.E-02
Thallium	Y	8.E+01	5.E+01	1.E+02	8.E+01	1.E+01
Vanadium	<u>Y</u> Y	4.E+00	2.E+00	6.E+00	3.E+00	2.E-01
Zinc	N N	3.E-01	6.E-01	5.E-01	1.E-01	5.E-02

NOAEL = No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor (2) HQs based on the inaximum detected concentrations.

Note: HQ>1 and HQ=1 are in **bold**.

#### **TABLE 7-11B** RECEPTOR NOAEL HAZARD QUOTIENTS FOR DITCH SOIL EXPOSURE- SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-121I RI Report

Seneca Army Depot Activity

СОРС	Retained as Preliminary COC(1) Y/N	Deer Mouse Ditch Soil NOAEL HQ	American Robin Ditch Soil NOAEL HQ	Short-Tailed Shrew Ditch Soil NOAEL HQ	Meadow Vole Ditch Soil NOAEL HQ	Red Fox Ditch Soil NOAEL HQ	Great Blue Heron Ditch Soil NOAEL HQ
Semivolatile Organic Con	npounds						<u> </u>
Acenaphthene	l N	3.E-02	1.E-03	4.E-02	7.E-02	3.E-03	2.E-04
Acenaphthylene	N	1.E-02	7.E-04	2.E-02	4.E-02	2.F03	1.E-04
Anthracene	N	5.E-02	3.E-03	9.E-02	1.E-01	6.E-03	6.E-04
Benzo(a)anthracene	Y	2.E-01	1.E-02	4.E-01	1.E+00	4.E-02	4.E-03
Benzo(a)pyrene	Y	4.E-01	2.E-02	8.E-01	1.E+00	5.E-02	5.E-03
Benzo(b)fluoranthene	Y	6.E-01	3.E-02	1.E+00	2.E+00	7.E-02	7.E-03
Benzo(ghi)perylene	N	3.E-01	2.E-02	6.E-01	9.E-01	4.E-02	4.E-03
Benzo(k)fluoranthene	Y	7.E-01	4.E-02	1.E+00	2.E+00	8.E-02	7.E-03
Butylbenzylphthalate	N	5.E-05	1.E-02	1.E-04	2.E-04	2.E-04	3.E-02
Carbazole	N	9.E-03	2.E-03	2.E-02	3.E-02	3.E-02	7.E-03
Chrysene	Y	4.E-01	3.E-02	8.E-01	2.E+00	7.E-02	8.E-03
Dibenz(a,h)anthracene	N	1.E-01	8.E-03	2.E-01	4.E-01	2.E-02	2.E-03
Dibenzofuran	N	9.E-03	4.E-04	2.E-02	3.E-02	4.E-02	1.E-03
Fluoranthene	N	5.E-02	4.E-02	9.E-02	1.E-01	6.E-03	8.E-03
Fluorene	N	2.E-03	1.E-03	3.E-03	4.E-03	2,E-04	2.E-04
Indeno(1,2,3-cd)pyrene	N	4.E-01	2.E-02	7.E-01	9.E-01	5.E-02	4.E-03
Naphthalene	N	2.E-03	6.E-04	3.E-03	5.E-03	2.E-04	1.E-04
Phenanthrene	N	2.E-01	1.E-02	3.E-01	5.E-01	2.E-02	2.E-03
Phenol	N	1.E-03	3.E-02	8.E-04	3.E-03	1.E-03	7.E-02
Pyrene	Y	5.E-01	3.E-02	8.E-01	1.E+00	6.E-02	5.E-03
PCBs						appropriate to the state of the	
Aroclor-1254	N	2.E-01	2.E-01	2.E-01	3.E-02	8.E-03	5.E-03
Aroclor-1260	N	3.E-02	4.E-02	5.E-02	6.E-03	2.E-03	1.E-03
Pesticides		]					
4,4'-DDE	N	3.E-03	5.E-03	4.E-03	5.E-04	1.E-04	1.E-04
Metals							
Aluminum	N	2.E-01	3.E-03	2.E-01	2.E-01	1.E-01	8.E-04
Arsenic	Y	4.E+00	3.E+00	7.E+00	7.E+00	3.E-01	4.E-01
Cadmium	N	2.E-01	2.E-01	4.E-01	7.E-02	1.E-02	7.E-03
Chromium	N	1.E-04	6.E-01	5.E-04	2.E-03	9.E-05	3.E-01
Cobalt	Y	2.E+00	6.E-02	4.E+00	4.E+00	4.E-01	1.E-02
Copper	N	3.E-01	9.E-02	3.E-01	1.E÷00	5.E-02	3.E-02
Iron	N	5.E-01	1.E-04	5.E-01	7.E-01	4,E-01	3.E-05
Lead	N	1.E-01	7.E-01	3.E-01	8.E-01	3.E-02	2.E-01
Manganese	Y	5.E+00	6.E+00	6.E+00	1,E+01	5.E-01	1.E+00
Mercury	N	2.E-03	1.E-02	7.E-03	1.E-02	7.E-03	2.E-02
Nickel	N	3.E-02	4.E-02	8.E-02	3.E-01	1.E-02	2.E-02
Selenium	Y	6.E+00	4.E+00	1.E+01	6.E+00	6.E-01	4.E-01
Silver	Y	3.E+00	6.E-03	4.E+00	3.E+00	2.E-01	6.E-04
Thallium	Y	1.E+01	6.E+00	2.E+01	1.E+01	2.E+00	1.E+00
Vanadium	Y	1.E+00	6.E-01	2.E+00	1,E+00	7.E-02	6.E-02
Zinc	Y	6.E-01	1.E+00	9.E-01	2.E-01	9.E-02	1.E-01

NOAEL = No Observed Adverse Effect Level COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor (2) HQs based on the maximum detected concentrations.

Note: HQ>1 and HQ=1 are in hold.

#### Table 7-12A Average Concentration for Preliminary COCs In SEAD-121C Soil SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

	Av	verage Concentration
Preliminary COC	Surface Soil 0-2 ft bgs. (mg/kg)	Surface Soil & Subsurface Soil 0-4 ft bgs. (mg/kg)
Volatile Organic Compou	ınds	
Meta/Para Xylene	0.11	2.4
Semivolatile Organic Con	npounds	
Phenanthrene	1.3	0.95
Pyrene	1.9	1.4
PCBs		
Aroclor-1254	0.055	0.042
Pesticides		
4,4'-DDT	0.0065	0.0054
Metals		
Antimony	10	7.5
Arsenic	5.5	5.4
Barium	231	199
Cadmium	4.1	3.0
Copper	515	408
Lead	735	550
Silver	1.6	1.2
Thallium	0.4	0.4
Zinc	450	355

COC = Chemical of Concern

#### Table 7-12B Average Concentration for Preliminary COCs In SEAD-121C Ditch Soil SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

	Average Concentration
	Ditch Soil
Preliminary COC	
	(mg/kg)
Metals	
Antimony	2.3
Cadmium	2.8
Copper	177
Cyanide	0.83
Lead	144
Selenium	1.0
Zinc	291

COC = Chemical of Concern

EPC\_121CAverageEPC\_ditch 7/20/2005

#### Table 7-13A Average Concentration for Preliminary COCs In SEAD-121I Soil SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

	Average Concentration
Preliminary COC	Surface Soil 0-2 ft bgs. (mg/kg)
Semivolatile Organic Compounds	
Anthracene	0.70
Benzo(a)anthracene	1.9
Вепло(а)ругепе	1.7
Benzo(b)fluoranthene	1.9
Benzo(ghi)perylene	1.7
Benzo(k)fluoranthene	1.9
Chrysene	2.4
Phenanthrene	2.9
Pyrene	5.0
Pesticides	
4,4'-DDT	0.0028
Metals	
Antimony	2.5
Arsenic	8.3
Cadmium	0.65
Chromium	29
Cobalt	18
Copper	32
Cyanide	0.36
Lead	30
Manganese	15037
Selenium	6.3
Silver	0.64
Thallium	6.5
Vanadium	21

COC = Chemical of Concern

#### Table 7-13B

#### Average Concentration for Preliminary COCs In SEAD-1211 Ditch Soil SEAD-121C AND SEAD-121I RI REPORT

#### Seneca Army Depot Activity

Preliminary COC	Ditch Soil Average Concentration (mg/kg)
Semivolatile Organic Compounds	
Benzo(a)anthracene	2.5
Benzo(a)pyrene	2.7
Benzo(b)fluoranthene	3.8
Benzo(k)fluoranthene	3.0
Chrysene	3.6
Pyrene	5.1
Metals	
Arsenic	18
Cobalt	19
Manganese	3195
Selenium	2.0
Silver	1.4
Thallium	2.4
Vanadium	21
Zinc	142

COC = Chemical of Concern

# TABLE 7-14A RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MAXIMUM CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

			Deer Mouse		American Robin Mixed Surface	Short-Tailed	Short-Tailed				
	Retained as Final COC(1)	Deer Mouse Surface Soil	Mixed Surface and American Robin Subsurface Soil	American Robin Surface Soil	and Subsurface Soil	Shrew Surface Soil	Shrew Total Soil	Meadow Vole Surface Soil	Meadow Vole Total Soil	Red Fox Surface Soil	Red Fox Total Soil
OPC	Y.N		LOAEL HO	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL H
ganic Compounds	onnds										
Xylene	z	N. V. Marketter and St. St. St. St. St. St. St. St. St. St.	2.E-02				4.E-02		3.5-02		3.E-02
e Organic Compounds	ompounds	A D 1844 1916 1917 1917 1917 1917 1917 1917 1917									
ene	z					1.E-01	1.E-01	2.E-01	2.E-01		
	z					2.E-01	2.E-01	3.E-01	3.E-01		
			The state and from the state of	The state of the s							
254	Z	4.E-01	4.E-01	2.E-01	2.E-01	7.E-01	7.E-01				
	z			2.E+00	2,E+00						
	Z	Commence and the first of the control of the contro						1.E-01	1.E-01		
	z	2.E+01	2.E+01	N/A	N/A	2.E+01	2.E+01	2.E+01	2.E+01	1.E+00	1.E+00
	z	2.E-01	2.E-01	3.E+00	3,E+00	2.E-01	2.E-01	3.E-01	3.E-01		
	z	9.E-01	9.E-01	6.E-01	6.E-01	1.E+00	1.E+00	3.E-01	3.E-01		
	z	2.E+01	2.E+01	5.E+00	5.E+00	2.E+01	2.E+01	6.E+01	6.E+01	3.E+00	3.E+00
	z	2,E+00	2.E+00			2.E+00	2.E+00	2.E+00	2.E+00	1.E+00	1.E+00
	z	3.E+00	3.E+00	1.E+01	1.E+01	6.E+00	6.E+00	2.E+01	2.E+01	5.E-01	5.E-01
	z	6.E-01	6.E-01			7.E-01	7.E-01	6.E-01	6.E-01		
	Z						9.E-02				
	Z	2.E+00	2.E+00	7.E+00	7.E+00	3.E+00	3.E+00	7.E-01	7.E-01		

owest Observed Adverse Effect Level emical of Potential Concern cting Ecotovicity Value d Quotient (Exposure/SEV) mical of Concern for the rationale ed on the maximum detected concentrations 1 and HQ=1 are in bold

# TABLE 7-14B RECEPTOR NOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

OPC	Retained as Final COC <sup>(1)</sup>	Deer Mouse Surface Soil NOAEL HQ	Deer Mouse Mixed Surface and Surface Soil NOAEL HQ NOAEL HQ	American Robin Surface Soil NOAEL HQ	American Robin Mixed Surface and Subsurface Soil NOAEL HQ	Short-Tailed Shrew Surface Soil NOAEL HQ	Short-Tailed Shrew Total Soil NOAEL HQ	Meadow Volc Surface Soil NOAEL HQ	Meadow Vole Total Soil NOAEL HQ	Red Fox Surface Soil NOAEL HQ	Red Fox Total Soi NOAEL F
rganic Compounds	unds										A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Xylene	z		1.E-01				2.E-01		1.E-01		2.E-01
le Organic Compounds	mpounds		The state of the s								
cnc	z					6.E-02	5.E-02	1.E-01	8.E-02		
	z		THE RESERVE OF THE PROPERTY OF THE PROPERTY AND AND AND AND AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERT	TOTAL STATE OF THE		1.E-01	1.E-01	1.E-01	1.E-01		
254	z	1.E-01	1.E-01	1.E-01	1.E-01	2.E-01	2.E-01				
	z			1.E+00	1.E+00						
	z	7.E+00	5.E+00	N/A	N/A	1.E+01	1.E+01	7.E+00	5.E+00	5.E-01	4.E-01
	z	2.E-01	2.E-01	6.E-01	5.E-01	3.E-01	3.E-01	4.E-01	3.E-01		
	z	1.E+00	9.E-01	1.E+00	9.E-01	2.E+00	2.E+00	4.E-01	3.E-01		
	z	1.E+00	9.E-01	4.E-01	3.E-01	1.E+00	1.E+00	4.E+00	3.E+00	2.E-01	2.E-01
	z	1.E+00	8.E-01	5.E+00	4.E+00	2.E+00	2.E+00	6.E+00	5.E+00	2.E-01	2.E-01
	z	4.E-01	3.E-01			6.E-01	6.E-01	5.E-01	4.E-01		
	z						3.E-01				
No. of Cases	z	5.E-01	4.E-01	9.E-03	7.E-01	7.E-01	7.E-01	2.E-01	1.E-01		

No Observed Adverse Effect Level temical of Potential Concern ening Ecotoxicity Value of Quotient (Exposure/SEV) mital of Concern fron the rationale end on the mean concentrations 1 and HQ=1 are in hold

TABLE 7-14C
RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121C SOIL
SEAD-121C AND SEAD-121I RI Report
Seneca Army Depot Activity

OPC	Retained as Final COC <sup>(1)</sup> V/N	Deer Mouse Surface Soil LOAEL HQ	Decr Mouse Mixed Surface and Subsurface Soil LOAEL HQ	Mouse Arface and American Robin face Soil Surface Soil EL HQ	American Robin Mixed Surface and Subsurface Soil LOAEL HQ	Short-Tailed Shrew Surface Soil LOAEL HQ	Short-Tailed Shrew Total Soil LOAEL HQ	Meadow Volc Surface Soil LOAEL HQ	Meadow Vole Total Soil LOAEL HQ	Red Fox Surface Soil LOAEL HQ	Red Fox Total Soi LOAEL H
gank Compounds	spuns										
Xylene	z		4.E-04				7.E-04		5.E-04		6.E-04
e Organic Compounds	spunoduo		WALEST THE STATE OF THE STATE O								
ene	z		And the state of t			6,E-03	5.E-03	1.E-02	8.E-03		
-	z	44,74				1.E-02	1.E-02	1.E-02	1.E-02		
254	z	3.E-02	2.E-02	1.E-02	1.E-02	4.E-02	4.E-02				
		The state of the s							The state of the s		
	z	140000		1.E-01	1.5-01		100 000 000 000 000 000 000 000 000 000				
	z	7.E-01	5.E-01	N/A	N/A	1,E+00	1.E+00	7.E-01	5.E-01	5.E-02	4.E-02
a approximation of	z	2.E-02	2.E-02	3.E-01	3.E-01	3.E-02	3.E-02	4.E-02	3.E-02		
	z	1.E-01	9.E-02	8.E-02	6.E-02	2.E-01	2.E-01	4.E-02	3.E-02		
	z	9.E-01	7.E-01	3.E-01	2.E-01	1.E+00	1.E+00	3.E+00	Z.E+00	2.E-01	1.E-01
	z	1.E-03	8.E-02	5.E-01	4.E-01	2.E-01	2.E-01	6.E-01	5.E-01	2.E-02	2.E-02
	z	4.E-02	3.E-02			6.E-02	6.E-02	5.E-02	4.E-02		
	z						3.E-02				
	z	2.E-01	2.E-03	9.E-01	7.E-01	4.E-01	4.E-01	9.E-02	7.E-02		

owest Observed Adverse Effect Level mical of Potential Concern ming Ecotoxicity Value d Quotient (Exposure SEV) mical of Concern for the rationale for the rationale ed on the mean concentrations and HQ=1 are in bold.

## CEPTOR LOAEL HAZARD QUOTIENTS BASED ON MAXIMUM CONCENTRATION - SEAD-121C DITCH SOIL TABLE 7-15A

## SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

COPC	Retained as Final COC <sup>(1)</sup>	Deer Mouse Ditch Soil LOAEL HQ	Americau Seer Mouse Robin Ditch Soil Ditch Soil	Short-Tailed Shrew Ditch Soil LOAEL HQ	Meadow Vole Ditch Soil LOAEL HQ	Red Fox Ditch Soil LOAEL HQ	Great Blue Heron Ditch Soil LOAEL HQ
IIS		and the second s					
inum	Z				1.E-01		
nony	Z	3.E-01		5.E-01	4.E-01		
nium	Z	4.E-01	3.E-01	6.E-01	1.E-01		
er	Z	2.E+00		2.E+00	7.E+00		
ide	Z		8.E-02				3.E-02
	Z	2.E+00		2.E+00	2.E+00	1.E+00	
	Z		3.E-01	1.E-01	4.E-01		1.E-01
nium	Z			8.E-01			
	Z		1.E+00				

L = Lowest Observed Adverse Effect Level

<sup>=</sup> Chemical of Potential Concern

<sup>·</sup> Screening Ecotoxicity Value

Hazard Quotient (Exposure/SEV)

<sup>-</sup> Chemical of Concern DPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor  $\{s \text{ based on the maximum detected concentrations.}$ 

HQ>1 and HQ=1 are in bold.

ECEPTOR NOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report TABLE 7-15B

Seneca Army Depot Activity

COPC	Retained as Final COC <sup>(1)</sup>	Deer Mouse Ditch Soil NOAEL HQ	American leer Mouse Robin Ditch Soil Ditch Soil OAEL HQ	Short-Tailed Shrew Ditch Soil NOAEL HQ	Meadow Vole Ditch Soil NOAEL HQ	Red Fox Ditch Soil NOAEL HQ	Great Blue Heron Ditch Soil NOAEL HQ
ls							
nony	Z	2.E+00		2.E+00	2.E+00		
nium	Z	8.E-01	8.E-01	1.E+00	3.E-01		
er	Z	4.E-01		5.E-01	1.E+00		
ide	Z		1.E+00				4.E-01
	z		1.E+00	5.E-01	1.E+00		3.E-01
ium	z	:		6.E-01			
	Z		6.E-01				

L = No Observed Adverse Effect Level

<sup>=</sup> Chemical of Potential Concern

Screening Ecotoxicity Value

Hazard Quotient (Exposure/SEV)

OPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor is based on the mean concentrations. · Chemical of Concern

HQ>1 and HQ=1 are in bold.

LECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity TABLE 7-15C

	Retained as Final COC <sup>(1)</sup>	Deer Mouse Ditch Soil	American Robin Ditch Soil	Short-Tailed Shrew Ditch Soil	Meadow Vole Ditch Soil	Red Fox Ditch Soil	Great Blue Heron Ditch Soil
COPC	Χ/N		7	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ
ls							
nony	z	2.E-01		2.E-01	2.E-01		
nium	z	8.E-02	6.E-02	1.E-01	3.E-02		
ы	Z	3.E-01		4.E-01	1.E+00		
ide	z		3.E-02				1.E-02
	Z		1.E-01	5.E-02	1.E-01	:	3.E-02
ium	Z			3.E-01			
	z		6.E-01				

L = No Observed Adverse Effect Level

<sup>=</sup> Chemical of Potential Concern

Screening Ecotoxicity Value

Hazard Quotient (Exposure/SEV)

PPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor is based on the mean concentrations. · Chemical of Concern

HQ>1 and HQ=1 are in bold.

# TABLE 7-16A RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MAXIMUM CONCENTRATION - SEAD-1211 SOIL

## SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

COPC	Retained as Final COC <sup>(1)</sup> Y/N	Deer Mouse Surface Soil LOAEL HQ	American Robin Surface Soil LOAEL HQ	Short-Tailed Shrew Surface Soil LOAEL HQ	Meadow Vole Surface Soil LOAEL HQ	Red Fox Surface Soil LOAEL HQ
Semivolatile Organic Compounds			-			
Anthracene	z				1.E-01	
Benzo(a)anthracene	z				2.E-01	
Benzo(a)pyrene	Z			1.E-01	2.E-01	
Benzo(b)fluoranthene	z			1.E-01	2.E-01	
Benzo(ghi)perylene	z			1.E-01	2.E-01	
Benzo(k)fluoranthene	z			1.E-01	2.E-01	
Chrysene	z			1.E-01	2.E-01	
Phenanthrene	z	2.E-01		3.E-01	4.E-01	
Pyrene	z	2.E-01		3.E-01	5.E-01	
Pesticides						
4,4'-DDT	z	:	7.E-01			
Metals						
Antimony	z	5.E-01		8.E-01	5.E-01	
Arsenic	z	1.E+00		2.E+00	2.E+00	1.E-01
Cadmium	Z	2.E-01	1.E-01	3.E-01		
Chromium	z		2.E+00			
Cobalt	z	5.E-01		8.E-01	9.E-01	
Copper	z				1.E+00	
Cyanide	Z		7.E-02			
Lead	z		-		1.E-01	
Manganese	Z	3.E+01	1.E+01	4.E+01	9.E+01	4.E+00
Selenium	z	3.E+01	2.E+01	5.E+01	3.E+01	3.E+00
Silver	z			1.E-01		
Thallium	z	8.E+00	3.E+01	1.E+01	8.E+00	1.E+00
Vanadium	z	6.E+00	2.E-01	9.E+00	5.E+00	4.E-01

LOAEL = Lowest Observed Adverse Effect Levei COPC = Chemical of Potential Concern SEV = Sereening Ecotoxicity Value HQ= Hazard Queitent (Exposure/SEV) Co. ~ Chemical of Concern (1) See text for the rationale. (2) HQs based on the maximum detected concentrations Note: HQ>1 and HQ>1 are in hold.

# RECEPTOR NOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-1211 SOIL TABLE 7-16B

## SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

COPC	Retained as Final COC <sup>(1)</sup> Y/N	Deer Mouse Surface Soil NOAEL HQ	American Robin Surface Soil NOAEL HQ	Short-Tailed Shrew Surface Soil NOAEL HQ	Meadow Vole Surface Soil NOAEL HQ	Red Fox Surface Soil NOAEL HQ
Semivolatile Organic Compounds						
Anthracene	Z				6.E-02	-
Benzo(a)anthracene	Z				1.E-01	
Benzo(a)pyrene	z			9.E-02	1.E-01	
Benzo(b)fluoranthene	z			1.E-01	1.E-01	
Benzo(ghi)perylene	z			9.E-02	1.E-01	
Benzo(k)fluoranthene	Z			1.E-01	1.E-01	
Chrysene	z			8.E-02	2.E-01	
Phenanthrene	z	9.E-02		1.E-01	2.E-01	
Pyrene	z	1.E-01		2.E-01	4.E-01	
Pesticides						
4,4'-DDT	z		5.E-01			
Metals						
Antimony	z	2.E+00		3.E+00	2.E+00	
Arsenic	z	3.E-01		6.E-01	6.E-01	3.E-02
Cadmium	z	2.E-01	2.E-01	3.E-01		
Chromium	z		2.E-01			
Cobalt	Z	4.E-01		7.E-01	8.E-01	
Copper	z				2.E-01	
Cyanide	z		4.E-01			
Lead	z				2.E-01	
Manganese	z	5.E+00	6.E+00	6.E+00	1.E+01	5.E-01
Selenium	z	2.E+00	1.E+00	3.E+00	2.E+00	2.E-01
Silver	z			2.E-01		
Thallium	z	3.E+00	2.E+00	5.E+00	3.E+00	6.E-01
Vanadium	Y	4.E-01	2.E-01	7.E-01	4.E-01	2.E-02

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NOAEL = No Observed Adverse Effect Level
COPC = Chemical of Potential Concern
SEV = Screening Ecotoxicity Value
HQ = Hazard Quotint (Exposure/SEV)
CQC = Chemical Of Concern
(1) See text for the rationale.
(2) HQs based on the mean concentrations
Note: HQ>1 and HQ=1 are in bold.

# RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATION - SEAD-1211 SOIL TABLE 7-16C

## SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity

COPC	Retained as Final COC <sup>(1)</sup> Y/N	Deer Mouse Surface Soil LOAEL HQ	American Robin Surface Soil LOAEL HQ	Short-Tailed Shrew Surface Soil LOAEL HQ	Meadow Vole Surface Soil LOAEL HQ	Red Fox Surface Soil LOAEL HQ
Semivolatile Organic Compounds						
Anthracene	z				6.E-03	
Benzo(a)anthracene	z				1.E-02	
Вепго(а)рутепе	z			9.E-03	1.E-02	
Benzo(b)fluoranthene	z			1.E-02	1.E-02	
Benzo(ghi)pcrylene	z			9.E-03	1.E-02	
Benzo(k)fluoranthene	z			1.E-02	1.E-02	
Chrysene	z			8.E-03	2.E-02	
Phenanthrene	z	9.E-03		1.E-02	2.E-02	
Pyrene	z	1.E-02		2.E-02	4.E-02	
Pesticides						
4,4'-DDT	z		5.E-02			
Metals						:
Antimony	z	2.E-01	:	3.E-01	2.E-01	:
Arsenic	Z	3.E-01		5.E-01	5.E-01	3.E-02
Cadmium	z	2.E-02	1.E-02	3.E-02		
Chromium	z		1.E-01			
Cobalt	Z	4.E-02	-	7.E-02	8.E-02	
Copper	z				2.E-01	
Cyanide	z		1.E-02		-	-
Lead	z				2.E-02	
Manganese	z	1.E+00	6.E-01	2.E+00	4.E+00	2.E-01
Selenium	z	1.E+00	7.E-01	2.E+00	1.E+00	1.E-01
Silver	z			2.E-02		
Thallium	z	3.E-01	1.E+00	5.E-01	3.E-01	6.E-02
Vanadium	z	7.E-01	2.E-02	1.E+00	6.E-01	5.E-02

LOAEL = Lowest Observed Adverse Effect Level
COPC = Chemical of Potential Concern
SEV = Screening Ecotoxicity Value
HQ = Hazard Quotient (Exposure/SEV)
COC = Chemical of Concern
(1) See text for the rationale.
(2) HQs based on the mean concentrations
Note: HQ>1 and HQ=1 are in bold.

RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MAXIMUM CONCENTRATION - SEAD-1211 DITCH SOIL SEAD-1211 RI Report TABLE 7-17A

# Seneca Army Depot Activity

	Retained as	Deer Mouse	American Robin	Short-Tailed Shrew	Meadow Vole	Red Fox	Great Blue Heron
	final COC(1)	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil
COPC	Y/N	LOAEL HU	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ
Semivolatile Organic Compounds	spunode						
Benzo(a)anthracene	z				1.E-01		
Benzo(a)pyrene	z				1.E-01		
Benzo(b)fluoranthene	z			1.E-01	2.E-01		
Benzo(k)fluoranthene	z			1.E-01	2.E-01		
Chrysene	z				2.E-01		
Рутепе	z				1.E-01		-
Metals							
Arsenic	z	3.E+00	8.E-01	6.E+00	6.E+00	3.E-01	
Cobalt	z	2.E-01		4.E-01	4.E-01		
Manganese	z	1.E+00	6.E-01	2.E+00	4.E+00		1.E-01
Selenium	z	4.E+00	2.E+00	6.E+00	4.E+00		
Silver	z	3.E-01		4.E-01	3.E-01		
Thallium	z	1.E+00	4.E+00	2.E+00	1.E+00	2.E-01	7.E-01
Vanadium	z	2.E+00		4.E+00	2.E+00	2.E-01	
Zinc	z		1.E+00				

LOABL = Lowest Observed Adverse Effect Level COPC = Chemical of Potential Concern SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COPC = Chemical of Potential Concern
(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor
(2) HQs based on the maximum detected concentrations.

Note: HQ>1 and HQ=1 are in bold.

# RECEPTOR NOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATIONS - SEAD-1211 DITCH SOIL TABLE 7-17B

## SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

Preliminary   Deer Mouse   Robin   Shrew   Meadow Vole		Retained as		American	Short-Tailed			
Ditch Soil   Ditch Soil   Ditch Soil   Ditch Soil		Preliminary	Deer Mouse	Корія	Shrew	Meadow Vole	Red Fox	Great Blue Heron
N NOAEL HQ NOAEL HQ NOAEL HQ NOAEL HQ  2.E-01 2.E-01 2.E-01 3.E-01		(1) COC(1)	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil
2.E-01 2.E-01 2.E-01 3.E-01 4.E-01 3.E-01 4.E-01 3.E-01 4.E-01	COPC	Y/N	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ	NOAEL HQ
2E-01 2E-01 2E-01 2E-01 3E-01	Semivolatile Organic Com	spunode						
o(a)pyrene         N         2E-01         2E-01           o(b)fluoranthene         N         2E-01         3E-01           o(k)fluoranthene         N         2E-01         2E-01           sene         N         3E-01         3E-01           sene         N         4E-01         1E+00         1E+01           tls         N         7E-01         4E-01         1E+00         1E+00           tlt         N         7E-01         4E-01         1E+00         7E-01           tlum         N         7E-01         4E-01         1E+00         7E-01           tlum         N         4E-01         1E+00         1E+00         1E+00           dum         N         4E-01         1E+00         1E+00         1E+01           tlum         N         4E-01         7E-01         4E-01         1E+00           dum         N         4E-01         7E-01         4E-01         1E+00	Benzo(a)anthracene	Z				2.E-01		
O(b)fluoranthene         N         2.E-01         3.E-01           o(k)fluoranthene         N         2.E-01         2.E-01           sene         N         3.E-01           sene         N         7.E-01         4.E-01         1.E+00           Is         N         7.E-01         4.E-01         1.E+00         1.E+00           sic         N         7.E-01         4.E-01         1.E+00         7.E-01           sin         N         7.E-01         4.E-01         7.E-01         4.E-01           r         N         7.E-01         7.E-01         7.E-01           r         N         7.E-01         7.E-01         7.E-01           r         N         4.E-01         7.E-01         7.E-01           r         N         4.E-01         7.E-01         7.E-01	Benzo(a)pyrene	z				2.E-01		
o(k)fluoranthene         N         2E-01         2E-01           sene         N         3E-01           sene         N         7.E-01         4.E-01         4.E-01           Is         N         7.E-01         4.E-01         1.E+00         1.E+00           Is         N         7.E-01         4.E-01         1.E+00         7.E-01           ganese         N         7.E-01         4.E-01         1.E+00         7.E-01           r         N         4.E-01         7.E-01         4.E-01           r         N         4.E-01         7.E-01         7.E-01           r         N         4.E-01         7.E-01         7.E-01	Benzo(b)fluoranthene	z			2.E-01	3.E-01		
sene         N         3.E-01           te         N         7.E-01         4.E-01         4.E-01           dic         N         7.E-01         4.E-01         1.E+00         1.E+00           lit         N         1.E+00         1.E+00         3.E+01           sanese         N         7.E-01         4.E-01         1.E+00         7.E-01           r         N         4.E-01         7.E-01         4.E-01           r         N         4.E-01         7.E-01         7.E-01           dium         N         4.E-01         7.E-01         7.E-01           dium         N         4.E-01         7.E-01         7.E-01	Benzo(k)fluoranthene	z			2.E-01	2.E-01		
15	Chrysene	z				3.E-01		
15	Рутепе	z				4.E-01		
nic         N         7.E-01         4.E-01         1.E+00         1.E+00         1.E+00           Ilt         N         5.E-01         8.E-01         8.E-01         8.E-01           ganese         N         1.E+00         1.E+00         7.E-01           r         N         7.E-01         7.E-01         7.E-01           r         N         4.E-01         5.E-01         4.E-01           dium         N         4.E-01         7.E-01         4.E-01           N         4.E-01         7.E-01         4.E-01	Metals							
If         N         5.E-01         8.E-01         8.E-01           ganese         N         1.E+00         1.E+00         1.E+00         3.E+00           nium         N         7.E-01         4.E-01         7.E-01         4.E-01           r         N         4.E-01         5.E-01         4.E-01           dium         N         4.E-01         7.E-01         4.E-01           dium         N         4.E-01         7.E-01         4.E-01	Arsenic	z	7.E-01	4.E-03	1.E+00	1.E+00	5.E-02	
ganese         N         1.E+00         1.E+00         1.E+00         3.E+00           nium         N         7.E-01         4.E-01         7.E-01         7.E-01           r         N         4.E-01         5.E-01         4.E-01           ium         N         1.E+00         7.E-01         4.E-01           dium         N         4.E-01         7.E-01         4.E-01	Cobalt	Z	5.E-01		8.E-01	8.E-01		
iium         N         7E-01         4.E-01         1.E+00         7.E-01           f         N         4.E-01         5.E-01         4.E-01           ium         N         1.E+00         7.E-01         2.E-00         1.E+00           dium         N         4.E-01         7.E-01         4.E-01	Manganese	z	1.E+00	1.E+00	1.E+00	3.E+00		3.E-01
r N 4E-01 5.E-01 4.E-01 1.E+00 lium N 4.E-01 7.E-01 7.E-01 7.E-01 4.E-01 N 4.E-01 N A.E-01 N N A.E-01 N N N N N N N N N N N N N N N N N N N	Selenium	z	7.E-01	4.E-01	1.E+00	7.E-01		
dium N 1.E+00 7.E-01 2.E+00 1.E+00 dium N 4.E-01 7.E-01 7.E-01	Silver	z	4.E-01		5.E-01	4.E-01		
dium N 4.E.01 7.E.01 \ 4.E.01	Thallium	z	1.E+00	7.E-01	2.E+00	1.E+00	2.E-01	1.E-01
2	Vanadium	z	4.E-01		7.E-01	4.E-01	2.E-02	
	Zinc	Z		3.E-01				

NOAEL = 'No Observed Adverse Effect Level

COPC = Chemical of Potential Concern

SEV = Screening Ecotoxicity Value

HQ = Hazard Quotient (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ\*\*1 for any receptor

(2) HQs based on the mean concentrations.

Note: HQ>1 and HQ=1 are in bold.

TABLE 7-17C RECEPTOR LOAEL HAZARD QUOTIENTS BASED ON MEAN CONCENTRATIONS - SEAD-1211 DITCH SOIL

### SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity

	Retained as		American	Short-Tailed			Parada and the second s
	Preliminary	Deer Mouse	Robin	Shrew	Meadow Vole	Red Fox	Great Blue Heron
	(D)	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil	Ditch Soil
COPC	Y/N	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ	LOAEL HQ
Semivolatile Organic Compounds	spunodu						
Bcnzo(a)anthracene	z				2.E-02		
Benzo(a)pyrene	z				2.E-02		
Benzo(b)fluoranthene	z			2.E-02	3.E-02		
Benzo(k)fluoranthene	z			2.E-02	2.E-02		
Chrysene	z				3.E-02		
Pyrene	z				4.E-02		
Metals							
Arsenic	z	6.E-01	1.E-01	1.E+00	1.E+00	6.E-02	
Cobalt	z	5.E-02		8.E-02	8.E-02		
Manganese	z	3.E-01	1.E-01	4.E-01	9.E-01		3.E-02
Selenium	z	4.E-01	2.E-01	7.E-01	4.E-01		
Silver	Z	4.E-02		5.E-02	4.E-02		
Thallium	z	1.E-03	5.E-01	2.E-01	1.E-01	2.E-02	7.E-02
Vanadium	z	7.E-01		1.E+00	6.E-01	5.E-02	
Zinc	Z		3.E-01				

LOAEL = Lowest Observed Adverse Effect Level

COPC = Chemical of Potential Concem

SEV = Screening Footnxicity Value

HQ = Hazard Quotion (Exposure/SEV)

COC = Chemical of Concern

(1) COPC considered a preliminary COC if NOAEL HQ > 1 or HQ=1 for any receptor

(2) HQs based on the mean concentrations.

Note: HQ>1 and HQ=1 are in hold.

Comparison of Site Concentrations with Background - SEAD-121C Soil SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-18A

	Maxim	Maximum Detected					
	Conc	Concentration	Average Concentration	centration	Вас	Background (mg/kg)	
enminary	Surface Soil	Total Soil	Surface Soil	Total Soil			
202	0-2 ft bgs.	0-4 ft bgs.	0-2 ft bgs.	0-4 ft bgs.	Maximum	Average	95% UCL
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			
ganics							
mony	236	236	10	7.5	6.55	2.7	3.3
ım	2030	2030	231	199	159	79	86
nium	29.1	29.1	4.1	3.0	2.9	0.54	0.74
mium	74.8	74.8	25	25	32.7	20	22
)er	9750	9750	515	408	62.8	21	23
	18900	18900	735	550	266	17.7	27.6
ır	21.8	21.8	1.6	1.2	0.87	0.38	0.45
lium	1.1	1.8	0.4	0.4	1.2	0.255	0.32
	3610	3610	450	355	126	71.7	77.5

= Chemical of concern

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TABLE 7-18B

Comparison of Site Concentrations with Background - SEAD-121C Ditch Soil SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

Preliminary	Maximum Detected Concentration	Average Concentration	B	Background (mg/kg)	(g)
202	Stockpile Soil (mg/kg)	Stockpile Soil (mg/kg)	Maximum	Average	95% UCL
Inorganics					
Antimony	4.9	2.3	6.55	2.7	3.3
Cadmium	14.3	2.8	2.9	0.54	0.74
Copper	1190	177	62.8	21	23
Cyanide	2.36	0.83	0.39	0.29	0.30
Lead	436	144	266	17.7	27.6
Selenium	2.5	0.1	1.7	0.36	0.45
Zinc	999	291	126	7.17	77.5

COC = Chemical of concern

Comparison of Site Concentrations with Background - SEAD-1211 Soil SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity **TABLE 7-19A** 

Preliminary	Maximum Defected				
T TEILING TO	Concentration	Average Concentration	Bac	Background (mg/kg)	
	Surface Soil	Surface Soil			
202	0-2 ft bgs.	0-2 ft bgs.	Maximum	Average	95% UCL
	(mg/kg)	(mg/kg)			
Inorganics					
Antimony	7.5	2.5	6.55	2.7	3.3
Arsenic	32.1	8.3	21.5	5.2	5.97
Cadmium	9.9	0.65	2.9	0.54	0.74
Chromium	439	29	32.7	20	22
Cobalt	205.5	81	29.1	11.5	12.66
Copper	209	32	62.8	21	23
Cyanide	2	0.36	0.39	0.29	0.30
Lead	122	30	266	17.7	27.6
Manganese	310500	15037	2380	609	701
Silver	3.65	0.64	0.87	0.38	0.45
Thallium	162.5	6.5	1.2	0.255	0.32
Vanadium	182	21	32.7	21.2	22.9

COC = Chemical of concern

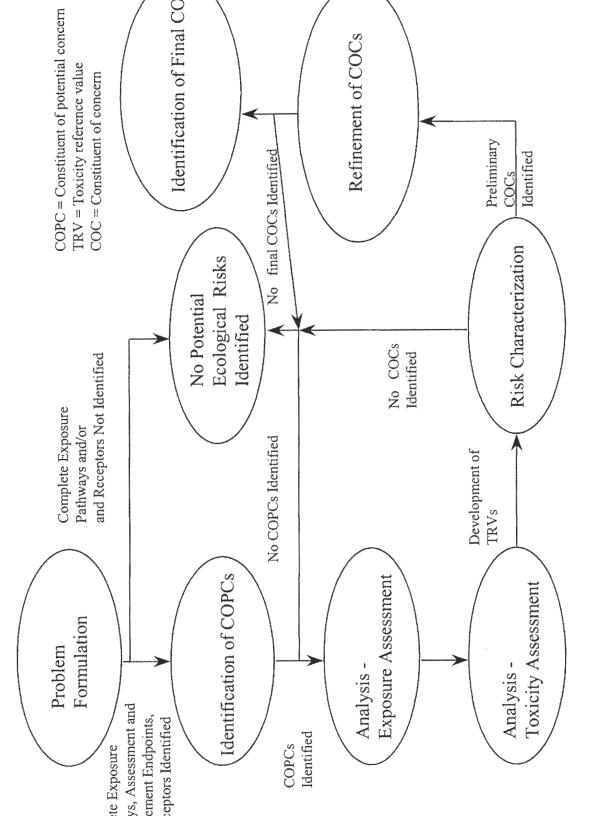
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Comparison of Site Concentrations with Background - SEAD-1211 Ditch Soil SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE 7-19B

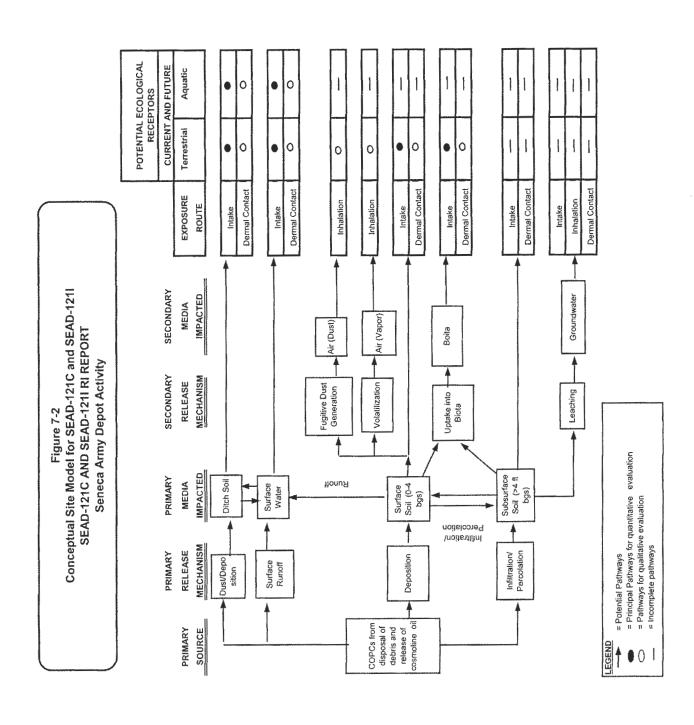
Preliminary	Maximum Detected Concentration	Average Concentration	B	Background (mg/kg)	3)
200	Stockpile Soil (mg/kg)	Stockpile Soil (mg/kg)	Maximum	Average	95% UCL
Inorganics					
Arsenic	104	18	21.5	5.2	5.97
Cobalt	91.9	19	29.1	11.5	12.66
Manganese	14900	3195	2380	609	701
Selenium	18	2.0	1.7	0.36	0.45
Silver	10.5	1.4	0.87	0.38	0.45
Thallium	21.5	2.4	1.2	0.255	0.32
Vanadium	69.4	21	32.7	21.2	22.9
Zinc	532	142	126	71.7	77.5

COC = Chemical of concern

# Figure 7-1 Screening Level Ecological Risk Assessment Process



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### 8.0 CONCLUSIONS AND RECOMMENDATIONS

### 8.1 CONCLUSIONS

### 8.1.1 SEAD-121C: The Defense Reutilization and Marketing Office (DRMO) Yard

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

### 8.1.2 SEAD-1211: Rumored Cosmoline Oil Disposal Area

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

### 8.2 RECOMMENDATIONS

Based on the baseline risk assessment and the screening level ecological risk assessment, a risk-based action will not be necessary at SEAD-121C or SEAD-121I. Institutional controls (ICs) in the form of land use restrictions have been imposed on the greater PID Area in the Final Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas (Parsons, 2004), signed on September 28, 2004 by USEPA. These restrictions are as follows:

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

The Army recommends that these restrictions remain in effect for SEAD-121C and SEAD-121I until additional data are developed and evaluated to substantiate their removal at either or both of the sites.

### APPENDIX A MSDS FOR COSMOLINE OIL

### **Material Safety Data Sheet**

RPC-2

Complies with OSHA's Hazard Communication Standard 29 CFR 1910.1200.

GOODSON
Tools and Supplies for Engine Builders
Airport Industrial Park • P.O Box 847 • Winona, MN 55987-0847
Toil-Free 1-800-533-8010 • Local 507-452-1830 • www.goodson.com

**Date of Preparation:** June 17, 1996

### 1. MATERIAL IDENTITY

Part No.: RPC-2

Description: Cosmoline

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

The criteria for listing components in the composition section is as follows: Carcinogens are listed when present at 0.1% or greater; components which are otherwise hazardous according to OSHA are listed when present at 1.0% or greater; Non-Hazardous components are listed at 3.0% or greater. This is not intended to be a complete compositional disclosure. Refer to section 14 for applicable states' right to know and other regulatory information.

Product and/or Component(s) Carcinogenic According to:	<u>OSHA</u>	<u>IARC</u>	NTP	<u>OTHER</u>	NONE
					Y

### COMPOSITION: (SEQUENCE NUMBER AND CHEMICAL NAME)

Seq.	Chemical Name	CAS#	Range in %
01	Complex Mixture of Petroleum Hydrocarbons	8009-03-8	35.00-49.99
02	#Severely hydrotreated heavy naphthenic distillate	64741-95-3	20.00-34.99
03	*Stoddard solvent	8052-41-3	20.00-34.99
04	*Wool grease	8020-84-6	3.00-9.99
05	*Stearic acid.alkyl ester	123-95-5	1.00-2.99

Product is Hazardous According to OSHA (1910.1200)

### EXPOSURE LIMITS REFERENCED BY SEQUENCE NUMBER IN THE COMPOSITION SECTION

Seq.	Limit
02	5 mg/m³ TWA-OSHA (Mineral Oil Mist)
02	5 mg/m³ TWA-ACGIH (Mineral Oil Mist)
02	10 mg/m³ STEL-ACGIH (Mineral Oil Mist)
03	100 ppm TWA-OSHA
03	525 mg/m³ TWA-ACGIH

### 3. HEALTH IDENTIFICATION

EMERGENCY OVERVIEW Appearance: Dark brown liquid Odor: Not determined

WARNING STATEMENT Caution: May cause dizziness & drowsiness. Oil mist may cause respiratory irritation.

Combustible Liquid & Vapor. Do Not use to coat interior of portable water tanks.

HMIS: Health 0, Reactivity 0, Flammability 2, Special - NFPA: Health 0, Reactivity 0, Flammability 2, Special -

POTENTIAL HEALTH EFFECTS Primary Routes of Exposure: Eye, Skin, Inhalation

EFFECTS OF OVEREXPOSURE - ACUTE

Eyes: May cause minimal irritation, experienced as temporary discomfort.

Skin: Brief contact is not irritating. Prolonged contact, as with clothing wetted with material, may cause defatting of skin or irritation, seen as local redness with possible mild discomfort. Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact: see other effects, below & section 11 for information regarding potential long term effects.

**Inhalation:** Vapors or mist, in excess of permissible concentrations, or in unusually high concentrations generated from spraying, heating the material or as from exposure in poorly ventilated areas or confined spaces, may cause irritation of the nose & throat, headache, nausea, & drowsiness.

Ingestion: If more than several mouthfuls are swallowed, abdominal discomfort, nausea, & diarrhea may occur.

<sup>\*</sup>Component is Hazardous according to OSHA.

<sup>#</sup>Component, by definition, is considered hazardous according to OSHA because it carries the permissible exposure limit (PEL) for mineral oil mist.

### 3. HEALTH IDENTIFICATION CONT...

Sensitization Properties: Unknown

Chronic: No adverse effects have been documented in humans as a result of chronic exposure. Section 11 may contain applicable animal data.

Medical conditions aggravated by exposure: Because of its defatting properties, prolonged & repeated skin contact may aggravate an existing dermatitis (skin condition).

Other Remarks: Material from high pressure equipment, pinhole leaks, or high pressure line failure can penetrate the skin & if not properly treated can cause sever injury, including disfigurement, loss of function, or even require amputation of the affected area. To prevent such serious injury, immediate medical attention should be sought even if the injection injury appears to be minor.

### 4. FIRST AID

Eyes: Flush eyes with plenty of water for several minutes. Get medical attention if eye irritation persists,

Skin: Wash skin with plenty of soap & water for several minutes. Get medical attention if skin irritation develops or persists.

**Ingestion:** If more than several mouthfuls of this material are swallowed, give two glasses of water (16oz.). Get medical attention.

**Inhalation:** If irritation, headache, nausea, or drowsiness occurs, remove to fresh air. Get medical attention if breathing becomes difficult or respiratory irritation persists.

Other Instructions: High pressure injection of material can cause severe injury. Failure to debride the would of all residual material can result in disfigurement, loss of function, or may require amputation of the affected area. Remove & dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.

### 5. FIREFIGHTING MEASURES

Ignition Temperature - AIT: not determined

Flash Point(°F): 125°F (COC)

Flammable Limits (%): Upper: not determined Lower: not determined

Recommended Fire Extinguishing Agents & Special Procedures: Use water spray, dry chemical, foam, or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers.

Unusual or Explosive Hazards: None

Extinguishing Media which must NOT be used: not determined

Special Protective Equipment for Firefighters: No special equipment or procedures required.

### 6. ACCIDENTAL RELEASE MEASURES

**Procedures in case of accidental release, breakage or leakage:** Ventilate area. Avoid breathing vapor. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers & waterways. Avoid contact with skin, eyes or clothing.

### 7. HANDLING AND STORAGE

Precautions to be Taken in Handling: Minimum feasible handling temperatures should be maintained.

**Precautions to be Taken in Storage:** Store away from heat & open flame. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### PERSONAL PROTECTION

Eye/Face Protection: Safety glasses, chemical type goggles, or face shield recommended to prevent eye contact.

**Skin Protection:** Workers should wash exposed skin several times daily with soap & water. Soiled work clothing should be laundered or dry-cleaned.

**Respiratory Protection:** Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated & the occupational exposure limit of the product, or any component of the product, is exceeded. Use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.

**Ventilation:** Adequate to meet component occupational exposure limits (see Section 2).

Exposure Limit for Total Product: None established for product: refer to Section 2 for component exposure limits.

### 9. PHYSICAL PROPERTIES

Appearance:dark brown liquidOdor:not determinedBoiling Point (°F):not determinedVapor Pressure:not determinedMelting / Freezing Point:not applicableVapor Density:not determined (air=1)

Specific Gravity: not determined (water=1) Viscosity: not determined pH of undiluted product: not applicable Solubility in Water(%): not determined

VOC Contact: not determined Other: None

### 10. STABILITY & REACTIVITY

This Material Reacts Violently with: (If OTHERS is checked below, see comments for details.)

AIR WATER HEAT STRONG OXIDIZERS OTHERS NONE OF THESE

Comments: None

Products Evolved when Subjected to Heat or Combustion: Toxic levels of carbon monoxide, carbon dioxide, irritating aldehydes

& ketones.

Hazardous Polymerizations: Do not occur.

### 11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)

Median Lethal Dose: Oral: LD50 believed to be >5.00g/kg (rat) practically non-toxic Inhalation: not determined

**Dermal:** LD50 believed to be >2.00g/kg (rabbit) practically non-toxic

Irritation Index, Estimation of Irritation (species): Skin: (Draize) believed to be < .50/8.0 (rabbit) no appreciable effect

Eyes: (Draize) believed to be <15.00/110 (rabbit) no appreciable effect

Sensitization: not determined

. Other: none

### 12. DISPOSAL CONSIDERATIONS

Waste Disposal Methods: This product (as presently constituted) has the RCRA characteristics of ignitability and if discarded in it present form, would have the hazardous waste number of D001. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because the product uses, transformations, mixtures, processes, etc. may change the classification to non-hazardous, or hazardous for reasons other than, or in addition to ignitability.

Remarks: None

### 13. TRANSPORT INFORMATION

**DOT:** Proper Shipping Name: Combustible liquid, N.O.S. (petroleum distillate)

Hazard Class: Combustible liquid (LAND TRANSPORT ONLY - 49CFR 173.120 (b) (2))

Identification No.: NA 1993
Packing Group: III
Label Required: None

IMDG: Proper Shipping Name: Petroleum distillates, N.O.S.

Hazard Class: 3.3

Identification No.: UN 1268 (P.G. III)

Label Required: Flammable liquid

ICAD: Proper Shipping Name: Petroleum distillates, N.O.S.

Hazard Class: 3

Identification No.:UN 1268 (P.G. III)Label Required:Flammable liquid

TDG: Proper Shipping Name: not evaluated

### 14. REGULATORY INFORMATION

FEDERAL REGULATIONS

SARA TITLE III, Section 302/304 Extremely Hazardous Substances:

Seq. Chemical Name CAS # Range in %

None

Section 311 Hazardous Categorization:

Acute Chronic Fire Pressure Reactive N/A

Section 313 Toxic Chemical:

Chemical Name CAS # Concentration

None

CERCLA 102 (a)/DOT Hazardous Substances: (+ indicates DOT Hazardous Substance)

Seq. Chemical Name CAS # Range in %

None

CERCLA/DOT Hazardous Substances (Sequence Numbers & RQ's):

Seq. RQ

None

TSCA Inventory Status: This product, or its components are listed on or are exempt from the Toxic Substance Control Act (TSCA)

Chemical Substance Inventory.

Other: None

STATE REGULATIONS

California Proposition 65: The following detectable components of this product are substances or belong to classes of substances, known to the State of California to cause cancer and/or reproductive toxicity.

Chemical Name CAS #

None

States Right-to-Know Regulations:

Chemical Name State Right-to-Know

Stoddard solvent Florida, Illinois, Massachusetts, New Jersey, Pennsylvania, Rhode Island

INTERNATIONAL REGULATIONS

WHMIS Classification: Class B, Div 3: Combustible liquid

Canada Inventory Status: This product, or its components, are listed on or are exempt from the Canadian Domestic

Substance List (DSL).

EINECS Inventory Status: not determined

Australia Inventory Status: This product, or its components, are listed on or are exempt from the Australian Inventory of

Chemical Substance (AICS).

Japan Inventory Status: not determined

15. ENVIRONMENTAL INFORMATION

Aquatic Toxicity: not determined Mobility: not determined

Persistence & Biodegradability: not determined Potential to Bioaccumulate: not evaluated

Remarks: not evaluated

### 16. OTHER INFORMATION

This product is not recommended for coating the interior of portable water tanks.

The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.

### APPENDIX B

### SOIL BORING LOGS

- SEAD -121C
- SEAD-121I

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PAGE 1 OF Z

				OVER	BURD	EN BOI	RING RE			•
		PA	RSOI	NS		CLIENT:	WALVE	BORI	NG NO.:	SB DRMO-5 10/27/02
PROJEC	Γ:		F	PCD CT				START D	ATE:	10/27/02
SWMU#	(AREA)	:		LINO				FINISH D		J.
SOP NO.	:			1175				CONTRA	CTOR:	Lym Dolling
			DRII	LING SI	UMMARY			DRILLER	:	Harm / Rok
DRILLING	HOLE	DEP	TH	SAM	IPLER	F	HAMMER	INSPECT	OR:	Ben / Tenu
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MRSLC		MUD-ROTA		CORING	HHR		C HAMMER	5I NC		/AL SAMPLING
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					UMMARY			DRILLER	: 7	Harry Lyon Trich			
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DW		DRIVE-AND			SHR	SAFETY H		CS		US SAMPLING			
MRSLC CA		MUD-ROTA CASING AI		CORING	HHR DHR		IC HAMMER LE HAMMER	5I NS	5 FT INTERV	VAL SAMPLING			
SPC		SPIN CASIN			WL			ST	SHELBY TU				
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PAGE 1 OF 2

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DRILLING	HOLE	DEP	гн	SAM	PLER	ŀ	IAMMER	INSPECT	OR:	Ben/Jen	
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MRSLC CA		MUD-ROTAL CASING AD		CORING	HHR DHR		C HAMMER LE HAMMER	SI NS	NO SAMPLE	VAL SAMPLING NG	
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					UMMARY			DRILLER	1	tury / Rich		
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SOP NO.	: .		.741					CONTRAC	CTOR:	Lyan Dilla
					JMMARY			DRILLER	:	Hurry Prick
DRILLING	HOLE	. DEP	гн	SAM	PLER	I	IAMMER	INSPECTO	OR:	Yenn Ben
МЕТНОD	DIA.(ft)	INTERV	AL (fi)	SIZE	ТҮРЕ	TYPE.	.WT/FALL	CHECKE	O'BY;	
ASA	4"	2-8		2"		СНЕСК [	DATE:			
		0-2		3"		BORING C	CONVERTED	TOMW? Y (N)		
				Surfice	soil DRII	LING ACI	RONYMS	•		
HSA		HOLLOW-ST	EM AUGI		HMR			SS	SPLIT SPOC	
DM		DRIVE-AND			SĤR	SAFETY H	•	.CS		US SAMPLING :
MRSLC CA		MUD-ROTAL CASING AD		CORING	. HHR DHR		IC HAMMER  LE HAMMER	- 51 . NS	NO SAMPLE	VAL SAMPLING NG
SPC		SPIN CASIN	•	-	. WL	WIRE-LINE	•	ST	SHELBY TU	
	• • .					• .	- 4	38	3 INCH SPLI	T SPOON
			<del></del>		-					
				MO	NITORIN	G EQUPM	ENT SUMMA	RY	<del></del>	T .
INSTRU	JMENT	DETEC	TOR	RANGE		BACKGRO	UND	CALIE	RATION	WEATHER
TY	PE	TYPE/EN	IERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
										-
				I	MONE	CORING A	CRONYMS		1	
PID		PHOTO - IOI	NIZATION	DETECTOR	BGD	BACKGRO		DGRT	DRAEGER	TUBES
FID				DETECTOR	СРМ		ER MINUTE	PPB	PARTS PER	
GMD		GEIGER MU	JELLER D	ETECTOR	PPM	PARTS PE	R MILLION	MDL	METHOD D	DETECTION LIMIT
SCT		SCINTILLAT	TON DET	ECTOR	RAD	RADIATIO	N METER			
				INV	ESTIGAT	ION DERI	VED WASTE			•
	DATE							1		
SOI	L AMOU	INT ·								
	action of									
DRUM	1 #, LOC	ATION:								
CC	OMMEN	TS:					SAMPLES T	AKEN:		
							SAMPLES	DKMW-	-1053 <sup>(0-2)</sup>	DRMO-1854 (2-6)
							DUPLICATES			
							MS/MSD			

					JV	L.	KB	URDEN BURING REPURT		
			PARS	ONS	5			CLIENT: UNA COE BORING NO.: X3 DRYN 0-9	r .	
	MENTS:	n> fir	c 5 <b>\$</b> 5	Emple	۵			DRILLER: AUGU AUGUN /		tn
			-7-11					DATE: /0/25/0		
D E P T H (FT)	BLOWS PER 6 INCHES	PENE- TRATION RANGE (ITEEI)	RECOV- ERY RANGE (FEET)	DEPTH INT (FEET)	NO.		SCEN SCEN	SAMPLE . DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
5	10 9 12	2'	ili		Jemo-1053	1000	400	muist wing SILT w/ shale fagments Brown SILTW/CLAY Heavy oil/gas smell.	οL	- - - -
1 -	10 4 5	2'	1,			101		mast Bromlyry CLAY w/staining slyw odar	OL	-
4- 5-	23 45 502	71			Demo-1054	ľ	_	weathred stude - Dry		-
6-	50/3"	$G^{\prime}$	( <sub>e</sub> "		7	1037		- Dry weathed shale		-
8 -						0/	_			-
10_							_			-
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	1	1	1	1	1	1	1 -	<u> </u>		

PAGE 1 OF L

				OVER	BURD	EN BOI	RING RE	PORT				
		PAI	RSOI	NS		CLIENT:	USACOE	BORI	NG NO.:	SBDRMO-10		
PROJEC' SWMU#				CD 2mo				START DATE: 10/25/62  FINISH DATE: 1				
SOP NO.	.:		74	11175	,			CONTRA	CTOR:	Lyon Dilling		
					JMMARY			DRILLER: HOW LUGA PAIK				
DRILLING	DRILLING HOLE DEPTH SA				IPLER	I-	Sen / Jenn					
METHOD	METHOD DIA.(ft) INTERVAL (ft) SIZE					TYPE	WT/FALL	CHECKE	O BY:			
HSA	4"	0-2	<u> </u>	211	55	7.		CHECK I	DATE:			
	<u> </u>	Surf		3"	<i>5</i> S			BORING	CONVERTED	TOMW? Y N		
		I	n w			LLING ACE	RONYMS	1 2010110				
HSA · · · DW MRSLC CA SPC		HOLLOW-ST DRIVE-AND MUD-ROTAL CASING AD SPIN CASIN	-WASH RY SOIL-( OVANCER		HMR SHR HHR DHR WL	HAMMER SAFETY H HYDRAULI DOWN HOI	AMMER C HAMMER LE HAMMER	SS CS SI NS ST		US SAMPLING VAL SAMPLING NG IBE		
				MO	NITORIN	G EQUPM	ENT SUMMA	RY				
(MCTD)	IMENT	DETEC	TOP	RANGE		BACKGRO			BRATION	WEATHER		
INSTRU		DETECTOR  TYPE/ENERGY		KANGE	BEADDIO		DATE	TIME	DATE	1		
TY	rc	TIPE/ENERGI			READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)		
				-								
		-	-			-		-				
								1 .				
								<u> </u>				
		1					<u> </u>		1			
							CRONYMS					
PID FID		PHOTO - IO		DETECTOR DETECTOR	BGD CPM		UND ER MINUTE	DGRT , PPB	DRAEGER PARTS PER			
GMD		GEIGER MU			PPM		R MILLION	MDL METHOD DETECTION LIMIT				
SCT	SCT SCINTILLATION DETECTOR					AD RADIATION METER						
				INV	ESTIGAT	ION DERI	VED WASTE					
	DATE	;										
SOI	L AMO	UNT :						1.				
	action of											
DRUM	1#, LOC	CATION:			·							
CC	OMMEN	NTS:					SAMPLES 7			. \		
							SAMPLES	Drmo-	102010-2	) DYCHO (057 (2-6)		
							DUPLICATES					
							MS/MSD			-		
							MRD					
1							ll wkn					

OVERBURDEN BORING REPORT													
			PARS	ONS	3				CLIENT: W	ACOE_	BORING NO.: SIS DIRYNU.	10	
COMI	MENTS:												
											DRILLER: Hum Lyon INSPECTOR: LOSSYMMM	mAllist	ív
	DATE: /0/25/02												
D E P	BLOWS	AMPLIN	G RECOV-	DEPTH	SAM	PLE	RAD				MPLE RIPTION	USCS	STRATUM
Ħ Ħ	PER 6	TRATION RANGE	ERY RANGE	INT (FEET)	NO.	voc	SCRN		(As per Burmeist			CLASS	CLASS
		RANGE (FEET)  2°  2°  8°	1	41	PAN -1057 DAM-1080	1640		muist	SELT M SELT M Very boll of 2°	Shale fagn ixed w/ weath tun. Brown nd 3" spoon SILT w/20	MAJOR COMPONENT, Minor Components size, density, stratification, wetness, etc.)  ents (Black) by Dry Brinered Shale by Brown Size is Sand and rust at bottom.  oose weathed Shale.		CLASS
20	-						_						

PAGE 1 OF 2

				OVER	BURD	EN BOI	RING REI				
		PAI	RSOI	NS		CLIENT:	WOACOE	BORII	NG NO.:	SB DRMO-11	
PROJEC	Γ:		P	ID (I				START D		10/26/02	
SWMU#	(AREA)	:	DI	cms				FINISH D	ATE:	1	
SOP NO.	:	-		1/175				CONTRAC	CTOR:	Lum Dolla	
					JMMARY			DRILLER		trong hun leily	
DRILLING	HOLE	DEP.	тн	SAM	IPLER	H	IAMMER	INSPECTO	OR:	Ben / Jenu	
METHOD	METHOD DIA.(ft) INTERVAL (ft) SIZE					ТҮРЕ	WT/FALL	CHECKE	BY:		
HSA-	4"	<b>&amp;</b> -	8	2"	55			CHECK D	DATE:		
		Swift	hulo-2)	3"	SS			BORING C	CONVERTED	TOMW? Y N	
					DRIL	LING ACE	RONYMS				
HSA		HOLLOW-ST		ERS .	HMR	HAMMER		SS	SPLIT SPOO		
DW		DRIVE-AND			SHR	SAFETY H		CS		US SAMPLING .	
MRSLC CA		MUD-ROTAL CASING AD		CORING	HHR DHR		C HAMMER LE HAMMER	SI NS	5 FT INTERV	VAL SAMPLING NG	
SPC		SPIN CASIN			. WL	WIRE-LINE		ST	SHELBY TU		
								3\$	3 INCH SPLI		
		<del> </del>		MO	NITORIN	G EOUPM	ENT SUMMA	RY			
INSTRU	MENT	DETEC	CTOR	RANGE		BACKGROU		T	RATION	WEATHER	
TY		TYPEÆ			READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)	
				I	MONI	CORING A	CRONYMS		J		
PID		PHOTO - IOI	NIZATION	DETECTOR	BGD	BACKGRO		DGRT	DRAEGER 7	TUBES	
FID				DETECTOR	СРМ		ER MINUTE	PPB	PARTS PER		
GMD		GEIGER MU	JELLER D	ETECTOR	PPM	PARTS PE	R MILLION	MDL	METHOD D	ETECTION LIMIT	
SCT		SCINTILLAT	TION DET	ECTOR	RAD	RADIATIO	N METER				
				INV	ESTIGAT	ION DERI	VED WASTE				
	DATE			***				T			
SOI	L AMOI	JNT ·						-			
	ction of									·	
DRUM	ı#, LOC	ATION:									
	MMEN						SAMPLES T				
							SAMPLES	bemo	-10591	(6-1) DRMO-1060(Z-6	
							DUPLICATES	-			
							MS/MSD				
							MRD				

PAGE Z OF Z

	OVERBURDEN BORING REPORT													
		PARS	ONS	5			CLIENT: LOACOE	BORING NO.:	SBDRMU-	11				
COMMENT	INSPECTOR: ROSSMENN MCHISTUR  DATE: 10/24/02													
D E P RLO T PE H 6 (FT) INCO	WS PENE- R TRATION RANGE	RECOV-	DEPTH INT (FEET)	NO.	VOC	RAD SCRN	SAME DESCRIF (As per Burmeister: color, grain size, MA with amount modifiers and grain-size	PTION JOR COMPONENT,	Minor Components	USCS CLASS	STRATUM CLASS			
7 2 1	2'	2'		DRmo -1059	0840		_ Moist to Dy weathured Shi _ Dry Brum Clare STL	ale and noch Tw/possible	Ragnutis Clay.	mL	_			
2 7 7 8	2'	l'		À	6 44	. –	Brown Shale begining at hother	STLT SML	weathered	mL.	-			
4 Z /5 /5 /5 /5 /5 /5 /5 /5 /5 /5 /5 /5 /5	/	6"		DRmo - 1000	1 ~ 1	_	Dry Brown/tun SILT W/SUr and Dry weathered	ne rounded shale at be	n granel often	mL	- - -			
6 4 50	<u>                                     </u>	1/4"		(A)	)		ony wearned shale			•	·			
4 9/	2"	陰			1012 106		Dry weathered shale Split Spoon Refusal			<i>ن</i>	-			
10						_	- - -		pur de la companión de la companión de la companión de la companión de la companión de la companión de la comp		- - -			
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20 H:\ENG\S	SENECAL	FORMS	S) ORP	OPP	2 XI 4				FIG	G A-2 (co	ont.)			

				OVER	BURD	EN BO	RING RE	PORT		
		PA	RSO	NS		CLIENT:	WACKE	BORI	NG NO.:	3B DRMU-12
PROJEC	г:		PI	D				START D		10/25/02-
SWMU#	(AREA)	:		Mo				FINISH D	ATÉ:	+
SOP NO.				741175	,			CONTRAC		Lyan Drillou
					JMMARY			DRILLER		2901 drilly
DRILLING	HOLE	DEP			IPLER		HAMMER	INSPECTO		Jenn Ben
METHOD	DIA.(ft)	INTERV		SIZE	ТҮРЕ	TYPE	. WT/FALL	CHECKE		South france
PSA	4"	á8 -		2"	55		·	CHECK I		
		0-2		311	53				CONVERTED	TOMW? Y N
	L,	1 <i>()</i>				LING ACI	DONVMS	BOIGNO C	ONVERTED	IOMW! I CN
HSA	_	HOLLOW-S	TEM AUG	ers Sw?	HMR	HAMMER		SS	SPLIT SPOO	ON .
DW		DRIVE-AND			SHR		AMMER	. CS		US SAMPLING
MRSLC		MUD-ROTA		CORING	. HHR		IC HAMMER	51		VAL SAMPLING
CA		CASING AE	VANCER		· DHR		LE HAMMER	NS	NO SAMPLI	
SPC		SPIN CASIN	IG		WL	WIRE-LINE		ST	SHELBY TU	BE
	. <i>'</i>		. •					38	3 INCH SPLI	T SPOON
		-		MO	NITORIN	C FOURM	IENT SUMMA	RV	· · · · · ·	
INSTRU	IMENT	DETEC	TOR	RANGE	THIORIT	BACKGRO			BRATION	WEATHER
				KAROL	DE LODIC					1
TYI	PE.	TYPE/E	NERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
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					MONIT	TORING A	CRONYMS			
PID		PHOTO - IO	NIZATION	DETECTOR	BGD	BACKGRO	UND	DGRT	DRAEGER '	TUBES
FID		FLAME - 10	NIZATION	DETECTOR	CPM	COUNTS F	ER MINUTE	PPB	PARTS PER	
GMD		GEIGER MU			PPM		R MILLION	MDL	METHOD D	ETECTION LIMIT
SCT		SCINTILLA	TION DET	ECTOR	RAD	RADIATIO	N MEIEK			
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SOI	L AMOU	INT ·								
	ction of									
,		ATION:								
	MMEN					1	SAMPLES	LAKEN.		
	, TATABLE !	10.							IN-2	(2) Nome (N. das)
							SAMPLES	DKIM	-1002	(0-2) DRMO -1063/216
							DUPLICATES			
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D SAMPLED SAMPLE F BLOOM PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK AND THE PARK A	COM	MENTS:									. 1	Rich  McA	lister
12 by 13 30 10" Split Sporm Clary to wrently Shall sock bay  Split 1" Split Sporm Recovery.  10 10 10	E P T H	BLOWS PER 6	PENE- TRATION RANGE	RECOV- ERY RANGE	INT				(As per Burmeister: color, grain size, MAJO	TON  OR COMPONENT, Mensity stratification	Minor Components		
13 30 10"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  Soft 1"  S	_	/6	2'	134'		1662	di		_ Moist Brom/Black Sitty Clay (state)	, tou h	agents	6L	_
6 soli "  _no recovery - Split spor lecovery.		3 13		lo"				_	moist Brown CLAy to vrewhite	d Shale/soc	li bag	CL	- - - - -
horecorery - Split spom lewrey.	ľ	39/4"	Ц¹			Dermo-1	134		Sime chang Mostly Dry was	hored shale.		CL	_
	10	20 1.							no recovery - Split spom &	lecovery.			

				OVER	BURD	EN BOI	RING RE	PORT				
		PAI	RSOI	NS		CLIENT:	WACKE	BORII	NG NO.:	SB Demi	)-13	
PROJECT	Γ:		PI	(7)				START D		whi	. 1	
SWMU#	(AREA)	:	D(	lmo				FINISH D	ATE:	۲ '		
SOP NO.	:		7	41175				CONTRAC	CTOR:	Lyon Dolly		
			DRII	LING SU	JMMARY			DRILLER:		Hary 1	Rik	
DRILLING	HOLE	DEP	гн	SAM	PLER	· E	IAMMER	INSPECTO	OR:	Ben 13	enn	
метнор	DIA.(ft)	INTERV	AL (ft)	SIZE	ТҮРЕ	TYPE	WT/FALL	CHECKED	BY:			
HSA	4"	2-8		2"	55			CHECK D	ATE:			
			reloi)	3"	55			BORING C	ONVERTED T	TO MW?	Y N	
		218/13	(-1			LING ACE	RONYMS					
HSA		HOLLOW-ST	TEM AUGI	ERS	HMR			SS	SPLIT SPOO	N		
DW		DRIVE-AND			. SHR	SAFETY H		CS		JS SAMPLING		
MRSLC CA		MUD-ROTAL CASING AD		CORING	HHR DHR		C HAMMER LE HAMMER	5I NS	5 FT INTERV	/AL SAMPLING NG		
SPC		SPIN CASIN			WL			ST	SHELBY TU			
	•						•	3S	3 INCH SPLI	T SPOON		
				3.50		C POUDL	COLUMN CALLES CO.					
	. •	1		MO	NITORIN	G EQUPM	ENT SUMMA					
INSTRU	MENT	DETEC	TOR	RANGE	,	BACKGRO	JND	CALIB	RATION	WE	ATHER	
TYI	PE	TYPE/EN	ERGY		READING	TIME	DATE	TIME	DATE	(ТЕМР.,	WIND, ETC.)	
	,				MONI	FORING A	CRONYMS					
PID		PHOTO - ION	NIZATION	DETECTOR	BGD			DGRT	DRAEGER 3	TUBES		
FID		FLAME - 101	NIZATION	DETECTOR	СРМ	COUNTS P	ER MINUTE	PPB	PARTS PER	BILLION		
GMD		GEIGER MU			PPM			MDL	METHOD D	ETECTION LIM	IIT	
SCT		SCINTILLAT	TION DET	ECTOR	RAD	RADIATIO	N METER					
				INV	ESTIGAT	ION DERI	VED WASTE					
	DATE	1							<del>.</del>			
SOI	L AMOI	INT										
	ction of											
DRUM	(#. LOC	ATION:	1									
	MMEN		<del></del>			I	SAMPLES	TAKEN:				
	· LTAITAEVI							Devin	-100/	(-2) DOWN	w-1066(z-	
							SAMPLES	Drivo	1000	0-2) DKI	v-10466	
							DUPLICATES					
							MS/MSD					
							MRD					

COMMENTS:  DRILLER: Hany Lyun  INSPECTOR: ROSSMEMM  DATE: BLOWS PENE RECOV. DEPTH NO. VOC RAD  T PER TRATION ERY NT NO. VOC SCRN (AS PER Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  MAJOR TOWN OF THE PER TRATION ERY NOT NO. VOC SCRN (AS PER Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  MAJOR TOWN OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF THE PENT OF	Pirk Incallio	STRATUM
DRILLER: Hamy Lym  INSPECTOR: BOSSMAMM  DATE: DESCRIPTION  THE RANGE RANGE RANGE (FEET) NO. VOC SCRN (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  THE RANGE RANGE (FEET) (FEET) RO. VOC SCRN (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  THE RANGE RANGE (FEET) (FEET) RO. VOC SCRN (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  THE RANGE RANGE (FEET) (FEET) RO. VOC SCRN (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM
DATE: D2602  D SAMPLING SAMPLE  P BLOWS PENE RECOV. DEPTH NO. VOC SCRN  H 6 RANGE RANGE (FEET) (FEET)  NO. VOC SCRN  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  Manot topsoil and Shall frayments at top.  - My Burm turn Stlt within mum day last d'h'	USCS CLASS	STRATUM
D SAMPLING SAMPLE  BLOWS PENE RECOV. DEPTH NO. VOC RAD  T PER TRATION ERY INT NO. VOC SCRN (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM
E BLOWS PENE TRATION ERY INT NO. VOC SCRN (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  W 2	CLASS	
H 6 RANGE RANGE (FEET) (FEET) (FEET) (FEET) SCRN (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)    1		CLASS
monist topsoil and Shale fragments at top.  The Brum / turn STLT w/ minimum day last 1/2.	m/	
2 11 500   S   1	1	. –
maist tan/krown SILTW/clay last 3-4" Dry weathered shale	CL	-
5 Style 4" 3" Sign Sy wearthered Bed nich	-	
- No Ricovery - Some Dry Wouthered Medrich - Split spoon Richwall		-
8 - Split Spoon Reliable	,	_
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				OVER	BURD	EN BO	RING REI	PORT		-
		PA	RSO	NS		CLIENT:	WACOE	BORI	NG NO.:	Sm Dryno -14
PROJEC	Γ:		PI					START D	DATE:	10/25/02
SWMU#	(AREA)	:		rmo				FINISH D	DATE:	1
SOP NO.	:			11175				CONTRA	CTOR:	Lyon Drilly
			<del></del>		UMMARY			DRILLER	:	U , ,
DRILLING	HOLE	DEP			IPLER			INSPECT	OR:	Cossession / Rick
- METHOD	DIA.(ft)	INTERV	'AL (ft)	. SIZE	ТҮРЕ :	ТҮРЕ	WT/FALL	CHECKE		
HSA	410	Q-	10	· 2"	55			CHECK I	DATE:	
		0-	- 2.	3"	Ss			BORING (	CONVERTED	TOMW? Y (N)
				3 Surfa	e DRII	LING ACI	RONYMS			
HSA	•.	.HOLLOW-S	TEM AUG	ERS SULL	ارًا HMR	HAMMER		ss ·	SPLIT SPOC	ON
ÞW	•	DRIVE-AND	*		SHR			CS .		US SAMPLING
MRSLC		MUD-ROTA		CORING	· HHR		IC HAMMER			VAL-SAMPLING .
. CA SPC	•	CASING AI SPIN CASIN			DHR · WL	WIRE-LINE	LE HAMMER	NS ST	NO SAMPLI SHELBY TU	* .
	2.						•	3S	3 INCH SPLI	•
· · · ·			·				•			A STATE
				MO	NITORIN	G EQUPM	ENT SUMMA	RY		
INSTRU	MENT	DETE	CTOR	RANGE		BACKGRO	UND	CALIE	BRATION	WEATHER
TY	PE	TYPE/E	NERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
								•		
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									<b>†</b>	
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		<u> </u>		L	MONIT	CODING A	CDONVMC	.1	J	
PID		PHOTO IO	NIZATION	DETECTOR	BGD	BACKGRO	CRONYMS	DGRT	DRAEGER 1	TI IBES
FID				DETECTOR	СРМ		ER MINUTE	PPB	PARTS PER	
GMD		GEIGER MI			PPM		R MILLION	MDL		ETECTION LIMIT
SCT		SCINTILLA	TION DETI	ECTOR	RAD	RADIATIO	N METER			
				INV	ESTIGAT	ION DERI	VED WASTE			
	DATE		r					1		,
	DATE									
,	L AMOU									
DRUM	l #, LOC	ATION:								
	MMEN					•	SAMPLES T	AKEN:		
									- 1010 81	(02) DRMO-1069(2-6)
							SAMPLES	12114	/ U(I O (	or Delin mile of
							DUPLICATES			
							MS/MSD			
l .							MRD			

					JY	L.	KD	UKI	DEN 1	BURIN	J KLPU	KI			
•			PARS	ONS	5				CLIENT: U	DALOE	BORING NO.	: BBDRM	7-14		
COM	MENTS:		·						•		DRILLER: INSPECTOR: DATE:	Huny L Rossma 10/25/02	mn	nchllot	<u></u>
D E P T H (FT)	BLOWS PER 6' INCHES	PENE- TRATION RANGE (FEET)	RECOV- ERY RANGE (FEET)	DEPTH INT (FEET)	SAM NO.	YOC-	RAD SCRN			DESC ter color, grain size, nt modifiers and grain	MPLE CRIPTION  MAJOR COMPONENT size, density, stratificat		nts	USCS CLASS	STRATUM CLASS
	5 9 15	Z'	174		Demo-1068	21.21	_	_ (Mor 5	+ dkB Shale	noun/Black	siThy Clay	figmente	d	٥L	
2	3 3	2'	1/2		À	220	_			13/av CL	AY			OL	-
٩ <u> </u>	3 1 2 12 12	2'	۱,		DEMO-1669	`		w " مِلَ المراكاة 	atirinho Boomi Boomi ine wood (6 in	lgrey Clay at button a chus)	è stiff sizi	TYCLAY  Ande la	yer	CL	- - -
6	50/2"	Ζ"	44			1235		_Dry N _ _	nathed.				, st.		  
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20_							-				e*	··			 

				OVER	BURD	EN BOI	RING RE	PORT			
		PA	RSO	NS		CLIENT:	WALVE	BORI	NG NO.:	SBDRMO 15	
PROJECT	Γ:		PID	)				START D		10/26/02	
SWMU#	(AREA)	:	DRI	MD				FINISH D	ATE:	<b>\</b>	
SOP NO.	:		74	11175				CONTRA	CTOR:	Luan Dalli	
					JMMARY			DRILLER	:	HOREM / Ride	
DRILLING	HOLE	DEP	тн	SAM	IPLER	ŀ	IAMMER	INSPECT	OR:	Ben Hen	
метнор	DIA.(ft)	INTERV	AL (ft)	SIZE	ТҮРЕ	TYPE	WT/FALL	CHECKE	D BY:	2011   0010	
HSA	u <sup>u</sup>	12-		2"	55			CHECK I			
11011		0-		311	35				CONVERTED	TO MW? Y N	
	L.,					LLING ACI	RONYMS	BOIGNO	ONVERTED	TOMW! I	
АЗН		HOLLOW-S	TEM AUGI	ERS	HMR	HAMMER	COLLEGE COLLEGE	SS	SPLIT SPOO	ON	
DW		DRIVE-AND	-WASH		SHR	SAFETY H	AMMER	CS	CONTINUO	US SAMPLING	
MRSLC		MUD-ROTA	RY SOIL-C	CORING	HHR	HYDRAULI	C HAMMER	51 .	5 FT INTERV	VAL SAMPLING	
C.A		CASING AD			DHR		LE HAMMER	NS	NO SAMPLI		
SPC		SPIN CASIN	(G		. WL	WIRE-LINE		ST SHELBY TUBE  3S 3 INCH SPLIT SPOON			
				MO	NITORIN	G EQUPM	ENT SUMMA	RY			
INSTRU	MENT	DETEC	CTOR	RANGE	,	BACKGRO	UND	CALIE	BRATION	WEATHER	
TYI	PE	TYPE/Eì	NERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)	
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					l						
İ							CRONYMS				
PID				DETECTOR	BGD			DGRT	DRAEGER 1		
FID GMD		GEIGER MU		DETECTOR	CPM PPM		ER MINUTE	PPB MDL	PARTS PER	ETECTION LIMIT	
SCT		SCINTILLAT			RAD			MDD	merrior b		
				INV	ESTIGAT	ION DERI	VED WASTE			,	
	DATE							T			
SOI	L AMOU	JNT :						-			
•	ction of						***************************************				
DRUM	#, LOC	ATION:									
CO	MMEN	TS:					SAMPLES T	AKEN:			
							SAMPLES	DRMO	-1071		
							DUPLICATES				
							MS/MSD				
I							MRD				

					JV		KE	URDEN BURING REPURT		
			PARS	ONS	5	74.		CLIENT: USALDE BORING NO.: SB DRM - /	5	
COM	MENTS:							DRILLER: Harry Lyon		
									Im. III	its
									INGTH	1304
D	1	AMPLIN	G		SAM	OLE		DATE: 10/210/02	<del></del>	
E	BLOWS	PENE-	RECOV-	DEPTH	JAK		RAD	SAMPLE DESCRIPTION	USCS	STRATUM
Т Н	PER 6	TRATION RANGE	ERY RANGE	INT (FEET)	NO.	voc	SCRN	(As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components	CLASS	CLASS
(FT)	INCHES	(FEET)	(FEET)		7			with amount modifiers and grain-size, density, stratification, wetness, etc.)		
	9	,	٠,		10-	20		- moist Fill Shall/Bnch/sitt/deer turds		
	8	2'	18		Demo-	1903	-	wet@zff		
2	12				3	~		<del>-</del>		
L	3					6		no recovery.		_
	10	2'				1405	-	_		-
	3									; <sub>a</sub>
4-	4		l				_	moint Grey / Brown CLAY w/shale intermixed or layered mostly Short no sample taken	mi	1 -
5	3	ľ	2			17%		layered mostly short no sample taken	ML	
	5	L				19	_			. ]
6-	7							water		_
	Solui	q"	11/2					wed Great of the long askinged		-
_	394	٦	12			1414	-	_ wor cray clary / S127 / Shall cure would rear		
~						_		wet Grey CLAY/SIZT/Shale (weathered)  Not worth samply due to content of spoon	1	
8-	0/2"	2"				3	_			
		^				1441				4
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10							_	_		-
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PARSONS CLIENT: WORLOE BORING NO.: SBOKMO -/	
	6
PROJECT: START DATE: /dz7/02	
SWMU # (AREA): FINISH DATE:	
SOP NO.: 741175 CONTRACTOR: Lym Dally	
DRILLING SUMMARY DRILLER: Hard   Rich	ck
DRILLING HOLE DEPTH SAMPLER . HAMMER INSPECTOR: BEN / TEX	on
METHOD DIA.(ft) INTERVAL (ft) SIZE TYPE TYPE WT/FALL CHECKED BY:	
HSA 4" 2-8.1 2" SS CHECK DATE:	
D-2 3" 55 BORING CONVERTED TO MW? Y	(N)
DRILLING ACRONYMS	
HSA HOLLOW-STEM AUGERS HMR HAMMER SS SPLIT SPOON	
DW DRIVE-AND-WASH SHR SAFETY HAMMER CS CONTINUOUS SAMPLING	
MRSLC MUD-ROTARY SOIL-CORING HHR HYDRAULIC HAMMER 51 5 FT INTERVAL SAMPLING	
CA CASING ADVANCER DHR DOWN-HOLE HAMMER NS NO SAMPLING	
SPC SPIN CASING WL WIRE-LINE ST SHELBY TUBE  3S 3 INCH SPLIT SPOON	
MONITORING EQUPMENT SUMMARY	
INSTRUMENT DETECTOR RANGE BACKGROUND CALIBRATION WEATHER	R
TYPE TYPE/ENERGY READING TIME DATE TIME DATE (TEMP., WIND,	ETC.)
MONITORING ACRONYMS  PID PHOTO-IONIZATION DETECTOR BGD BACKGROUND DGRT DRAEGER TUBES	
PID PHOTO - IONIZATION DETECTOR BGD BACKGROUND DGRT DRAEGER TUBES  FID FLAME - IONIZATION DETECTOR CPM COUNTS PER MINUTE PPB PARTS PER BILLION	
GMD GEIGER MUELLER DETECTOR PPM PARTS PER MILLION MDL METHOD DETECTION LIMIT	
SCT SCINTILLATION DETECTOR RAD RADIATION METER	
INVESTIGATION DERIVED WASTE	
, , , , , , , , , , , , , , , , , , ,	
DATE	
SOIL AMOUNT:	
(fraction of drum)	
DRUM #, LOCATION:	
COMMENTS: SAMPLES TAKEN:	
	1075(2-1
Name 1 van	
SAMPLES DEMO-1074 (0-2) DRMO-1000  DUPLICATES DEMO-1080  MS/MSD DRMO-1074 ms DRMO-1000	074MCT
$\frac{\text{MS/MSD}}{\text{DEMO}} = \frac{\text{DEMO} - 7}{\text{DEMO}} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = \frac{1}{100} = $	0 ( 1-100

	OVERE	BURDEN BORING	<b>G REPORT</b>		
PARS	ONS	CLIENT: USA COVE	BORING NO.: SB DRMO -1	le	
COMMENTS:			DRILLER: Hang Lyo INSPECTOR: ROSSMUM DATE: 10/27/12	n /MeAl	loitur
D   SAMPLING	SAMPLE  DEFTH NO. VOC FEET) SCRN	DESCE (As per Burmeister: color, grain size, N	MPLE RIPTION  AAJOR COMPONENT, Minor Components . ize, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
1 2' 2'	VARO-1074	wist Bram-topsoil force was	25" often Brown Ster	ML	_
2	13.20	maist Brown SILT W/S	sometrace of frams	ML	-
4 4 2 5 3 0 4	1345 13	Minist Brown SIZT. UN		CZ	- - -
6 19 20 8" 6"	34,	wet weathered shale	-grey.	J	- - -
8 91 1."	(3x) -	No leaving Split Spour	Refusal		  
0		-			- -
					-
					-
5					-
0		-	· · · · · · · · · · · · · · · · · · ·		

				OVER	BURD	EN BO	RING RE					
		PAI	250I	NS		CLIENT:	LUSALOE	BORII	NG NO.:	SB DEMO-17		
PROJEC	Γ:		P.	FD				START D		10/28/02		
SWMU#	(AREA)	:	DI	ZMO				FINISH D	ATE:	Ψ		
SOP NO.				141178				CONTRA	CTOR:	Lyon Doilly		
					JMMARY			DRILLER		the Ham lect		
DRILLING	HOLE	DEP			PLER		IAMMER	INSPECTO		Ben Hem		
METHOD	DIA.(ft)	INTERV	AL(ft)	SIZE	ТҮРЕ	TYPE	WT/FALL	CHECKE	BY:			
HSA	90	2-8	<i>&gt;</i>	2"	55			CHECK I	ATE:			
		0-	2	3"	55			BORING C	ONVERTED 1	TO MW? Y (N)		
					DRII	LING ACI	RONYMS		-			
АSН		HOLLOW-S7	EM AUGI	ERS	HMR			SS	SPLIT SPOO	И		
DW		DRIVE-AND	-WASH		SHR	SAFETY H	AMMER	CS	CONTINUOL	JS SAMPLING		
MRSLC		MUD-ROTA		CORING	HHR		C HAMMER			/AL SAMPLING		
CA SPC		CASING AD SPIN-CASIN			DHR WL		LE HAMMER	NS NO SAMPLING ST SHELBY TUBE				
31 (.		Si ii Casii	u .		***	·	•	3S	T SPOON			
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				MO	NITORIN	G EQUPM	ENT SUMMA	RY				
INSTRU	MENT	DETEC	TOR	RANGE		BACKGRO	UND	CALIE	RATION	WEATHER		
TY	PE	TYPE/EN	IERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)		
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					MONI	FORING A	CRONYMS					
PID		PHOTO - IO	NIZATION	DETECTOR	BGD	BACKGRO	UND	DGRT	DRAEGER 1	TUBES		
FID	•	FLAME - 101	NOTASIN	DETECTOR	CPM	COUNTS I	ER MINUTE	PPB	PARTS PER			
GMD		GEIGER MU			PPM		R MILLION	MDL	METHOD D	ETECTION LIMIT		
SCT		SCINTILLAT	TON DET	ECTOR	RAD	RADIATIO	N METER					
			<del></del>	INV	ESTIGAT	ION DERI	VED WASTE					
	DATE			<i>f</i> 1				T				
	1 AMOT	DIT.	/0	28/02								
	L AMOU action of	1	′									
DRUM	1#, LOC	ATION:		-						_		
	MMEN						SAMPLES T	AKEN:	·			
									1077 /	1) NOW 1 1078/21		
							SAMPLES	twilm.	1011 (1	0-2) Demo-1078/2-1		
1							DUPLICATES					
							MS/MSD					
							MRD					

=						OV	E	RB	UR	DEN	BOR	ING	REPO	RT			
	COLO	MENTS:		PARS	ONS	5				CLIENT:	UDACOE		BORING NO.:	שעטע			
	COMM	AEN 15:											DRILLER:	HONN	Lyon		
						•							INSPECTOR:	Rossn	\um\	mcA	lister
					\								DATE:	10/21	8/02		P(
	D E P	BLOWS	AMPLIN	G RECOV-	DEPTH	SAM	PLE	RAD				SAM DESCRI		·		USCS	STRAT
	T H	PER 6	TRATION RANGE	ERY RANGE	INT (FEET)	NO.	voc	SCRN		(As per Burn	neister: color, gra		AJOR COMPONENT, ze, density, stratification	Minor Compon	ents	CLASS	CLAS
-	(FT)	INCHES 50	(FEET)	(FEET)	L	10			Mı	with an	nount modifiers a	nd grain-siz	ze, density, stratification	n, wetness, etc.	).		l
	_	20	2'	2		Deno-	1110		- (1) - (3) - (3)	Coal but	tisnet.	Znd	tock shoot led will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a will be a w	rnock+: un STL1	shale.	ML	
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	<b>y</b>	6 15 18	10"	5"	w., .	DKmu-1	3		_ DV	y weath	eved Bed	nck				_	
,	6-	<b>3</b> 0 4					7		_ <i>DW</i>	l upayho	red Bed	pock				-	
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0	8-	<b>50</b> P	1/1-	-			1.00		- - Mo	heuwy	red Bed Span	letus	il			مونو	
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		PAI	RSOI	NS		CLIENT:	WACOE	BORI	NG NO.:	SBORMU 🛂 18
PROJECT	Γ:		7.D					START D	PATE:	5130RMU = 18
SWMU#	(AREA)	:	Nex	no				FINISH D		4
SOP NO.	:		74	no 1175				CONTRA	CTOR:	Lyon Dilly
					UMMARY			DRILLER		Hara Dock
RILLING	HOLE	DEP.			IPLER		IAMMER	INSPECT		Rent Henry
METHOD	DtA.(ft)			SIZE	ТҮРЕ	ТҮРЕ	WT/FALL	CHECKE		301/301
HSA		INTERV		3 H		TIFE	WITTALL			
rian	6"	2-6.			25			CHECK		
		0-2		3ª	SS			BORING	CONVERTED	TOMW? Y (N
						LING ACE	RONYMS			
HSA DW		HOLLOW-ST DRIVE-AND			HMR SHR	HAMMER SAFETY H	a MMFR	SS CS	CONTINUO	ON US SAMPLING
MRSLC		MUD-ROTAL			HHR		C HAMMER	51 .		VAL SAMPLING
CA		CASING AD	VANCER		DHR	DOWN-HOL	E HAMMER	NS	NO SAMPLI	NG
SPC		SPIŅ CASIN	łG		WL	WIRE-LINE			· SHELBY TU	BE
								3 <b>S</b>	3 INCH SPLI	IT SPOON
				MC	NITORIN	G EOUPM	ENT SUMMA	RY		
INSTRU	MENT	DETEC	CTOR	RANGE		BACKGROU			BRATION	WEATHER
TYF		TYPE/EN			READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
		111021	TERO I		ICADING	TIME	DATE	·	DATE	(TEMI, WIND, ETC.)
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					MONIT	ORING A	CRONYMS			
PID		PHOTO - IO	NIZATION	DETECTOR	BGD	BACKGROU	JND	DGRT	DRAEGER	TUBES
FID		FLAME - 101	NIZATION	DETECTOR	CPM	COUNTS P	ER MINUTE	PPB	PARTS PER	
GMD	*	GEIGER MU			PPM	PARTS PER		MDL	METHOD D	DETECTION LIMIT
SCT		SCINTILLAT	TION DETI	ECTOR	RAD	RADIATION	METER			
				INV	ESTIGAT	ION DERI	VED WASTE			
	DATE	1								
	DATE									
	L AMO	,	,							
(fra	ction of	drum)								
DRUM	[#, LOC	ATION:								
							SAMPLES	LAKEN:		
CO	MMEN	113:					SAMIFLES		Inc. l.	a) Noma lata
							SAMPLES	DRM.	- 1081 (0-	2) DRMO-1952
							DUPLICATES			
							MS/MSD			

				(	JV	E	KB	URDEN BORING	KEPO	KT		
			PARS	ONS	3			CLIENT: WAA-LOTE	BORING NO.:	SB Demo-ey	18	
COMN	MENTS:								DRILLER:	Harry Lyon		
									INSPECTOR:	los mams /		ter
									DATE:	10/27/02		
D E		AMPLIN			SAM	PLE			PLE			
P T H	BLOWS PER 6	PENE- TRATION RANGE	RECOV- FIRY RANGE	DEPTH INT (FEET)	NO.	voc	RAD	DESCR  (As per Burmeister: color, grain size, M.		Minor Components	USCS CLASS	STRATUM CLASS
(FT)	INCHES	(FEET)	(FEET)	(1.52.1)				with amount modifiers and grain-siz	ze, density, stratification	n, wetness, etc.)	7.0	
	30	-1			1881	1030		- Maist today Fill materia	u glass/i	10 18   MUSE   1010	-	
	35	2'	s,		1-0	0/		_				4
2-	15				Decaro-		_	on Brow Sixt & rocks	. Small da	a layer		
_	15	2'	11/2			5	_	- 2.5'	L	,		]
	15		1/2		\	1035		_				-
14-	32 15	. "			1022			Moist Brown CLAY W/poss - Shale at botton	sible fishe	neadhered	ΔΔ.	
5	<b>5</b> 0/4"	10"	6		1	N	· —	- shale at botton			ML	_
,					Demo	2601		_ Dry weashered shale				-
6-	5/2"	2"	2"		£-3		-	Dry weashered shale				
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				OVER	BURD	EN BOI	RING RE	PORT		
		PAI	RSOI	NS		CLIENT:	USPLOE	BORII	NG NO.:	SBDRMO-19
PROJEC	Τ:		$\mathcal{P}$	ID				START D	-	10/27/00
SWMU#	(AREA)	:		run u				FINISH D	ATE:	V
SOP NO.	:	-		741178				CONTRAC	CTOR:	Lum Doth
					JMMARY			DRILLER	:	Harm Ikick
DRILLING	HOLE	DEP	гн	SAM	IPLER	. F	IAMMER	INSPECTO	OR:	Bun Tiony
METHOD	DIA.(ft)	INTERV	AL (ft)	SIZE	ТҮРЕ	TYPE	WT/FALL	CHECKE	D BY:	
HSA	410	2-4		Z"	#-5s			CHECK I	DATE:	
		6-2		34	SS			BORING C	ONVERTED 1	TOMW? Y N
					DRII	LLING ACI	RONYMS			
HSA		HOLLOW-S7	TEM AUG	ERS	HMR	HAMMER	•	<b>\$</b> S	SPLIT SPOO	N
DW		DRIVE-AND	-WASH		SHR	SAFETY H	AMMER	CS	CONTINUOU	JS SAMPLING
MRSLC		MUD-ROTA	RY SOIL-C	CORING	HHR	HYDRAULI	C HAMMER	. 12	5 FT INTERV	/AL SAMPLING
CA		CASING AD	VANCER		DHR	DOWN-HO	LE HAMMER	NS	NO SAMPLII	NG
SPC		SPIN CASIN	IG		WL	WIRE-LINE		ST	SHELBY TU	
								3S	3 INCH SPLI	T SPOON
				MO	NITORIN	G EQUPM	ENT SUMMA	RY		
INSTRU	JMENT	DETEC	TOR	RANGE		BACKGRO			RATION	WEATHER
TY		TYPEÆ			READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
							-			
					MONI	TORING A	CRONYMS			
PID	ı	PHOTO - IOI	NIZATION	DETECTOR	BGD	BACKGRO	UND	DGRT	DRAEGER 1	TUBES
FID	ı	FLAME - IO	NIZATION	DETECTOR	CPM	COUNTS P	ER MINUTE	PPB	PARTS PER	BILLION
GMD		GEIGER MU	JELLER D	ETECTOR	PPM	PARTS PE	RMILLION	MDL	METHOD D	ETECTION LIMIT
SCT	•	SCINTILLAT	TION DET	ECTOR	RAD	RADIATIO	N METER			
				INV	ESTIGAT	ION DERI	VED WASTE			
	DATE	1				1		1		,
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	L AMOU									
DRUM	1#, LOC	ATION:								
	OMMEN		<u></u>			1	SAMPLES	ΓAKEN:		
							SAMPLES	Dremo	- 1084	(0-2)
							DUPLICATES			
							MS/MSD			
							н			

				(	$\mathcal{I}_{\mathbf{V}}$	E.	KŁ	BURDEN BORING REPORT		
		1	PARS	SONS	6			CLIENT: WA LOW BORING NO.: SIB DAY	10-19	
COMN	MENTS:							DRILLER: HONNLY		
								INSPECTOR: LOSSINUM		ter
								DATE: /0/27/0	1	
D E		AMPLIN	1.		SAM	PLE		SAMPLE		
P T H	BLOWS PER 6	PENE- TRATION RANGE	RECOV- ERY RANGE	DEPTH INT (PEET)	NO.	voc	SCRN	DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components	USCS	STRATUM CLASS
(FT)	INCHES	(FEET)	(FEET)		1	<u> </u>		with amount modifiers and grain-size, density, stratification, wetness, etc.)  (0-1') Fill -Rocks		
	6			,	188	1		(1-2) Mist-tan/Brown SIZTW/some Clay	mz	-
	6	Z	z'		100-160	957		- (1-2)  M  0      (2-1)	'	
2-	3				Z		_	Day week and shale		-
	14	<b>z</b> .'	ı			2		Dry weathord shale.		_
	19	2				080				_
4 _	36						_	- Dry we whered shale		-
5	22 32 21	2'	1.			080		- Dry up to not to the		-
	21					09				-
(i) —	45	_					_	No keory Spht Spoon Refusal	<u>~</u> ,	-
	50/1"	3"	-			9/3		-NO Keeding 3p 37		
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				OVER	BURD	EN BOI	RING REI	PORT		
		PA	RSOI	NS		CLIENT:	WSACOE	BORI	NG NO.:	SB Nemo-20
PROJECT	Γ:		PI	D		·		START D		10/26/02
SWMU#	(AREA)	:	DV	OM				FINISH D	ATE:	1
SOP NO.	:		70	11178				CONTRA	CTOR:	Lym Dollm
			DRII	LING SU	JMMARY			DRILLER	:	Ham / Rick
DRILLING	HOLE	DEP	тн	SAM	PLER	Н	AMMER	INSPECTO	OR:	Ben / Tenn
METHOD	DIA.(ft)	INTERV	AL (ft)	SIZE	ТҮРЕ	TYPE	WT/FALL	CHECKE	BY:	•
MSA	4"	2 - 8	3.2	2"	55			CHECK (	DATE:	
		0-	2	3*	55			BORING	CONVERTED 1	romw? Y (N)
					DRIL	LING ACE	RONYMS			
HSA		HOLLOW-ST	TEM AUGI	ERS	HMR	HAMMER		SS	SPLIT SPOO	N
DW		DRIVE-AND		onnia.	SHR	SAFETY H		CS		JS SAMPLING
MRSLC CA		MUD-ROTAL CASING AD		ORING	HHR DHR		C HAMMER LE HAMMER	SI . NS	NO SAMPLIN	AL SAMPLING
SPC		SPIN CASIN			WL	WIRE-LINE		ST	SHELBY TU	
								3S	3 INCH SPLI	
		· · · ·		MO	NITORIN	G EQUPM	ENT SUMMAI	RY		
INSTRU	MENT	DETEC	CTOR	RANGE		BACKGROU	JND	CALIE	RATION	WEATHER
TYI	PΕ	TYPE/EN	VERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
								·		
										:
					MONIT	CODING A	CRONYMS	1.	<u> </u>	
PID		PHOTO - IOI	NIZATION	DETECTOR	BGD	BACKGROU		DGRT	DRAEGER 1	URES
FID		FLAME - IO			СРМ		ER MINUTE	PPB	PARTS PER I	
GMD		GEIGER MU	JELLER D	ETECTOR	PPM	PARTS PER	MILLION	MDL	METHOD D	ETECTION LIMIT
SCT		SCINTILLAT	TION DETI	ECTOR	RAD	RADIATION	N METER			
				INV	ESTIGAT	ION DERIV	VED WASTE			
	DATE									
SOT	L AMOU	INT ·						-		
	ction of									
DRUM	#, LOC	ATION:								
CO	MMEN	TS:					SAMPLES T	AKEN:		
							SAMPLES	DI/W	-1087	0-2) DRMO-1088(2-6)
							DUPLICATES	- 19/1 · · · · ·		,
							MS/MSD			

					JV	L.	KB	URDEN BURING REPURI		
		1	PARS	ONS	•			CLIENT: UDALOE BORING NO.: SB DRYNG-2	20	
COMA	IENTS:							DRILLER: Home Lyon INSPECTOR: ROSMIM MI	1.0	
					241			DATE: (0) 26 0 L	<u> </u>	
D E P T H (FT)	BLOWS PER 6 INCHES	PENE- TRATION RANGE (FEET)	RECOV- ERY RANGE (FEET)	DEPTH INT (FEET)	NO.	voc	RAD	SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
()	22		,		1	0		- Mist to Dry Fill - rocks/bolts/shule	<i>i</i> _	
	25	ľ	1/2		DRMO-1087	249	_			4
	27				Rmo	7		-		1
l-	10				4			Dry tom SILT Grunite rock fragments	mL	]
	14	j'	11		30	453	-			
a (i	18	<i>0</i> ~	·		0/-	'	_	- It was it coulons of the Table of		
4	3				Jeno-1088			Shuthy moist gray/green CLAY Fractured Shale last 2". Some well rounded gravel	01	4
5	10	t			3	100	-	- Plast 2". Some well rounded gravel	CL	1
10-	40					_	_	- 4.48.1.		
	70/1"	4"	44					Dry washered Shale		4
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8-	5Vi	1(	¿(				-	Long What was Shale		-
1.	291	$\iota$ "	ι"				_	- Stores		
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				OVER	BURD	EN BOI	RING RE	PORT	1,7,00	
		PA	RSOI	NS		CLIENT:	WALDE	BORI	NG NO.:	SB DRMU-21
PROJECT	Γ:		P	PD)				START D	ATE:	10/27/02
SWMU#	(AREA)	:	D	ryno				FINISH D	ATE:	*
SOP NO.			74	1175				CONTRA	CTOR:	Lyon Drille
			DRII	LLING SU	JMMARY			DRILLER	:	Henry / Rick
DRILLING	HOLE	DEP	тн	SAM	PLER	ŀ	HAMMER	INSPECT	OR:	Ben Henn
METHOD	DIA.(ft)	INTERV	AL (ft)	SIZE	TYPE	TYPE	WT/FALL	CHECKE	D BY:	
ITSA	41	2-1	e. 2	. 2"	55			CHECK I	DATE:	
		0-	2	. 311	55			BORING	CONVERTED 1	TO MW? Y (N)
						LLING ACE	RONYMS			
HSA		HOLLOW-S	TEM AUGI	ERS	HMR	HAMMER		SS	SPLIT SPOO	и
DW		DRIVE-AND	-WASH		SHR	SAFETY H	AMMER	CS	CONTINUOL	JS SAMPLING
MRSLC		MUD-ROTA	RY SOIL-(	CORING	HHR	HYDRAULI	C HAMMER	51 .	5 FT INTERV	/AL SAMPLING
CA		CASING AF	VANCER		DHR	DOWN-HO	LE HAMMER	NS	NO SAMPLII	NG
SPC		SPIN CASIN	IG		WL	WIRE-LINE		ST	SHELBY TU	
			-					3S	3 INCH SPLI	T SPOON
				МО	NITORIN	G EQUPM	ENT SUMMA	RY		
INSTRU	MENT	DETEC	CTOR	RANGE		BACKGRO			BRATION	WEATHER
TYI	PE	TYPE/E	NERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
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							CRONYMS			
PID				DETECTOR	BGD	BACKGRO		DGRT	DRAEGER 1	
FID				DETECTOR	CPM		ER MINUTE	PPB MDL	PARTS PER	BILLION ETECTION LIMIT
GMD SCT		GEIGER MI			PPM RAD		R MILLION N METER	MDL	METHOD D	ETECTION ENVI
				INV	ESTIGAT	ION DERI	VED WASTE			,
	DATE	,								
SOI	L AMOI	JNT:						-		
1	ction of									
DRUM	#, LOC	ATION:								
CO	MMEN	TS:					SAMPLES	AKEN:		
							SAMPLES	DRNW -	1020 (	11) DRMO-1/02
							DUPLICATES	<del></del>		7
							MS/MSD	~~		
l							MRD			

OVE	RBURDEN BORING REPORT		
PARSONS	CLIENT: WALDE BORING NO.: SB DUMO -	71	
COMMENTS:	driller: Hary Llan	/	
	DRILLER: Hany Llow INSPECTOR: Ressman	ncAll	Fer
	DATE: 10/27/02		
D SAMPLING SAMPLE E P BLOWS PENE RECOV. DEPTH	SAMPLE DESCRIPTION	USCS	STRATUM
T PER TRATION ERY INT NO. VO H 6 RANGE RANGE (FEET) (FT) INCHES (FEET) (FEET)	SCRN (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	CLASS	CLASS
			_
2 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2' 2'	moist Brown to PK Brown SILTW/CLAY topsoil on top. Brown CLAY 51 bottom	CL	-
70			_
	Moist Brun CLAY w/ some sitt.	(0)	
5 1.8 1	- wearhuned Bedrock 3"	CL	-
1.) CD/2"	maist Brom CLAY W/sone size. (from top)		
5 50/a" y" 8" 2	We arrived Bedrock 3"	CL	-
6-01	I wash and shale The		-
30/2" 2"	- Westerfit share try		
	Augur Refusel (e.2'	,	-
8	- And business		· -
	1 🗐		
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	1 +		-
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	+		-
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20	1 +		

				OVER	BURD	EN BOI	RING RE				
		PA	RSO	NS		CLIENT:	USALOE	BORI	NG NO.:	SB DKM0-22 10/17/02	_
PROJECT	 Γ:		20	0				START D	ATE:	10/27/02	
SWMU#	(AREA)	:	DK	mo				FINISH D		4	
SOP NO.	:			1175				CONTRAC	CTOR:	Lyn Dolly	
					UMMARY			DRILLER	:	Harm / 07	k
DRILLING	HOLE	DEP	тн	SAM	IPLER	1	IAMMER	INSPECTO	OR:	Jun /sen	
METHOD	DIA.(ft)	INTERV	AL (ft)	SIZE	TYPE	TYPE	WT/FALL	CHECKE	D BY:		
1KA	Bu.	2-(	.9	2"	55			CHECK I	DATE:		
100		6-1		311	55			BORING O	CONVERTED	TO MW? Y	N
					1	LING ACI	RONYMS	1			
HSA		HOLLOW-S	TEM AUGI	ERS	HMR	HAMMER		SS	SPLIT SPOO	DN	
DW		DRIVE-AND	-WASH	•	SHR	SAFETY · H	AMMER	CS	CONTINUO	US SAMPLING	
MRSLC		MUD-ROTA	RY SOIL-C	CORING	HHR	HYDRAULI	C HAMMER	SI	5 FT INTERV	VAL SAMPLING	
CA		CASING AL	VANCER		DHR	DOWN-HOI	LE HAMMER	NS	NO SAMPLI	NG	
SPC		SPIN CASIN	íG		WL	WIRE-LINE		ST	SHELBY TU		
								3S	3 INCH SPLI	T SPOON	
				MO	NITORIN	G EQUPM	ENT SUMMA	RY			
INSTRU	MENT	DETEC	CTOR	RANGE		BACKGRO	JND	CALIE	RATION	WEATHER	2
TYI	PE	TYPE/E	NERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND,	ETC.)
						<u> </u>					
				l	MONIT	CODING A	CRONYMS		1	1	
PID		PLIOTO IO	UZ ATION	DETECTOR	BGD	BACKGRO		DGRT	DRAEGER 1	THIRES	
FID				DETECTOR DETECTOR	СРМ		ER MINUTE	PPB	PARTS PER		
GMD		GEIGER MI			РРМ	PARTS PER		MDL		ETECTION LIMIT	
SCT		SCINTILLA			RAD	RADIATIO					
				INV	FSTIGAT	ION DERI	VED WASTE				
	D 4 (500						111100 E E	-1			
	DATE										
7	L AMO										
(fra	ction of	drum)									
DRUM	#, LOC	ATION:					1				
CO	MMEN	TS:					SAMPLES			, >	
							SAMPLES	DIZMO	- 1091	(0-2)	
							DUPLICATES				
							MS/MSD				
							MRD				

					<u>J</u>	E.	KE	URDEN BORING REPORT		
		1	PARS	50NS	5			CLIENT: WACOE BORING NO.: SBDRMA	-12	
	MENTS:									
· ·	p								/mcAllow	-,
								INSPECTOR: KOSSYALMI	CHARTION	۸
D	7	AMPLIN	G		SAN	PLE		DATE: 10/27/01	<del></del>	
E	BLOWS	PENE-	RECOV-	DEPTH	J/4	I	RAD	SAMPLE DESCRIPTION	USCS	STRATUM
T H	PER 6	TRATION RANGE	ERY RANGE	INT (FEET)	NO.	voc	SCRN	(As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Component	CLASS	CLASS
(FT)	INCHES Z	(FEET)	(FEET)	H		<del>  .</del>		with amount modifiers and grain-size, density, stratification, wetness, etc.)		
	1		,		%	824		moist Brow topsoil w/shale freyments	_	-
	5	2'	z'		Demo-1091	7.	_	- ·		
<b>9</b>	11				22		_		'	
L	4				3			Must Brumlery CLAY w/shale fragments and LA br 51H.	CZ	
	16	2	7"			34	-	_ later size.		-
	3					5		-		-
4-	9						-	Dry weathered shale		-
5	(1	1'10"	4"					- Charles and the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the con		
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(a-	50/4°					1	_	the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		
	40	9"	3"					Dry weadhered shale - Iron staining		-
	50/2"	9				2/5/8	-	_ 0		-
_						18		<del>-</del>		
8-	90/1	, 1	_				-	no recovery. Splitspour refusal		
		1						-Moranian Springer	-	
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				OVER	BURD	EN BOI	RING RI			
		PAF	15OI	<b>VS</b>		CLIENT:	WACOE	BORII	NG NO.:	58DRM0-25 10/28/02
ROJECT	:		7	ED				START D	ATE:	10/28/02
SWMU#	(AREA)	:	D	Kmo	,			FINISH D		1
OP NO.:		_	<u>y</u>	141115	/			CONTRAC	CTOR:	Lyon Dilly
			DRII	LING SI	UMMARY			DRILLER		Ams 102/1.
RILLING	HOLE	DEPT			(PLER	ŀ	IAMMER	INSPECTO		Brothern
ETHOD	DIA.(ft)	INTERVA	L (ft)	SIZE	ТҮРЕ	TYPE	. WT/FALL	CHECKE	BY:	ex- (LOI)
HSA	16"	7 8	3 .	2*	55			CHECK I	DATE:	
1,2,1,		0 -2		3"	55			BORING	ONVERTED	томw? Y (N)
						LING ACE	RONYMS	11 2014110	· ·	
HSA		HOLLOW-STI	EM AUGE	ERS	HMR	HAMMER	10111111	SS	SPLIT SPOO	ИС
DW		DRIVE-AND-	WASH		SHR	SAFETY H	AMMER	CS	CONTINUO	US SAMPLING
MRSLC		MUD-ROTAR	Y SOIL-C	ORING	HHR	HYDRAULI	C HAMMER	51 .	5 FT INTER	VAL SAMPLING
CA		CASING ADV			DHR		LE HAMMER	NS	NO SAMPLI	
SPC		SPIN CASINO	3		WL.	WIRE-LINE	٠	ST 3S	3 INCH SPLE	
									3 11 (11 (11 (11 (11 (11 (11 (11 (11 (11	
				MO	NITORIN	G EQUPM	ENT SUMM	ARY		· · · · · · · · · · · · · · · · · · ·
INSTRU	MENT	DETECT	TOR	RANGE		BACKGROU	JND	CALIB	RATION	WEATHER
TYP	E	TYPE/EN	ERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
					1.501/50		CD ONVO 50	i	1	.1
nin.		DUOTO 1011	171. TTOL	DETROMOR			CRONYMS	DONT	OB A ECCB	THE
PID FID		PHOTO - ION FLAME - ION			BGD CPM	BACKGROU	ER MINUTE	DGRT PPB	DRAEGER PARTS PER	
GMD		GEIGER MUI			PPM	PARTS PER		MDL		DETECTION LIMIT
SCT		SCINTILLATI			RAD	RADIATION				
				INV	ESTIGAT	ION DERI	VED WASTE			
	DATE	г								
	DATE		10/2	8/02						
	J AMOU		101-	-10						
(fra	ction of	drum)								
DRUM	#, LOC	ATION:								
СО	MMEN	TS:					SAMPLES	TAKEN:		
									-1095	(02) DRMO-10961
							SAMPLES	VICTIO	1013	O'C) DICHO-10141
							DUPLICATES			
							MS/MSD	*****		
							MRD	Nomo-	1095 A	MRD

					U	E	KB	URDEN BORING REPORT		
			PAR	SONS	5			CLIENT: USA COFE BORING NO.: SB DKMU	ı-Z3	
COM	MENTS:							driller: Hamyly	nu Mct	Vlister
D E P T H (FT)	BLOWS PER 6 INCHES	PENE- TRATION RANGE (PEET)	RECOV-	DEPTH INT (FEET)	NO. 5	Voc	RAD	SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)  _MUIA Brown STAT/CLAY	USCS .CLASS	STRATUM CLASS
1- -	7 10 2 6 5 1	2'	1'		DRAG	0 880	-		1	
4- 5- 6-	11 14 26 27 11	2'	ζ'		DEMO-109	1001		Moist Brown SILT w/f SAMS and anular- gravel to Brown w/sitt round graves t some FSAMS.  Moist Brown SILT w/ weathered Shale as	e	-
~ %— —	14 50/4 60/1*	1"	1'  -			1019		botom.  Refusal. Spoon letosal.  Not encuy sample for last interval (6-10)		
10										-
								<u>*</u>		
20										

PAGE 1 OF E

				OVER	BURDI	EN BOI	RING RE	PORT			
		PAI	250I	NS		CLIENT:	USACOE	BORI	NG NO.:	SB DRM0-284	
PROJECT	Γ:		PI	Þ				START D	DATE:	SB DRMO-284	
SWMU#	(AREA)	:	DR	cmo				FINISH I		1	
SOP NO.		-		74117	3		· · · · · · · · · · · · · · · · · · ·	CONTRA	CTOR:	Lyan Dolly	
			DDII		JMMARY			DRILLER		Hacel Bok	
										Ten 1000	
RILLING	HOLE	DEPT			PLER		IAMMER	INSPECT		JUNA / BOIL	
METHOD	DIA.(ft)	INTERV		SIZE	TYPE	ТҮРЕ	WT/FALL	CHECKE	D BY:		
1124	16	2-8		ν"	85			CHECK	DATE:		
		0-2		3"	55			BORING CONVERTED TO MW? Y N			
					DRIL	LING ACE	RONYMS			\$2	
HSA		HOLLOW-ST	EM AUGI	ERS	HMR	HAMMER		SS	SPLIT SPOO	N	
DW		DRIVE-AND	-WASH		SHR	SAFETY H	AMMER	CS	CONTINUO	US SAMPLING	
MRSLC		MUD-ROTAI	RY SOIL-C	CORING	HHR	HYDRAULI	C HAMMER	51	5 FT INTER	VAL SAMPLING	
CA		CASING AD	VANCER		DHR	DOWN-HOI	LE HAMMER	NS	NO SAMPLI		
SPC		SPIN CASIN	G		WL	WIRE-LINE		ST	SHELBY TU		
								3 <b>S</b>	3 INCH SPLI	II SPOON	
				MO	NITORIN	G·EQUPM	ENT SUMMA	ARY			
INSTRU	JMENT	DETEC	TOR	RANGE		BACKGRO			BRATION	WEATHER	
TYPE TYPE/ENERGY					READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)	
		IIIBE	CKOT		KLADING	Time	DAIL	11.11.0	-	(rom ; ma; bro)	
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		-									
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		<u> </u>									
					MONIT	ORING A	CRONYMS				
PID		PHOTO - 101	NIZATION	DETECTOR	BGD	BACKGRO	UND	DGRT	DRAEGER	TUBES	
FID		FLAME - 101	NIZATION	DETECTOR	CPM	COUNTS P	ER MINUTE	PPB	PARTS PER	BILLION	
GMD		GEIGER MU	JELLER D	ETECTOR	PPM	PARTS PE	R MILLION	MDL	METHOD D	DETECTION LIMIT	
SCT	•	SCINTILLAT	TION DET	ECTOR	RAD	RADIATIO	N METER				
				INV	ESTIGAT	ION DERI	VED WASTE				
	DATE	: 1				·			· · · · · · · · · · · · · · · · · · ·		
	DILLE	ĺ	161	18/12							
SOI	L AMO	UNT:	13/								
(fra	action of	drum)									
DRUM	1#, LOC	CATION:									
	OMME						SAMPLES	TAKEN:			
	~ 11 E [ T E 2 ]	110.						Dum	D JLAC	(0-2) DEMO-1079(	
							SAMPLES	DKIII	N-1018	(0-6) Thin -1011(	
							DUPLICATES				
							MS/MSD				
							MRD				

OVERBURDEN BORING REPORT												
	PARSONS CLIENT: WA-COE BORING NO.: SB DRING - 20											
COMMEN	NTS:							DRILLER:	Harry Ly			
								INSPECTOR:	Rossmann		lister	
								DATE:	m/es/12	412-41		
D E	SAMPL	NG T	1	SAM	PLE.			(PLE	4			
	PER TRATIC	N ERY	DEMH INT (FEET)	NO.	voc	RAD	DESCR  (As per Burmeister: color, grain size, M	IPTION A IOR COMPONENT	Minor Components	USCS CLASS	STRATUM CLASS	
	NCHES (FEET		(121)	1	\ .	Jena	with amount modifiers and grain-si	ze, density, stratificatio	n, wetness, etc.)	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
	(2)	1.	24	10	4		_ moist Fill material -	Koazy Uni	gen proseguer			
	12 20 15	2"		36	4	-	Porchal the 16"					
12-15	15			4		-	Tacher 1	Angula	s med fre		4	
8	3	1			_		-wet Grey Clayw/silt	Millian	Total of		-	
1	2 1	1		580	3		Mroghtest					
4 -	/4 /			101	-	-	Moder (141) Bac	wa 5f4			-	
5 4	1.9	, ,,		DRING-LOP9	4		Mist Gry CLAY. Bric - 5" weather 1 Bedrock	_				
	5	' -	K	7	1336		- 3. Meading Benjan		in the second second			
6 3	1/41					-	wathered Shale - Dy		· · · · · · · · · · · · · · · · · · ·		-	
- 3u	y"	3"			2	_	_ hreating set in the	44.	·~ 4			
					134		<del></del>				-	
8-1	5/10 11					-	M Recardy Spoon Revisor	al				
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,				OVER	BURD	EN BOI	RING REI	PORT		
		PAI	<b>350</b>	NS		CLIENT:	LISACOE	BORI	NG NO.:	mw demo-3
PROJEC	Γ:		PLI	)				START D		10/29/02
SWMU#	(AREA)	:	DRY	no				FINISH C	DATE:	+
SOP NO.	:			1175				CONTRA	CTOR:	Lyon Dolly
					JMMARY			DRILLER	:	Ham / Rizh
DRILLING	HOLE	DEP"	гн	SAM	PLER .	ŀ	HAMMER	INSPECTOR: Jenn Bu		
метнор	DIA.(ft)	INTERV	AL (ft)	SIZE .	ТҮРЕ	ТҮРЕ	WT/FALL	CHECKE	D BY:	
ASA		0-8		2"	SS			CHECK- I	DATE:	
								BORING (	CONVERTED	томw1 (Y) N
					DRII	LING ACE	RONYMS			
HSA DW MRSLC CA		HOLLOW-ST DRIVE-AND MUD-ROTAL CASING AD SPIN CASIN	-WASH RY SOIL-C VANCER	•	HMR SHR HHR DHR WL	SAFETY H HYDRAULI DOWN-HOI	AMMER IC HAMMER LE HAMMER	SS CS SI NS ST 3S	5 FT INTERV NÖ SAMPLI	US SAMPLING VAL SAMPLING NG BE
		•		MO	NITORIN	G EQUPM	ENT SUMMAI	RY		
. INSTRU	MENT	DETEC	TOR	RANGE		BACKGRO	UND	CALIE	BRATION	WEATHER
TYI	E.	TYPE/EN	IERGY		READING	TIME	DATE	TIME .	DATE	(TEMP., WIND, ETC.)
	· ·	-								
	-	-								
	••									
									<u>                                     </u>	
								<u> </u>		
			-		MONIT	TORING A	CRONYMS			
PID		PHOTO - ION			BGD			DGRT	DRAEGER	
FID GMD		FLAME - 101 GEIGER MU			CPM PPM		ER MINUTE R MILLION	PPB MDL	PARTS PER METHOD D	BILLION DETECTION LIMIT
SCT		SCINTILLAT			RAD					
· ·				YNIX	ECTICAT	TON DEDI	VED WASTE			
				IIVV	ESTIGAT	ION DEKI	VED WASIE			
	DATE		1.	1 . 1						
SOI	L AMOI	JNT:		1/24/02 1/2 drum	1					
(fra	ction of	drum)		/2 drum	<i>)</i>					
DRUM	#, LOC	ATION:								
CC	MMEN	TS:					SAMPLES T	AKEN:	none	
							SAMPLES			
							DUPLICATES			
							MS/MSD			

	OVERBURDEN BURING REPORT												
		1	PARS	CLIENT: WA COE BORING NO.: MW DRMO-	- 3								
COMI	MENTS:	07/5	suple	s (0	llee	البيار	,	DRILLER: Huny Lyon INSPECTOR: ROSSManuf DATE: 10h9/or	/	str			
D E P T H (FT)	BLOWS PER 6 INCHES	PENE- TRATION RANGE (FEET)	RECOV- ERY RANGE (FEET)	DEPTH INT (FEET)	SAM NO.	voc	RAD SCRN	SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS			
7	8 14 11 13	2'	1	2				- Dry Roch Gry	3	-			
77 9 19	四四	2'	11	W			_	Slightly minist Brown STt	m <sub>L</sub>	  			
5 ( <i>i</i>	20 27 41	2'	1	Ľ				Liveathing Shale - Dry.	-	<del>-</del>			
¥ -	50/2"	8"	ø"							- - -			
10						-	_			  			
_							_			- - -			
										- - -			
								<del>-</del>  		-			
										- - -			
20_							_						

				OVER	BURD	EN BOI	RING RE	PORT			
		PA	RSO	NS		CLIENT:	WACOE	BORI	NG NO.:	Mw orems-4	
PROJEC	Γ: .		Pti	2				START I		10/29/02	
SWMU#	(AREA)	:	DRI	mo		-	-	FINISH E	DATE:	1	
SOP NO.	:			1175	*			CONTRA		Huny Lyun Drilly	
				· ·	JMMARY	· :		DRULLER		Harry I Rick	
DRILLING	HOLE	DEP	тн	SAM	IPLER			INSPECT	OR: Te	em Ben	
METHOD	DIA.(ft)	INTERV	'AL (ft)	SIZE	түре .	ТҮРЕ	WT/FALL .	CHECKE			
HSA	4/4	0-8	}	2"	SS			CHECK DATE:			
	·	-						BORING	CONVERTED	TO MW? (Y) N	
	:	• .			DRIL	LING ACI	RONYMS				
HSA DW MRSLC CA SPC		HOLLOW-S DRIVE-AND MUD-ROTA CASING AU SPIN CASIN	WASH RY SOIL-C DVANCER		HMR SHR HHR DHR WL	HAMMER SAFETY H HYDRAULI	AMMER IC HAMMER LE HAMMER	SS CS. SI NS ST 3S		US SAMPLING VAL SAMPLING NG BE	
				MO	NITODIN	G FOURM	ENT SUMMA	DV			
thic TD1	MENT	DETE	TOP.		·			T		WEATUEN	
. INSTRU		DETE		RANGE	BEADING.	BACKGRO	1	TIME	BRATION	WEATHER	
- 110	· .	TYPE/E	NEKGT .		READING	TIME -	DATE	I IME	DATE	(TEMP., WIND, ETC.)	
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		l			MONIT	ORING A	CRONYMS	<del>., </del>	<del></del>		
PID		PHOTO - IO	NIZATION	DETECTOR	BGD	BACKGRO		DGRT	DRAEGER T	TUBES	
FID		FLAME - 10	NIZATION	DETECTOR	CPM	COUNTS P	ER MINUTE	PPB	PARTS PER	BILLION	
GMD		GEIGER MU			MAd	PARTS PER		MDL	METHOD D	ETECTION LIMIT	
SCT		SCINTILLAT	HON DETI	ECTOR .	RAD	RADIATION	METER				
				INV	ESTIGAT	ION DERI	VED WASTE			,	
	DATE		,	1 1							
SOI	L AMOU	INT ·	10	129/02 Chim				-			
1	ction of		1/2	- chim	/						
DRUM	l#, LOC	ATION:									
CC	MMEN	TS:					SAMPLES T	AKEN:	None		
							SAMPLES				
							DUPLICATES				
							MS/MSD				
	MS/MSD										

	OVERBURDEN BORING REPORT												
			PARS	ONS	5			CLIENT: USA COE BORING NO .: MW DIEVNO -	Y				
COM	MENTS:							DRILLER: Harry Lyon INSPECTOR: RUSSMUMN J DATE: 102401		ster			
D E P T H (FT)	BLOWS PER 6 INCHES	PENE- TRATION RANGE (FEET)	RECOV- ERY RANGE (FEET)	DEPTH INT (FEET)	SAM No.	voc	RAD SCRN	SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS			
	8 5	٤'	1					_ Murst Brown (elk) SFLT last 3" 9"CF _ Nock (ony)	M2	_			
z — _	7 10 27	2'	1					muist Grey SFLT w/some day weathered stall	mL	- - - -			
4 — 5 .—	24 842"	8"	6"					Dy weathered shale	1	- - - -			
6-	4/1	1*	-					no recovery. Refusal Split spon	1	-			
8 — —							_	<del>-</del> -		-			
10										-			
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15										- - -			
_										- - - -			
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				OVER	BURD	EN BOI	RING RE	PORT				
		PA	RSOI	NS		CLIENT:	WACOE	BORI	NG NO.:	MWDRMO-6		
PROJEC	Γ:			PIO				START D	ATE:	10/29/02		
SWMU#	(AREA)	:	٠. ٠	DRMO		4. 1		FINISH (	DATE	1		
SOP NO.	· ·	·		741175	<u> </u>			CONTRA	CTOR: .	Lyon onthy		
			DRII	LING SU	JMMARY			DRILLER	:	Humi / Rich		
DRILLING	HOLE	DEP	TH	SAM	IPLER		IAMMER	INSPECT	OR:	Ben / Inn		
METHOD	ĎľA.(ft)	INTERV	AL (ft)	Size	TYPE	TYPE	WT/FALL	СНЕСКЕ	D BY:			
ASA	6"	0-	8	2"	SS			СНЕСК	DATE:			
		·						BORING (	CONVERTED	TOMW? (Y) N		
			,		DRII	LING ACI	RONYMS					
HSA		HOLLOW-S		ERS	HMR	HAMMER		SS .	SPLIT SPO	•		
. DW MRSLC		DRIVE-AND MUD-ROTA		COPING	SHR	SAFETY H	AMMER IC HAMMER	CS 51		US SAMPLING VAL SAMPLING		
CA		CASING AE	-	DINDIO	DHR		LE HAMMER	NS .	NO SAMPLE			
ŚPC	N'a Septe	SPIN CASIN	lG .		NA WL	WIRE-LINE	Bernard Lawin	, ST		<b>ЛВЕ</b>		
	·					. •		3S	3 INCH SPL	IT SPOON		
				MO	NITORIN	G EOUPM	ENT SUMMA	RY				
. INSTRU	MENT	DETEC	CTOR	RANGE		BACKGRO		1	BRATION	. WEATHER		
TYI		TYPE/E			READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)		
		THE	VEIGO I		KEADING		DATE	Tivil	DATE	(IEMI., WIND, ETC.)		
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				<u> </u>	MONIE	CODING	CDONIVAC					
PID		PHOTO - 108	NI7ATION	DETECTOR	MONT	BACKGRO	CRONYMS	DGRT	DRAEGER	TURES		
FID				DETECTOR	СРМ		ER MINUTE	PPB	PARTS PER			
GMD		GEIGER MI	JELLER D	ETECTOR	PPM	PARTS PE	R MILLION	MDL	METHOD I	DETECTION LIMIT		
SCT		SCINTILLA	TION DETI	ECTOR .	RAD	RADIATIO	N METER			•		
				INV	ESTIGAT	ION DERI	VED WASTE					
	DATE			1 /								
			l	1/24/02								
	SOIL AMOUNT: (fraction of drum) /2 drum											
		ATION:		1 W W								
	OMMEN		L			I	SAMPLEST	AKEN:	nine			
		- ~ •					SAMPLES					
							DUPLICATES					
	MS/MSD											

	OVERBURDEN BORING REPORT											
	PARSONS CLIENT: WA COE BORING NO.: YMW DRYMO											
COM	MENTS:			<u>, , , , , , , , , , , , , , , , , , , </u>				DRILLER: Hary Lyon				
								1 000	Im All	<i>it</i> .		
								DATE: 10/29/02	III	1342		
D E	- 5	AMPLIN	G I		SAM	(PLE	1	SAMPLE				
P Ť H	DLOWS PER 6	PENE- TRATION RANGE		DEPTH	NO.	voc	RAD	DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components	USCS CLASS	STRATUM CLASS		
(FT)	INCHES	(FEET)	(FEET)	(FEET)		<u> </u>	SCKN	with amount modifiers and grain-size, density, stratification, wetness, etc.)				
	16	,,	.,.					- Rocky Fill	-	-		
_	11	2	34				-					
2_	8	]					_	The stiff				
	4		,,					most rudy Brownsilt, stiff	ML	-		
-	9	2	1				_					
	14						_	- 1.3 1.				
14	<b>448</b>	8"	.8"					by weathered shall		_		
5	20/20	Ø	0				-	_ V				
6								Dry weathered shale  Dry weathered shale				
16-	90/10	,	4"				-	Dry weathershive	_			
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8-							-					
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<sup>20</sup> —				1			-	<u></u>		-		

				OVER	BURD	EN BOI	RING RE	PORT				
		PA	RSO	NS		CLIENT:	WACOE	BORI	NG NO.:	MWDKMU-5		
PROJEC	Т:		P	FD				START I		10/2/02		
SWMU#	· (AREA)	:	Di	emo				FINISH I	DATE:	10/29/02		
SOP NO.	:			741175				CONTRA	CTOR:	Lyon Drillin		
			DRII	LING S	UMMARY			DRILLER	l: .	Harry 1 Rich		
DRILLING	HOLE	DEP	TH	· SAM	IPLER		- HAMMER	INSPECT	OR:	Ben Jenn		
METHOD	DIA.(ft)	INTERV	/AL (ft)	SIZE	TYPE	TYPE	WT/FALL	CHECKE	ĎВY:			
HSA	6	0-2	8	2"	<i>S</i> S			СНЕСК	DĄTE:			
	1							BORING	BORING CONVERTED TO MW? (Y) N			
					DRII	LING ACI	RONYMS.					
. HSA		HOLLOW-S		ERS.	НМR			SS	SPLIT SPOO			
. DM		DRIVE-AND			· SHR			ĊS		US SAMPLING		
MRSLC CA		MUD-ROTA CASING AL		OKING	HHR DHR		C HAMMER LE HAMMER	5I	NO SAMPLI	VAL SAMPLING		
SPC	٠.	SPIN CASI		•	WL		*	ST	SHELBYTU	· ·		
4.						•		. 3S .	3 INCH SPL	IT SPOON		
				MO	NITODIN	С ЕОПЪМ	ENT SUMMA	DV				
		T			I			1				
	INSTRUMENT DETECTOR RANGE					BACKGRO			BRATION	WEATHER		
TY	TYPE TYPE/ENERGY				READING	TIME .	DATE	TIME	DATE	(TEMP., WIND, ETC.)		
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					MONI	FORING A	CRONYMS					
PID		PHOTO - 10	NIZATION	DETECTOR	BGD	BACKGRO	UND	DGRT	DRAEGER	TUBES		
FID				DETECTOR	СРМ		ER MINUTE	PPB	PARTS PER			
GMD SCT		GEIGER MI			PPM RAD			MDL	METHOD D	DETECTION LIMIT		
		SCINTIEEX	TION DET			TOODIATIO						
				INV	ESTIGAT	ION DERI	VED WASTE					
	DATE			1 1						;		
SOI	L AMOI	INT ·	/(	0/29/62				-				
	action of			1/2 drus	m/							
DRUM	1 #, LOC	ATION:										
	) MMEN					1	SAMPLES	raken:	none			
							SAMPLES	,				
							DUPLICATES			-		
							MS/MSD					
							MRD	-				

	OVERBURDEN BURING REPURI												
			PARS	ONS	5			CLIENT: USACOE BORING NO.: MW DRYNO	-5				
COM	MENTS:							DRILLER: Harry Lyon INSPECTOR: Rossmann / McAllisti DATE: 10/29/02					
D E P T H (FT)	BLOWS PER 6 INCHES	PENE- TRATION RANGE (FEET)	RECOV- ERY RANGE (FEET)	DEPTH INT (FEET)	SAM NO.	VOC	RAD SCRN	SAMPLE DESCRIPTION  (As per Burtneister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS			
	7	، ا	1,5				_	_ murst Brown SILT W/rock Ragmuss	MZ	_			
2 -	10 5 12 25 28	2'	Ľ					_ Muit Brown SILT W) Noch fingmuta (4") _ Dry weadhered shale	ML	- - -			
ار — 5 —	40 35 50/2	8''	8"					Dry weather of Shale	_				
6-	5b/4×	4"	g <sub>'</sub> '					o zy weathreashale	-				
10													

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_				OVER	BURD	EN BO	RING RE	PORT	•	
		PAI	RSO	NS		CLIENT:	USACUE	BORI	NG NO.:	SBIBIT-1
PROJEC	Γ:		PID	)				START I		10/24/02
SWMU#	(AREA)	:	RIZ					FINISH E	DATE:	¥
SOP NO.	:	-	17411					CONTRA	CTOR:	Lyon Dolling
	<del></del>				JMMARY			DRILLER		Harry Luca
DRILLING	HOLE	DEP			PLER		HAMMER	INSPECT		1 Cossocial PR M Allit
				SIZE	ТҮРЕ	ТҮРЕ	WT/FALL	CHECKE		J PO SOMWIN / D VILL WILLIAM
METHOD	DIA.(ft)	INTERV				TTPE	WITFALL			
HSA-	414	0-2.	8	3"	SS			CHECK	DATE:	
							1	BORING	CONVERTED	то мw? Y (N
			•		DRIL	LING ACI	RONYMS			
HSA		HOLLOW-ST		ERS	HMR	HAMMER		SS	SPLIT SPOC	
DW		DRIVE-AND		200010	SHR	SAFETY H		CS		US SAMPLING
MRSLC		MUD-ROTAR		CORING	HHR DHR		IC HAMMER LE HAMMER	SI NS	NO SAMPLI	VAL SAMPLING
C.A SPC		CASING AD SPIN CASIN			WL	WIRE-LINE		ST	SHELBY TU	
31 C.		Sili Casii	3		112	Wite bill	•	38	3 INCH SPLI	
				МО	NITORIN	G EQUPM	IENT SUMMA	ARY		
INSTRU	MENT	DETEC	TOR	RANGE		BACKGRO	UND	. CALII	BRATION	WEATHER
TY	PE	TYPEÆN	IERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
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7.7.7.										
		L		l	MONIT	CODING A	CRONYMS		1	
PID		PHOTO - ION	JIZ A TION	DETECTOR	BGD	BACKGRO		DGRT	DRAEGER	TUBES
FID		FLAME - ION			СРМ		PER MINUTE	PPB	PARTS PER	
GMD		GEIGER MU			PPM		R MILLION	MDL	METHOD D	DETECTION LIMIT
SCT		SCINTILLAT	ION DET	ECTOR	RAD	RADIATIO	N METER			
				INV	ESTIGAT	ION DERI	VED WASTE			
	DATE	ſ						T		
	L AMOI	- 1								
(fra	ction of	drum)								
DRUM	ı#, LOC	ATION:								
	MMEN						SAMPLES	TAKEN:	121I -	1040
	, IVELVE EST	10.								ac/rest/respresses/ac
							SAMPLES	VOC/IN	isme 12V	1 11 Propression
							DUPLICATES		tac	/71H
							MS/MSD			-
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PAGE OF 2
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PARSONS CLIENT: WAR CUE BORING NO.: SB 121I-1																				
COLC	(C) PTO		PARS	ONS	<u> </u>				CLIE	NT: W	DA CUI	5	В	ORING						
D E P T H	BLOWS PER 6	PENE- IRATION RANGE	RECOV- ERY RANGE	DEPTH INT (FEET)	NO.	PLE	RAD				er color, g	DESC	AMPLE CRIPTION MAJOR	ON R COMPO	E: ONENT,		omponents		McAllis USCS CLASS	STRATUM CLASS
(FT)	INCHES	(FEET)	(FEET)		0	+-	<u>.                                    </u>		- <u>w</u>	nth amoun	t modifiers	and grain-	-size, d	iensity, str	atiticatio	s l A	s, etc.)	<del></del>		
2 — 4 — 5 — — — — — — — — — — — — — — — —	19 15 13 10 9)\$	ι'			8/ir-10/9	6/11 8:11			eav.	Brown, fright	grey S news.	tit	$\omega$	W W	tened	Shale			CL	
20								   												

				OVER	BURDI	EN BOI	RING RE	<b>EPORT</b>	;	
		PAI	RSO	NS		CLIENT:	ISACOE	BORII	NG NO.:	SB12 I-8
PROJEC	Γ:		PI	D				START D	ATE:	10/24/02
SWMU#	(AREA)	:	3	1211				FINISH D	ATE:	(1)
SOP NO.	:		7411					CONTRAC	CTOR:	Lyon Dally
			DRII	LING SU	JMMARY			DRILLER	:	Harry Zyon
DRILLING	HOLE	DEPT	гн	SAM	PLER	ŀ	łammer	INSPECTO	OR:	J Robermann Brothlis
METHOD	DIA.(ft)	INTERV	AL (ft)	SIZE	TYPE	ТҮРЕ	WT/FALL	CHECKE	D BY:	
ASA	BB4	0-3	5	<i>3</i> °	35			СНЕСК Г	DATE:	
								BORING C	ONVERTED	TO MW? Y (N)
					DRIL	LING ACE	RONYMS			
HSA		HOLLOW-ST	EM AUG	ERS	HMR	HAMMER		SS	SPLIT SPOO	NC
DW		DRIVE-AND	-WASH		SHR	SAFETY H	AMMER	CS	CONTINUO	US SAMPLING
MRSLC		MUD-ROTA	RY SOIL-C	CORING	HHR		C HAMMER	51	5 FT INTER	VAL SAMPLING
C.A		CASING AD			DHR		LE HAMMER	NS	NO SAMPLI	1
SPC		SPIN CASIN	G		WL	WIRE-LINE		ST .	SHELBY TU 3 INCH SPLI	I
				МО	NITORING	G EQUPM	ENT SUMMA	ARY		
INSTRU	MENT	DETEC	TOR	RANGE		BACKGROU	JND	CALIB	RATION	WEATHER
TYF	PE	TYPE/EN	ERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
	-									
						1				
							CRONYMS			
PID		PHOTO - ION			BGD	BACKGROU		DGRT PPB	DRAEGER ' PARTS PER	1
FID GMD		FLAME - ION GEIGER MU			CPM PPM	PARTS PER	ER MINUTE	MDL		ETECTION LIMIT
SCT		SCINTILLAT			RAD	RADIATION				
INVESTIGATION DERIVED WASTE										
		_			ESTIGATI	ON DERI	LO WASIE			
	DATE									
SOII	L AMOU	INT:				<del></del>				
(fra	ction of	drum)								
DRUM	#, LOC	ATION:								
CO	MMEN	TS:					SAMPLES	TAKEN:		
							SAMPLES	1211-	-1813	
							DUPLICATES	1215	- 1514	
							MS/MSD	121F -	- 144 133 ms	s /msD
							MRD	12.17 -1		

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			PARS	ONS	•			CLIENT: UDACOE	BORING NO.:	SBTZII- &		
COMP	MENTS:	l nud	gut s	ss vi	alu befi	us ine.	Gr 13	+ 2Pt just diel	DRILLER: INSPECTOR: DATE:	Harry Lyon JRDSSMann/ 10/24/12	~~~	llistr
D E P T H (FT)	BLOWS PER 6 INCIDES	PENE- TRATION RANGE (FEET)	RECOV- ERY RANGE (FEET)	DEPTH INT (FEET)	SAM NO.	VOC	RAD SCRN		MPLE MPTION MAJOR COMPONENT, ize, density, stratificatio	Minor Components	USCS CLASS	STRATUM CLASS
Н	6	RANGE	RANGE		E 101-1043		SCRN	(As per Burmeister: color, grain size, M with amount modifiers and grain-si  MNIX Brown CLAY W W Woldshird & Shalle  Poch Frymuts Refusal	rock at but	on, wetness, etc.)	CL	
								-				-

PAGE 1 OF 2

PROJECT: PFD START DATE   D PV D2    PROJECT: PFD START DATE   D PV D2    SWAM P (AREA)   794 75   CONTRACTOR: Lyon Dally    PROJECT: PFD SWAM P (AREA)   724 12   CONTRACTOR: Lyon Dally    PROJECT: PFD SWAM P (AREA)   DESTRUCTION DATE    DESTRUCTION OLA (II) STREVAL (II) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (II) STREVAL (II) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (III) STREVAL (III) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (III) STREVAL (III) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (III) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (III) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (III) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (III) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (III) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (III) SEE   TYPE   TYPE   WIFFALL    DESTRUCTION OLA (III) SEE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   TYPE   T					OVER	BURD	EN BOI	RING RE	PORT		
PROJECT: PFD START DATE POLY START DATE SWIND # (AREA): 121 T SOON OF THE SAME SOFT NO.  SOFT NO.: 171175 CONTRACTOR: LYAND MILLER SOFT NO.  DRILLING SUMMARY  DEBILING HOLE DEPTH SAMEER HAMMER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYAND MILLER BSSECTOR: LYA			PA	RSOI	NS		CLIENT:	LIDACOE	BORI	NG NO.:	SB121E-3
SUMMU # (AREA): 121 T	PROJECT	r:		PID					1		
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(fraction of drum)  DRUM #, LOCATION:  COMMENTS:  SAMPLES TAKEN:  SAMPLES	2011	· !	DAIT .						-		
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DUPLICATES  MS/MSD								II.		-1047	
MS/MSD								DUPLICATES			

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				(	JV	E	KR	URDEN BURING REPORT			
	PARSONS CLIENT: WACUE BORING NO.: 38 121 T-36.3.										
COMI	ÆNTS:							DRILLER: Hany you Inspector: Jilos synuma /		istir	
								DATE: 18/24/02			
D E P T H (FT)	BLOWS PER 6 INCHES	PENE- TRATION RANGE (FEET)	RECOV- ERY RANGE (FEET)	DEPTH INT (FEET)	NO.	voc	RAD SCRN	SAMPLE DESCRIPTION  (As per Burmeister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS	
	9 30 540	1	1		(401-512/	1.57		_ Majot Brown SILT W/ washed factored shale	CL	_	
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		PA	RSO	NS		CLIENT:	USA COE	BORI	NG NO.:	81215-4
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SWMU#	(AREA)	:	A	mo 12	UI			FINISH I	DATE:	J.
SOP NO.	:		741	/				CONTRA	CTOR:	Lyon Drilling
			DRII	LING SI	JMMARY			DRILLER	: 1	Harry Lyon
DRILLING	HOLE	DEP	тн	SAM	IPLER	. 1	IAMMER	INSPECT	OR:	1 Rossmann Bradlister
METHOD	DIA.(ft)	INTERV	AL (ft)	SIZE	TYPE	TYPE	WT/FALL	CHECKE	D BY:	3
HSA.	44	0-2	.3"	311	55			CHECK I	DATE:	
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	,				DRII	LING ACI	RONYMS			
HSA		HOLLOW-S1		ERS	HMR	HAMMER		SS	SPLIT SPOO	
DW MRSLC		DRIVE-AND MUD-ROTA		ORING	SHR HHR	SAFETY H	AMMER C HAMMER	CS 51		US SAMPLING VAL SAMPLING
CA		CASING AD		olario	DHR		LE HAMMER	NS	NO SAMPLI	
SPC		SPIN CASIN	IG		WL	WIRE-LINE		ST	SHELBY TU	BE .
								3S	3 INCH SPLI	T SPOON
				MO	NITORIN	G EQUPM	ENT SUMMA	ARY		
INSTRU	MENT	DETEC	TOR	RANGE		BACKGRO	MD	CALIE	BRATION	WEATHER
TYF	e 3°	TYPE/EN	ERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)
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					MONIT	ORING A	CRONVMS		1	
PID		PHOTO - ION	NIZATION	DETECTOR	BGD	BACKGROU		DGRT	DRAEGER 1	rubes
FID		FLAME - 101			СРМ		ER MINUTE	PPB	PARTS PER	
GMD		GEIGER MU			PPM	PARTS PER		MDL	METHOD D	ETECTION LIMIT
SCT		SCINTILLAT	ION DETE	ECTOR	RAD	RADIATION	METER			
				INV	ESTIGAT	ION DERI	VED WASTE			
	DATE									
SOU	L AMOU	INT ·								
	ction of									
DRUM	#, LOC	ATION:								
CO	MMEN'	TS:					SAMPLES	TAKEN:	121I-1	1050
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enina -	my ar	A.TIL	y i	Pil-we I	y Wi		DUPLICATES		TP	# 1000
Ken	ro Mg	DIUS					MS/MSD			
	Tribally drilled through Asphalt Near  Ferro mg piles  SAMPLES  DUPLICATES  TH   TDC  MS/MSD  MRD									

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PARSONS CLIENT: WACUE BORING NO.: 381217-40														
COMN	ŒNTS:											DRILLER: HAN LUCK INSPECTOR: TROSSMAN I DATE: 10/24/01/	3 mcAllist	W
D	S	AMPLING	G	Γ	SAM	PLE						I DATE TOPPIO		
E P T H (FT)	BLOWS PER 6 INCHES	PENE- TRATION RANGE (FEET)	RECOV- ERY RANGE (FEET)	DEPTH INT (FEET)	NO.	voc	RAD SCRN		with a	amount modifiers an	DESCR n size, M d grain-si	MPLE RIPTION  MAJOR COMPONENT, Minor Components ize, density, stratification, wetness, etc.)	USCS CLASS	STRATUM CLASS
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	OVERBURDEN BORING REPORT											
		PA	RSO	NS		CLIENT:	UDA-COE	BORI	NG NO.:	SB121I-6		
PROJEC	T :		P:	ID				START D		10/24/02		
SWMU-#	(AREA)	:	12	II				FINISH C	DATE:	(1		
SOP NO.	:		7411	75				CONTRA	CTOR:	Lyun Drilly		
			DRII	LLING SI	UMMARY			DRILLER	:	Hamilym		
DRILLING	HOLE	DEP	TH	SAM	(PLER	ŀ	IAMMER	INSPECT	OR:	1 Rossmum B McAllist		
METHOD	DIA.(ft)	INTERV	'AL (ft)	SIZE	ТҮРЕ	ТҮРЕ	WT/FALL	CHECKE	D BY:			
HSA	411	0-3	>	3"	55			СНЕСК І	DATE:			
								BORING CONVERTED TO MW? Y N				
					DRII	LING ACI	RONYMS					
HSA		HOLLOW-S	TEM AUG	ERS	HMR	HAMMER		SS	SPLIT SPOO	)N		
DW		DRIVE-AND		2000:-	SHR	SAFETY H		CS		US SAMPLING		
MRSLC CA		MUD-ROTA CASING AL		CORING	HHR DHR		C HAMMER LE HAMMER	SI NS	NO SAMPLI	VAL SAMPLING NG		
SPC		SPIN CASIN			WL			ST .	SHELBY TU			
								3\$	3 INCH SPLI			
		T	. ,	MO	NITORIN	G EQUPM	ENT SUMMA	RY		T		
INSTRU	JMENT	DETEC	CTOR	RANGE		BACKGROU	JND I	CALIE	BRATION	WEATHER		
TY	PE	TYPE/E	VERGY		READING	TIME	DATE	TIME	DATE	(TEMP., WIND, ETC.)		
	,											
		1		1	MONIT	TORING A	CRONYMS		1			
PID		PHOTO - IO	NIZATION	DETECTOR	BGD			DGRT	DRAEGER T	TUBES		
FID				DETECTOR	СРМ		ER MINUTE	PPB	PARTS PER			
GMD		GEIGER MU	JELLER D	ETECTOR	PPM	PARTS PER	RMILLION	MDL	METHOD D	ETECTION LIMIT		
SCT		SCINTILLA	TION DET	ECTOR	RAD	RADIATION	N METER					
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					JY	L.	KD	URDEN BORING REPORT		
PARSONS CLIENT: WA COE BORING NO.: SEE SBIZIT-5										
COMM	MENTS:							DRILLER: HELVY 2 you INSPECTOR: J ROSSMUMN DATE: 10/24/02	3 Mc	Allister
D E P T	BLOWS PER	PENE- TRATION	RECOV- ERY	DEPTH	SAM No.	PLE	RAD	SAMPLE DESCRIPTION	USCS CLASS	STRATUM CLASS
(FT)	6 INCHES	RANGE (FEET)	RANGE (FEET)	(FEET)			SCRN	(As per Burnteister: color, grain size, MAJOR COMPONENT, Minor Components with amount modifiers and grain-size, density, stratification, wetness, etc.)		
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### APPENDIX C

### ANALYTICAL RESULTS

C-1A	Guidelines for Sample and Sample Duplicate Merging
C-1B	SEAD-121C Surface Soil - Quality Control of Field Duplicates
C-1C	SEAD-121C Ditch Soil - Quality Control of Field Duplicates
C-1D	SEAD-121C Groundwater - Quality Control of Field Duplicates
C-1E	SEAD-121C Surface Water - Quality Control of Field Duplicates
C-1F	Building 360 Groundwater - Quality Control of Field Duplicates
C-1G	SEAD-121I Surface Soil - Quality Control of Field Duplicates
C-1H	SEAD-121I Ditch Soil - Quality Control of Field Duplicates
C-1I	SEAD-121I Surface Water - Quality Control of Field Duplicates
C-1J	SEAD-121C: Surface Soil – Sample-Duplicate Merger
C-1K	SEAD-121C: Ditch Soil - Sample-Duplicate Merger
C-1L	SEAD-121C: Groundwater - Sample-Duplicate Merger
C-1M	Building 360 (SEAD-27): Groundwater - Sample-Duplicate Merger
C-1N	SEAD-121C: Surface Water - Sample-Duplicate Merger
C-10	SEAD-121I: Surface Soil and Ditch Soil - Sample-Duplicate Merger
C-1P	SEAD-121I: Surface Water - Sample-Duplicate Merger
C-2	SEAD-121C Surface Soil Sample Results
C-3	SEAD-121C Ditch Soil Sample Results
C-4	SEAD-121C Subsurface Soil Sample Results
C-5A	SEAD-121C EBS Groundwater Sample Results
C-5B	SEAD-121C RI Groundwater Sample Results
C-6	Building 360 (SEAD-27) Groundwater Sample Results
C-7	SEAD-121C Surface Water Sample Results
C-8	SEAD-121I Surface and Ditch Soil Sample Results
C-9	SEAD-121I Surface Water Sample Results

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### Table C-1A SAMPLE AND DUPLICATE MERGING OF QUALIFIERS SEAD-121C AND SEAD-121I RI REPORT

A	В	Averaged
Qualifier	Qualifier	Qualifier
"NULL"	"NULL"	"NULL"
"NULL"	J	J
"NULL"	NJ	J
"NULL"	UJ	J
"NULL"	U ,	J
"NULL"	R	"NULL"
J	J	J
J	NJ	J
J	UJ	J
J	U	J
J	R	J
NJ	NJ	NJ
NJ	UJ	J
NJ	U	J
NJ	R	NJ
· UJ	UJ	UJ
UJ	U	UJ
UJ	R	UJ
U	U	U
U	R	U
R	R	R

### List of Validated Qualifers

### For organics:

"NULL" Detected concentration value

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

### For inorganics:

"NULL" Detected concentration value.

- J The associated value is an estimated quantity.
- U The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
- UJ The material was analyzed for, but was not detected.

  The associated value is an estimate and may be inaccurate or imprecise.
- R The data was unusable. (Note: Analyte may or may not be present.).

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# Tabl B Quality Control of Field Duplicates Surface Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

		0	B121C-1		0	18121C-4		SB	SBDRMO-16		SBI	SBDRMO-6		SS	SSDRMO-7
	Units	EB231	EB014	*RPD	EB020	EB229	*RPD	DRMO-1074	<b>DRMO-1080</b>	RPD	*RPD   DRMO-1074   DRMO-1080   RPD   DRMO-1043   DRMO-1050   *RPD   DRMO-1002   DRMO-1	DRMO-1050	*RPD	DRMO-1002	DRMO-10
rganic Compounds															
loroethane	UG/KG	12 U	12 U	-	11 UJ	11 UI	-	2.6 U	2.8 U	1%	2.6 UJ	2.7 U	4%	3.1 UJ	2.91
rachloroethane	UG/KG	12 U	12 U		11 UJ	11 UJ		2.6 U	2.8 U	1%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9 [
doroethane	UG/KG	12 U	12 U	mane	11 UJ	11 UJ		2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
roethane	UG/KG	12 U	12 U		11 UJ	11 UJ		2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
roethene	UG/KG	12 U	12 U		11 UJ	11 UJ		2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
roethane	UG/KG	12 U	12 U	*****	11 UJ	11 UJ		2.6 U	2.8 U	1%	2.6 UJ	2.7 UJ	4%	3.1 UJ	2.9
roethene (total)	UG/KG		12 U	****	11 UJ	11 UJ	-								
ropropane	UG/KG		12 U		11 UJ	11 UJ	1	2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
	UG/KG	12 U	12 J	-	10 J	11 UJ	10%	2.6 UJ	2.8 UJ	7%	2.6 UJ	4.6 U	26%	3.1 UJ	2.9
	UG/KG		12 U	-	11 UJ	11 UJ	1	2.6 U	2.8 U	2%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
loromethane	UG/KG		12 U	*****	11 [1]	11 UJ	demen	2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
0	UG/KG		12 U	-	11 UJ	11 03	****	2.6 UJ	2.8 UJ	1%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
ulfide	UG/KG		12 U	-	11 UJ	11 UJ	-	2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
achloride	11G/KG		17 (1	-	11 11	111111	-	2,611	2.8 [1]	7%	2.6 UJ	2.7 UJ	4%	3.1 UJ	2.9
zene	TIG/KG		12 11	- Deposite	11 11	11 111	*****	2.6 []	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
omomethene	110/20		17 71		111111	111 111	-	1190	28 11	70%	2.6 [1]	27 [1	4%	3.1 111	291
Omornomo	ON OUT		17 51		6111	11111		1196	2811	70%	11196	27.11	4%	3.1 111	291
ATT.	07/011		17 17		11111	2 7	Care?	1196	2 2 2 11	70%	26 111	27 11	40%	3.1 [1]	20
ohlomothone	00/001		170		11 00	*		2,000	7 8 11	70%	20 0.7	2711	4%	3.1.1.1	201
ohlowswoman	02/011	11 61	11 01		11 111	11 111		11/90	2 8 71	70%	26 111	2711	40%	3.1 [1]	201
cinoroproperie	00001		12 0		11.	311		11 9 6	0.4	707	1 99 0	27 11	10101	2 1 111	201
Valore	00/011		12 0		CO II	0		2 2 2 1	0 8 6	70%	1 1 4	27 11	410/	3.1.11	201
Aylene	DOWN OF		44		***	44 444		2.00	2007	70/	111 70	27 711	40/	2.1	2.0
imide	UG/KG		12 0	-	5 ::	3:	1	7.00	7.0	170	2.0 03	2.7 03	40/4	3.1 03	2.7
yl ketone	UG/KG		12 0	-	11 03	11 03	1	2.6 U	2.8 U	0%/	7.0 0.7	2.7 03	4%	3.1 03	6.7
oride	UG/KG		12 U	*****	11 03	11 03	-	2.6 UJ	2.8 UJ	%/	2.6 UJ	2.7 0.1	4%	3.1 0.1	2.9
yl ketone	UG/KG		12 U	-	11 03	11 03	-	2.6 U	2.8 U	1%	2.6 UJ	2.7 UJ	4%	3.1 03	2.9
butyl ketone	UG/KG	12 U	12 U	- Parising	11 UJ	11 U	-	2.6 U	2.8 U	2%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
chloride	UG/KG		12 U	-	11 [U]	11 UJ	-	2.6 U	2.8 U	2%	2.6 UJ	2.7 U	4%	3.1 UJ	1.7
ne	UG/KG							2.6 U	2.8 U	1%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
	UG/KG		12 U	-	11 UJ	11 UJ	-	2.6 UJ	2.8 UJ	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
oethene	UG/KG		12 U	-	11 UJ	11 UJ	-		2.8 UJ	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
	UG/KG		5 J	86%	12 J	10 J	18%		2.8 U	2%	2.6 UJ	2.7 U	4%	3.1 UI	2.9
nes	UG/KG	12 U	12 U	****	11 UJ	11 UJ									
Dichloroethene	UG/KG							2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
Dichloropropene	UG/KG		12 U	*****	11 UJ	11 UJ	-	2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
thene	UG/KG		12 U	*****	11 UJ	11 UJ	1	2.6 U	2.8 U	7%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
ride	UG/KG	12 U	12 U	***************************************	11 [U]	11 UJ	-	2.6 U	2.8 U	1%	2.6 UJ	2.7 U	4%	3.1 UJ	2.9
fle Organic Compounds	spunc											** (30	,00	000	000
llorobenzene	UG/KG		73 0	%/	72 U	71.0	1%	360 U	360 0	-	340 0	320 0	3%	380 0	380
robenzene	UG/KG		73 U	7%	72 U	71 U	1%	360 U	360 U	****	340 U	350 U	3%	380 U	380
robenzene	UG/KG		73 U	7%	72 U	71 U	1%	360 U	360 U	*****	340 U	350 U	3%	380 U	380
robenzene	UG/KG		73 U	7%	72 U	71 U	1%	360 U	360 U	1	340 U	350 U	3%	380 U	380
lorophenol	UG/KG	J 190 U	180 U	2%	170 U	170 U	-	D 006	D 006	*****	U 078	880 U	1%	D 096	950
lorophenol	UG/KG	78 U	73 U	7%	72 U	71 U	1%	360 U	360 U		340 U	350 U	3%	380 U	380
rophenol	UG/KG	J 78 U		1%	72 U	71 U	1%	360 U	360 U	*****	340 U	350 U	3%	380 U	380
hyphenol	UG/KG			7%	72 U	71 U	1%	360 U	360 U	-	340 U	350 U	3%	380 U	380
phenol	UG/KG	J 190 U	180 U	2%	170 U	170 U	-	D 006	10 006	-	870 R	880 UJ	NA	U 096	950
otoluene	UG/KG		73 U	7%	72 U	71 U	1%	360 U	360 U	-	340 U	350 U	3%	380 U	380
otoluene	UG/KG	78 U	73 U	1%	72 U	71 U	1%	360 U	360 U	*****	340 U	350 U	3%	380 U	380
aphthalene	UG/KG		73 U	1%	72 U	71 U	1%	360 U	360 U	-	340 U	350 U	3%	380 U	380

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# Table C-1B Quality Control of Field Duplicates Surface Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

		S	SB121C-1		15	SB121C-4		SB	SRDRMO-16		S	SRDRMO-6		0	SSDRMO-7
ı	Units	EB231	EB014	*RPD	EB020	EB229	*RPD	DRMO-1074 DRMO-1080	DRMO-1080	RPD	DRMO-1043   DRMO-1050	DRMO-105	0 *RPD	DRMO-1002	DRMO-1
henol	UG/KG	78 U	73 U	1%	72 U	71 U	1%	360 U	360 U	-	340 U	350 U	-	380 U	380
aphthalene	UG/KG	78 U		1.76% F	72 U	J 17	1%	200 J	210 J	2%	340 U	350 U	3%	140 J	110
henol	UG/KG	78 U	73 U	1%	72 U	71 U	1%	360 U	360 U	-	340 U	350 U	3%	380 U	380
line	UG/KG	190 U	180 U	2%	170 U	170 U	-	D 006	D 006	-	870 UJ	880 U	-	D 096	950
lon	UG/KG	78 U	73 U	7%	72 U	71 U	1%	360 U	360 U	***	340 U	350 U	+	380 U	380
nyiphenoi	UG/KG							360 0	360 U	******	340 U	350 U	+	380 0	380
propenzique	UG/KG	0.8/0	13 0	0//	0.77	01/	%1	360 0	360 03	-	340 03	320 03	+	380 03	380
me C mothylabonol	UG/KG	190 0	180 0	2%0	170 0	170 0	1	0000	2000		870 0	8800	1 10%	0 000	050
henry nhonyl other	07/011	78 11	72 11	70%	2211	7111	107	360 11	360 11		340 11	350 11	+	380 11	280
-methylphenol	110/KG	78 11	73 11	70%	72 11	71 17	10%	360 11	360 [1		340 11	350 11	+	380 11	380
niline	11G/KG	78 11	73 11	70%	72 11	71.17	10%	360 11	360 11		340 11	350 11	+	380 11	380
nenvl phenvl ether	UG/KG	78 [1]	73 U	1%	72 [1]	71 U	%	360 U	360 ₪	400-	340 U	350 U	-	380 U	380
henol	UG/KG	78 U	73 U	1%	72 U	71 U	1%						+		
line	UG/KG	190 U	180 U	8%	170 U	170 U	-	D 006	D 006	-	870 U	N 880	-	U 096	950
ion	UG/KG	190 U	180 U	2%	170 U	170 U		D 006	D 006	-	870 UJ	U 088	1%	U 096	950
ene	UG/KG	78 U	6.8 J	168%	72 U	71 U	1%	160 J	170 J	%9	340 U	350 U		310 J	190
ylene	UG/KG	78 U	73 U	7%	72 U	71 U	1%	1100	750	38%	340 U	350 U		1000	810
43	UG/KG	78 U	15 J	135%	72 U	71 U	1%	1100	950	15%	340 U	350 U	+	1600	850
nthracene	UG/KG	78 U	76	3%	3.9 J	7 3	.87%	5500 J	2900 J	62%	340 U	350 UJ	1 3%	6700 J	3900
yrene	UG/KG	78 U	57 J	31%	72 U	71 U	1%	4800 J	2700 J	26%	340 UJ	350 UJ	-	7600 J	2000
noranthene	UG/KG	78 U	95	20%	13 J	71 U	138%	f 0099	3700 J	26%	50 J	350 UJ	150%	11000 J	0099
)perylene	UG/KG	78 U	42 J	%09	72 U	71 U	1%	1700 J	740 J	.79%	110 J	57 J	63%	3800 J	2500
noranthene	UG/KG	78 U	67 J	15%	72 U	71 U	1%	3000 J	1700 J		340 UJ	350 UJ		4900 J	3100
proethoxy)methane	UG/KG	78 U	73 U	1%	72 U	71 U	1%	360 U	360 U	*****	340 U	350 U		380 U	380
proethyl)ether	UG/KG	78 U	73 U	1%	72 U	71 U	1%	360 U	360 U		340 U	350 U	-	380 U	380
proisopropyl)ether	UG/KG	78 U	73 U	2%	72 U	71 U	1%	360 U	360 U	*****	340 U	350 U	-	380 U	380
/lhexyl)phthalate	UG/KG	13 J	73 U	140%	9.3 J	13 J	33%	97 J	74 J	27%	340 UJ	350 U	-	200 J	16
ylphthalate	UG/KG	78 U	73 U	7%	72 U	71.0	1%	360 U	360 UJ	******	340 UJ	350 UJ	-	380 UJ	380
	UG/KG	78 U	17 J	128%	72 U	71 U	1%	170 J	130 J	27%	340 U	350 U	-	910	550
	UG/KG	78 U	06	14%	8.8 J	12 J	31%	5000 J	2700 J	%09	340 UJ	350 UJ	-	6800 J	4300
phthalate	UG/KG	78 U	73 U	2%	72 U	3.7 J	180%	360 U	360 U		340 U	350 U	-	380 U	73
phthalate	UG/KG	9.9 J	73 U	152%	72 U	71 U	1%	360 U	360 UJ	Same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same o	340 UJ	350 UJ	+	380 UJ	380
)anthracene	UG/KG	78 U	21 J	0115%	72 U	71 U	1%	250 J	100 J	%98	340 UJ	350 UJ	-	570 J	370
ran	UG/KG	78 U	5.1 J	175%	72 U	71 U	1%	170 J	190 J	11%	340 U	350 U	+	330 J	160
thalate	UG/KG	5.8 J	73 U	17.1%	8.1 3	10 J	21%	360 U	360 U	****	340 U	350 U	+	380 U	380
hthalate	UG/KG	78 0	73 U	1%	72 U	71 0	1%	360 U	360 U	-	340 U	350 U	3%	380 U	380
ine.	DOWNG TIONG	720 17	180	101/10	1.4 7	10 3	30%	8700 7	2000	41%	33 3	38 J	+	12000	0088
henzene	110/00	78 11	72 11	70/	72 11	71 17	10/	360 11	360 11	070	340 0	350 11	+	1000	280
ohntadiene	TIG/KG	78 11	73 [1]	70%	72 11	71 17	1%	36011	360 11		340 11	350 11	30%	380 [1]	380
ocyclopentadiene	UG/KG	78 [1]	73 11	7%	72.11	71 [1]	1%	360 [1]	360 U	-	340 []]	350 [1]	-	380 U	380
oethane	UG/KG	78 U	73 U	1%	72 U	71 U	1%	360 U	360 U		340 U	350 U	-	380 U	380
.3-cd)pyrene	UG/KG	78 U	41 J	6200	72 U	71 U	1%	760	330 J	26%	609	350 UJ	-	1100 J	840
	UG/KG	78 U	73 U	7%	72 U	71 U	1%	360 U	360 U		340 U	350 U		380 UJ	380
diphenylamine	UG/KG	78 U	73 U	1%	72 U	71 U	1%	360 U	360 U	-	340 U	350 U	3%	380 U	380
dipropylamine	UG/KG	U 87	73 U	1%	72 U	71 U	1%	360 U	360 U	-	340 UJ	350 U	3%	380 U	380
ne	UG/KG	78 U	73 U	1%	72 U	U 17	1%	100 J	82 J	20%	340 U	350 U		97 J	74
ne	UG/KG	78 U	73 U	7%	72 U	71 U	1%	360 U	360 U	*****	340 U	350 U		380 UJ	380
ophenol	UG/KG	190 UJ	180 U	2%	170 U	170 U	-	D 006	U 000 .	-	870 U	880 U	1%	D 096	950
sue	UG/KG	78 U	96	21%	8.8 J	7.6 J	15%	4400 J	4000 J	10%	340 U	350 U	3%	13000	7600

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# Tab. B Quality Control of Field Duplicates Surface Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

		S	B121C-1		S	SB121C-4		SB	SBDRMO-16		SB	SBDRMO-6		SS	SSDRMO-7
	Units	EB231	EB014	*RPD	EB020	EB229	*RPD	<b>DRMO-107</b>	DRMO-1080	RPD	DRMO-1043 DRMO-1050		*RPD	DRMO-1002 DRMO-1	DRMO-10
	UG/KG	78 U	73 U	1%	72 U	71 0	1%	360 U	360 U	1	340 U	350 U	3%	380 U	380 [
	UG/KG	78 U	170	749%	8.3 J	14 J	5,10%	12000 J	5300 J	77%	130 J	78 J	%05	24000 J	14000 J
PCBs															
	UG/KG	3.9 U	3.7 U	%5	3.6 U	3.5 U	3%	1.8 UJ	f 9	108%	1.8 R	1.8 UJ	NA	2 UJ	1.9 [
	UG/KG	3.9 U	29	1. 75.Vg.	3.8	4.5	17%	1.8 UJ	41 R	NA	6.1 J	6.3 J	3%	2 UJ	1.9 [
	UG/KG	3.9 U	35	15096	1.9 J	2.3 J	19%	19 J	21 J	10%	1.8 U	1.8	1	2 03	1.9 (
	UG/KG	2.0		%!!	1.8 U	1.8	1	6.6.6	N 61	0.576	8.1	5.5	-	7 0	1.9
	UG/KG	20	2 K	YA.	1.8 U	1.8 U	-	1.800	1.8 0		1.8 0.	1.8		7 00	1.9
rdane	UG/KG	2 U		11%	1.8 U	1.8 U	-	63 J	71 R	NA	6.1 J	4.7 3	26%	2 UJ	1.9.1
	UG/KG	2 U	1.8 UJ	11%	1.8 U	1.8 U	1	1.8 UJ	1.8 UJ	-	1.8 U	1.8 UJ	-	2 UJ	1.9 [
	UG/KG							18 U	18 U		18 U	18 U	-	20 U	161
	UG/KG	2 U	0.95 J	1 ANN.	1.8 U	1.8 U	-	1.8 UJ	1.8 UJ	-	1.8 UJ	1.8 UJ	-	2 UJ	1.9 {
	UG/KG	3.9 U		2%	3.6 U	3.5 U	3%	41 J	32 R	NA	1.8 UJ	1.8 UJ		2 UJ	1.9 [
1	UG/KG	2 U	1.8 UJ	11%	1.8 U	1.8 U		65	f 69	%9	6.1	5.4	12%	190 J	180 J
П	UG/KG	3.9 U		2%	3.6 U	3.5 U	3%	1.8 U	1.8 U		1.8 U	1.8 U	-	2 U	1.9 [
sulfate	UG/KG	3.9 U	3.7 UJ	2%	3.6 U	3.5 U	3%	1.8 U	1.8 U		1.8 U	1.8 U	-	2 U	1.9 [
	UG/KG	3.9 U	3.7 UJ	2%	3.6 U	3.5 U	3%	17 J	26 J	45%	1.8 UJ	1.8 U	-	2 U	1.9 [
hyde	UG/KG	3.9 U		8%	3.6 U	3.5 U	3%	1.8 U	1.8 U	-	1.8 U	1.8 U		2 U	1.9 [
ne	UG/KG	3.9 U		2%	3.6 U	3.5 U	3%	7.5 3	10 R	NA	1.8 U	1.8 U	****	2 U	1.9 [
IC/Lindane	UG/KG	2 U	1.8 UJ	11%	1.8 U	1.8 U	-	1.8 UJ	1.8 UJ	major se	1.8 UJ	1.8 UJ	****	2 U	1.9 [
lordane	UG/KG	2 U	1.8 UJ	11%	1.8 U	1.8 U	-	1.8 UJ	1.8 UJ		1.8 U	1.8 UJ	-	2 U	1.9 [
	UG/KG	2 U	1.8 UJ	11%	1.8 U	1.8 U	-	1.8 UJ	1.8 UJ	-	1.8 U	1.8 UJ	****	2 U	1.9 [
epoxide	UG/KG	2 U	1.8 UJ	11%	1.8 U	1.8 U	*****	20 R	1.8 UJ	NA	1.8 U	1.8 UJ	*****	2 U	1.9 [
lor	UG/KG	20 U		11%	18 U	18 U	-	1.8 U	1.8 U	-	1.8 UJ	1.8 U	-	2 U	1.9
-	UG/KG	200 U		11%	180 U	180 U	***************************************	18 U	18 U	******	18 U	18 U		. 20 U	191
91	UG/KG	39 U	37 UJ	%5	36 U	35 U	3%	18 UJ	18 UJ		18 U	18 U	-	20 U	1 61
21	UG/KG	U 62		7%	73 U	72 U	1%	18 U	. 18 U		18 U	18 U	*****	20 U	19 [
32	UG/KG	39 U	37 UJ	2%	36 U	35 U	3%	18 UJ	, 18 UJ	1	18 U	18 U	1	20 U	19 [
42	UG/KG	39 U	37 UJ	2%	36 U	35 U	3%	18 UJ	18 UJ		18 U	18 U	1	20 U	19 [
48	UG/KG	39 U	37 UJ	2%	36 U	35 U	3%	18 U	18 U	-	18 U	18 U	-	20 U	19 [
54	UG/KG	39 U	37 UJ	2%	36 U	35 U	3%	18 UJ	18 UJ		18 U	18 U	-	20 UJ	191
09	UG/KG	39 U	30 J	79%	36/U	35 U	3%	22 J	35 J	46%	18 U	18 U	-	20 UJ	191
yanide															
	MGKG	12800	14500	12%	14400	13000	10%	3100	3760	19%	8030	11100	32%	7420	8280
	MG/RG	5.5	19.5 5	100/	4.7.7	2.7	200/	0.38 0	6.59	140/	2.7	0.30 0	0/44%	5.2 3	1.4
	MG/KG	640	1600	S SECTION !	86.6	909	20%	42	45.6	80%	370 1	1 7 7 7	24/0	2008	845 1
	MG/KG		0.4	26%	0.57	0.49	15%	1 920	0.32 1	21%	0.44	0.6	31%	0.51	0.53
	MG/KG		2.7	190%	U 200	0.05 U	33%	0.56	0.49 J	13%	0.2 J	0.13 U	42%	0.57	0.44
	MG/KG		31300	17078	17200	25500	39%	199000	157000	24%	36500 J	41400 J	13%	63600 J	61200 J
	MG/KG	20.9	32.9	45%	27.8	22.6	21%	13	13.8	%9	38.8	38.6	1%	17.6 J	18.8
	MG/KG	12.8	16.5	25%	17.6	12.5	34%	5.9	6.1	3%	9.5	14.2	40%	8.6 R	8.7
	MG/KG		0692	199%	39.1 J	33 J	17%	28.8	34.3	17%	34.6 J	39.6 J	13%	39.8 J	32.8
	MG/KG	0.63 U	0.59 U	1%	0.56 U	0.61 U	%6								
menable	MG/KG							0.54 U	0.55 U	2%	0.52 U	0.53 U	7%	0.58 U	0.57
otal	MG/KG							0.542 U	0.545 U	1%	0.525 U	0.535 U	2%	0.582 U	0.575 1
	MG/KG	25700	41100	46%	32000	25900	21%	8710	10500	19%	18300	24200	28%	18500	18700
	MG/KG	11.8 J	5280	1998@	27.1	23.5 J	14%	89.3	94.5	%9	6.99	56.3	17%	117	93.8
	MG/KG	4590	6820	39%	0869	5630	21%	17900	13000	32%	5080	6940	31%	12700	6180
	MG/KG	298	612	0/7	413	359	14%	425	390	7%	348	5/0	%8	480	223
	MG/KG	0.06 U	0.05	18%	0.04 0	0.04 0	-	10.0	0.0/	-	0.04	0.03	73%	0.07	0.00

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# Quality Control of Field Duplicates Surface Soil at SEAD-121C SEAD-121C and SEAD-1211 RI Report Seneca Army Depot Activity Table C-1B

		^	SB121C-1		/	SB121C-4		S	SBDRMO-16		S	SBDRMO-6		22	SSDRMO-7
	Units	EB231	EB014	*RPD	EB020	EB229	*RPD	*RPD   DRMO-1074   DRMO-1080	-	RPD	DRMO-1043	DRMO-1043 DRMO-1050 *RPD DRMO-1002	*RPD		DRMO-10
	MG/KG	40.5	54.2 3	29%	61.8	49.3	23%	19.4 J	22.1 J	13%	31.8 J	44.4 3	33%	22.4 J	23.5
	MG/KG	1600	1840	14%	1980	1450	31%	934 J	882 J	%9	1220 J	1770 J	37%	862 J	712 J
	MG/KG	1.1 U	0.92 UJ	18%	1 0	0.8 U	22%	0.46 U	0.45 U	7%	0.44 U	0.45 U	2%	0.49 U	0.47
	MG/KG	0.48 U	0.41 U	16%	0.46 U	0.36 U	24%	0.29 U	0.29 U		0.28 U	0.29 U	4%	0.31 U	0.3
	MG/KG	139 U	909	125%	132 U	110	18%	276	232	17%	223	277	22%	191	194
	MG/KG	1.4 UJ	1.2 U	15%	1.4 J	1.1 UJ	24%	0.34 U	0.33 U	3%	0.33 U	0.33 U	***	0.36 U	0.35
	MG/KG	20.8	19.5 J	%9	21	17	21%	11 J	10.7 J	3%	12.9	17.9	32%	15.3 J	14.4
	MG/KG	80.3	1280	1.76%	153	196	25%	130 J	135 J	4%	123	196	46%	107 J	96.8
nic Carbon	MG/KG							5200	5300	2%	3300	8500	88%	2800	0009
leum Hydrocarbons	MG/KG							2800 J	6200 J	76%	42 UJ	43 UJ	2%	190	46 [

or Relative Percent Difference (RPD) 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

3 - SDR | X 100 (SR + SDR)

SR = Sample Result of a particular analyte.
SDR = Sample Duplicate Result of a particular analyte.
Slagning indicates RED = 80%

tected to the limit indicated
ted value is estimated and tentatively identified based on mass spec
d value is estimated
etected to the estimated limit indicated
is rejected
Applicable, i.e. result rejected or missing result
difference between results or both results were non-detect

# Table C-1C Quality Control of Field Duplicates Ditch Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

	SDDRMO-8 Units							
Parameter	Units	Units DRMO-4005 DRMO-400						
Volatile Organic Compounds								
1,1,1-Trichloroethane	UG/KG	6.6 U.	J 11 UJ	50%				
1,1,2,2-Tetrachloroethane	UG/KG	6.6 U.		50%				
1,1,2-Trichloroethane	UG/KG	6.6 U.		50%				
1,1-Dichloroethane	UG/KG	6.6 U.		50%				
1,1-Dichloroethene	UG/KG	6.6 U.	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	50%				
1,2-Dichloroethane	UG/KG	6.6 U.		50%				
1,2-Dichloropropane	UG/KG	6.6 U.		50%				
Acetone	UG/KG	21 J	72 J	110%				
Benzene	UG/KG	6.6 U.		50%				
Bromodichloromethane	UG/KG	6.6 U.		50%				
Bromoform	UG/KG	6.6 U.	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	50%				
Carbon disulfide	UG/KG	6.6 U.		2%				
Carbon tetrachloride	UG/KG	6.6 U.	7.777.4	50%				
Chlorobenzene	UG/KG	6.6 U.		50%				
Chlorodibromomethane	UG/KG	6.6 U.		50%				
Chloroethane	UG/KG	6.6 U.	A STATE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PAR	50%				
Chloroform	UG/KG	6.6 U.		50%				
Cis-1,2-Dichloroethene	UG/KG	6.6 U.		50%				
Cis-1,3-Dichloropropene	UG/KG	6.6 U.		50%				
Ethyl benzene	UG/KG	6.6 U.		50%				
Meta/Para Xylene	UG/KG	6.6 U.		50%				
Methyl bromide	UG/KG	6.6 U.		50%				
	UG/KG	6.6 U.		50%				
Methyl butyl ketone	UG/KG	6.6 U.	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	50%				
Methyl chloride	UG/KG	6.6 U.		50%				
Methyl ethyl ketone		6.6 U.		50%				
Methyl isobutyl ketone	UG/KG	6.6 U.		50%				
Methylene chloride	UG/KG							
Ortho Xylene	UG/KG	6.6 U.		50%				
Styrene	UG/KG	6.6 U.	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	50%				
Tetrachloroethene	UG/KG	· 6.6 U.	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	50%				
Toluene	UG/KG	6.6 U.		50%				
Trans-1,2-Dichloroethene	UG/KG	6.6 U.		50%				
Trans-1,3-Dichloropropene	UG/KG	6.6 U.		50%				
Trichloroethene	UG/KG	6.6 U.		50%				
Vinyl chloride	UG/KG	6.6 U.	J 11 UJ	50%				
Semivolatile Organic Compoun								
1,2,4-Trichlorobenzene	UG/KG	650 U.		51%				
1,2-Dichlorobenzene	UG/KG	650 U.		51%				
1,3-Dichlorobenzene	UG/KG	650 U.		51%				
1,4-Dichlorobenzene	UG/KG	650 U.		51%				
2,4,5-Trichlorophenol	UG/KG	1600 U.		48%				
2,4,6-Trichlorophenol	UG/KG	650 U.		51%				
2,4-Dichlorophenol	UG/KG	650 U.		51%				
2,4-Dimethylphenol	UG/KG	650 U.		51%				
2,4-Dinitrophenol	UG/KG	1600 U.	J 2600 UJ	48%				

## Table C-1C Quality Control of Field Duplicates Ditch Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report

		SDDRMO-8					
Parameter	Units	DRMO-400	)5	DRMO-4008	*RPD		
2,4-Dinitrotoluene	UG/KG	650 T	IJ	1100 UJ	51%		
2,6-Dinitrotoluene	UG/KG	650 T	IJ	1100 UJ	51%		
2-Chloronaphthalene	UG/KG	650 I	IJ	1100 UJ	51%		
2-Chlorophenol	UG/KG	650	IJ	1100 UJ	51%		
2-Methylnaphthalene	UG/KG	650 [	IJ	1100 UJ	51%		
2-Methylphenol	UG/KG	650 I	IJ	1100 UJ	51%		
2-Nitroaniline	UG/KG	1600	UJ	2600 UJ	48%		
2-Nitrophenol	UG/KG	650 T	IJ	1100 UJ	51%		
3 or 4-Methylphenol	UG/KG	650 T	IJ	1100 UJ	51%		
3,3'-Dichlorobenzidine	UG/KG	650 U	IJ	1100 UJ	51%		
3-Nitroaniline	UG/KG	1600 U	IJ	2600 UJ	48%		
4,6-Dinitro-2-methylphenol	UG/KG	1600 1	UJ	2600 UJ	48%		
4-Bromophenyl phenyl ether	UG/KG	650 1	UJ	1100 UJ	51%		
4-Chloro-3-methylphenol	UG/KG	650 1	IJ	1100 UJ	,51%		
4-Chloroaniline	UG/KG	650 1	IJ	1100 UJ	51%		
4-Chlorophenyl phenyl ether	UG/KG	650 [	IJ	1100 UJ	51%		
4-Nitroaniline	UG/KG	1600 T		2600 UJ	48%		
4-Nitrophenol	UG/KG	1600 I		2600 UJ	48%		
Acenaphthene	UG/KG	650 1		1100 UJ	51%		
Acenaphthylene	UG/KG	650 1		1100 UJ	51%		
Anthracene	UG/KG	650 T		1100 UJ	51%		
Benzo(a)anthracene	UG/KG	650 1	_	1100 UJ	51%		
Benzo(a)pyrene	UG/KG	650 [		1100 UJ	51%		
Benzo(b)fluoranthene	UG/KG	650	_	1100 UJ	51%		
Benzo(ghi)perylene	UG/KG	650 1		1100 UJ	51%		
Benzo(k)fluoranthene	UG/KG	650	_	1100 UJ	51%		
Bis(2-Chloroethoxy)methane	UG/KG	650 1		1100 UJ	51%		
Bis(2-Chloroethyl)ether	UG/KG	650 1	_	1100 UJ	51%		
Bis(2-Chloroisopropyl)ether	UG/KG	650 1		1100 UJ	51%		
Bis(2-Ethylhexyl)phthalate	UG/KG	650 1	-	1100 UJ	51%		
Butylbenzylphthalate	UG/KG	650 1		1100 UJ	51%		
Carbazole	UG/KG	650 1		1100 UJ	51%		
Chrysene	UG/KG	650 1	_	1100 UJ	51%		
Di-n-butylphthalate	UG/KG	650 1		1100 UJ	51%		
Di-n-octylphthalate	UG/KG	650 1	_	1100 UJ	51%		
Dibenz(a,h)anthracene	UG/KG	650 1		1100 UJ	51%		
Dibenzofuran	UG/KG	650 1	_	1100 UJ	51%		
Diethyl phthalate	UG/KG	650 1		1100 UJ	51%		
	UG/KG	- 650 1		1100 UJ	51%		
Dimethylphthalate Fluoranthene		650 1	$\rightarrow$	1100 UJ	51%		
	UG/KG				Contract of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the la		
Fluorene	UG/KG	650 1		1100 UJ	51%		
Hexachlorobenzene	UG/KG	650 1		1100 UJ	51%		
Hexachlorobutadiene	UG/KG	650 1	_	1100 UJ	51%		
Hexachlorocyclopentadiene	UG/KG	650 1	$\overline{}$	1100 UJ	51% 		
Hexachloroethane	UG/KG	650 1	$\overline{}$	1100 UJ	-51%		
Indeno(1,2,3-cd)pyrene	UG/KG	650 1	_	1100 UJ	51%		
Isophorone	UG/KG	650 1	UJ	1100 UJ	51%		

## Table C-1C Quality Control of Field Duplicates Ditch Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report

Parameter	Units	DRMO-40		DRMO-40		*RPD
N-Nitrosodiphenylamine	UG/KG	650	UJ	1100	UJ	51%
N-Nitrosodipropylamine	UG/KG	650	UJ	1100	UJ	51%
Naphthalene	UG/KG	650		1100	UJ	51%
Nitrobenzene	UG/KG	650	UJ	1100	UJ	51%
Pentachlorophenol	UG/KG	1600	UJ	2600	UJ	48%
Phenanthrene	UG/KG	650	UJ	1100	UJ	51%
Phenol	UG/KG	650	UJ	1100	UJ	51%
Pyrene	UG/KG	650	UJ	1100	UJ	51%
Pesticides/PCBs						
4,4'-DDD	UG/KG	0.4	UJ	0.65	UJ	48%
4,4'-DDE	UG/KG	0.4	UJ	0.65	UJ	48%
4,4'-DDT	UG/KG	0.4	UJ	0.65	UJ	48%
Aldrin	UG/KG	0.2	UJ	0.32	UJ	46%
Alpha-BHC	UG/KG	2.4	UJ	3.9	UJ	48%
Alpha-Chlordane	UG/KG	0.6	UJ	0.97	UJ	47%
Beta-BHC	UG/KG	0.2	UJ	0.32	UJ	46%
Chlordane	UG/KG	3.8		6.1	UJ	46%
Delta-BHC	UG/KG	0.4		0.65	UJ	48%
Dieldrin	UG/KG	0.2		0.32		46%
Endosulfan I	UG/KG	1		1.6		46%
Endosulfan II	UG/KG	0.6		0.97		47%
Endosulfan sulfate	UG/KG	1.2		1.9		45%
Endrin	UG/KG	1.6		2.6		48%
Endrin aldehyde	UG/KG	1.6		2.6		48%
Endrin ketone	UG/KG	0.2		0.32		46%
Gamma-BHC/Lindane	UG/KG	0.2		0.32		46%
Gamma-Chlordane	UG/KG	0.6		0.97		47%
Heptachlor	UG/KG		UJ	3.2		46%
Heptachlor epoxide	UG/KG	0.6	-	0.97		47%
Methoxychlor	UG/KG	0.2	L	0.32		46%
Toxaphene	UG/KG	6.4			UJ	44%
Aroclor-1016	UG/KG		UJ		UJ	52%
Aroclor-1221	UG/KG	2.6		4.2		47%
Aroclor-1232	UG/KG	. 16			UJ	48%
Aroclor-1242	UG/KG	4.3			UJ	48%
Aroclor-1248	UG/KG		UJ		UJ	48%
Aroclor-1254	UG/KG		UJ		UJ	47%
Aroclor-1260	UG/KG	3.9	_	6.4		49%
Metals & Cyanide	DAND	3,7	Ol	0.4	OJ.	77/0
Aluminum	MG/KG	10100		14700	I	37%
Antimony	MG/KG	1.8	TIT	2.9		47%
Arsenic .	MG/KG	2.1	01	5.9	_	95%
Barium	MG/KG	72.2	T	122		51%
Beryllium Beryllium	MG/KG	0.63	J	122	-	45%
Cadmium	MG/KG	0.03	TT	0.39	-	
Calcium	MG/KG	24000	U	34500		48%
Chromium		22.6		34300		36%
Сионин	MG/KG	. 22.0		32./	J	37%

### Table C-1C Quality Control of Field Duplicates Ditch Soil at SEAD-121C SEAD-121C and SEAD-121I RI Report

### Seneca Army Depot Activity

			SI	DDRMO-8				
Parameter	Units	DRMO-4005		DRMO-40	08	*RPD		
Cobalt	MG/KG	11.4		20.2	J	56%		
Copper	MG/KG	34		50.6	J	39%		
Cyanide, Amenable	MG/KG	1.1	U	1.59	UJ	36%		
Cyanide, Total	MG/KG	1.1	U	1.59	UJ	36%		
Iron	MG/KG	20500		34100	J	50%		
Lead	MG/KG	58.3		85.2	J	37%		
Magnesium	MG/KG	5150		7310	J	35%		
Manganese	MG/KG	471		885	J	61%		
Mercury	MG/KG	0.11		0.18	J	48%		
Nickel	MG/KG	30.9		45.3	J	38%		
Potassium	MG/KG	905		1270	J	34%		
Selenium	MG/KG	0.82	U	1.4	UJ	52%		
Silver	MG/KG	0.65		1	J	42%		
Sodium	MG/KG	388		656	J	51%		
Thallium	MG/KG	0.61	U	1	UJ	48%		
Vanadium	MG/KG	17.8		27.3	J	42%		
Zinc	MG/KG	135	J	195	J	36%		
Other								
Total Organic Carbon	MG/KG	7100	J	7100	J			
Total Petroleum Hydrocarbons	MG/KG	80	UJ	130	UJ	48%		

### NOTES:

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

RPD = |SR - SDR | X 100

SR = Sample Result of a particular analyte.

(1/2) (SR + SDR)

SDR = Sample Duplicate Result of a particular analyte.

Shuhig milienes RPD> 10%;

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

---- = No difference between results or both results were non-detect

<sup>\*</sup>Formula for Relative Percent Difference (RPD)

### Table C-1D Quality Control of Field Duplicates Groundwater at SEAD-121C

### SEAD-121C and SEAD-121I RI Report

Selecta Army Depot Activity										
			1W121C-4			IW121C-1	1 +000			
Parameter	Units	121C-2002	121C-2004	*RPD	EB023	EB153	*RPD			
Volatile Organic Compounds										
1,1,1-Trichloroethane	UG/L	5 U	5 U		1 U	1 U				
1,1,2,2-Tetrachloroethane	UG/L	5 U	5 U		1 U	1 U				
1,1,2-Trichloroethane	UG/L	5 U	5 U		1 U	1 U				
1,1-Dichloroethane	UG/L	5 U	5 U		1 U	1 U				
1,1-Dichloroethene	UG/L	5 U	5 U		1 U	1 U				
1,2-Dibromo-3-chloropropane	UG/L				1 U	1 U				
1,2-Dibromoethane	UG/L				1 U	1 U				
1,2-Dichlorobenzene	UG/L				1 U	1 U				
1,2-Dichloroethane	UG/L	5 U	5 U		1 U	1 U				
1,2-Dichloropropane	UG/L	5 U	5 U		1 U	1 U				
1,3-Dichlorobenzene	UG/L				1 U	1 U				
1,4-Dichlorobenzene	UG/L				1 U	1 U				
Acetone	UG/L	5 UJ	5 UJ		52	61	16%			
Benzene	UG/L	5 U	5 U		1 U	1 U				
Bromochloromethane	UG/L		30		1 U	1 U				
Bromodichloromethane	UG/L	5 U	5 U		1 U	1 U				
Bromoform	UG/L	5 U	5 U		1 U	1 U				
Carbon disulfide	UG/L	5 UJ	5 UJ		2	2				
Carbon tetrachloride	UG/L	5 U	5 U		1 U	1 U				
Chlorobenzene	UG/L	5 U	5 U		1 U	1 U				
Chlorodibromomethane	UG/L	5 U	5 U		1 U	1 U				
Chloroethane	UG/L	5 U	5 U		1 U	1 U				
	UG/L	5 U	5 U		1 U	1 U				
Chloroform		5 U	5 U		1 U	1 U				
Cis-1,2-Dichloroethene	UG/L				1 U	1 U				
Cis-1,3-Dichloropropene	UG/L		5 U		1 U	1 U				
Ethyl benzene	UG/L	5 U			10	10				
Meta/Para Xylene	UG/L	5 U	5 U		1 77	1 U				
Methyl bromide	UG/L	5 U	5 U		1 U					
Methyl butyl ketone	UG/L	5 U	5 U		5 U	5 U				
Methyl chloride	UG/L	5 UJ	5 UJ		1 U	1 U				
Methyl ethyl ketone	UG/L	5 UJ	5 UJ		5 U	5 U				
Methyl isobutyl ketone	UG/L	5 U	5 U		5 U	5 U				
Methylene chloride	UG/L	5 U	5 U		2 U	2 U				
Ortho Xylene	UG/L	5 U	5 U							
Styrene	UG/L	5 U	5 U		1 U	1 U				
Tetrachloroethene	UG/L	5 U	5 U		1 U	1 U				
Toluene	UG/L	5 U	5 U		1 U	1 U				
Total Xylenes	UG/L				1 U	1 U				
Trans-1,2-Dichloroethene	UG/L	5 U	5 U		1 U	1 U				
Trans-1,3-Dichloropropene	UG/L	5 U	5 U		1 U	1 U				
Trichloroethene	UG/L	5 U	5 U		1 U	1 U				
Vinyl chloride	UG/L	5 U	5 U		1 U	1 U				
Semivolatile Organic Compounds										
1,2,4-Trichlorobenzene	UG/L	1.2 U	1.3 UJ	8%		1.1 U	NA			
1,2-Dichlorobenzene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA			
1,3-Dichlorobenzene	UG/L	1.2 U	1.3 UJ	8%		1.1 U	NA			
1,4-Dichlorobenzene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA			

### Table C-1D Quality Control of Field Duplicates Groundwater at SEAD-121C SEAD-121C and SEAD-121I RI Report

			4W121C-4		MW121C-1			
Parameter	Units	121C-2002	121C-2004	*RPD	EB023	EB153	*RPD	
2,4,5-Trichlorophenol	UG/L	1 U	1.1 U	10%		2.7 U	NA	
2,4,6-Trichlorophenol	UG/L	1 U	1.1 U	10%		1.1 U	NA	
2,4-Dichlorophenol	UG/L	1.4 U	1.4 U			1.1 U	NA	
2,4-Dimethylphenol	UG/L	2.4 U	2.4 U			1.1 U	NA	
2,4-Dinitrophenol	UG/L					2.7 U	NA	
2,4-Dinitrotoluene	UG/L	1.1 U	1.2 UJ	9%		1.1 U	NA	
2,6-Dinitrotoluene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA	
2-Chloronaphthalene	UG/L	1.2 U	1.3 UJ	8%		1.1 U	NA	
2-Chlorophenol	UG/L	1.1 U	1.2 U	9%		1.1 U	NA	
2-Methylnaphthalene	UG/L	1.2 U	1.3 UJ	8%		1.1 U	NA	
2-Methylphenol	UG/L	1 U	1.1 U	10%		1.1 U	NA	
2-Nitroaniline	UG/L	1 U	1.1 UJ	10%		2.7 U	NA	
2-Nitrophenol	UG/L	1.1 U	1.2 U	9%		1.1 U	NA	
3 or 4-Methylphenol	UG/L	1.9 U	1.9 U					
3,3'-Dichlorobenzidine	UG/L	1 UJ	1.1 UJ	10%		1.1 U	NA	
3-Nitroaniline	UG/L	1.2 U	1.3 UJ	8%		2.7 U	NA	
4,6-Dinitro-2-methylphenol	UG/L	1.2 U	1.3 U	8%		2.7 U	NA	
4-Bromophenyl phenyl ether	UG/L	1.4 U	1.4 UJ			1.1 U	NA	
4-Chloro-3-methylphenol	UG/L	1.1 U	1.2 U	9%		1.1 U	NA	
4-Chloroaniline	UG/L	1.2 UJ	1.3 UJ	8%		1.1 U	NA	
4-Chlorophenyl phenyl ether	UG/L	1.2 U	1.3 UJ	8%		1.1 U	NA	
4-Methylphenol	UG/L					1.1 U	NA	
4-Nitroaniline	UG/L	2.5 U	2.5 UJ			2.7 U	NA	
4-Nitrophenol	UG/L	1.1 U	1.2 U	9%		2.7 U	NA	
Acenaphthene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA	
Acenaphthylene	UG/L	1.2 U	1.3 UJ	8%		1.1 U	NA	
Anthracene	UG/L	1.4 U	1.4 UJ			1.1 U	NA	
Benzo(a)anthracene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA	
Benzo(a)pyrene	UG/L	1.6 U	1.6 UJ			1.1 U	NA	
Benzo(b)fluoranthene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA	
Benzo(ghi)perylene	UG/L	1.4 UJ	1.4 UJ			1.1 U	NA	
Benzo(k)fluoranthene	UG/L	2.7 U	2.7 UJ			1.1 U	NA	
Bis(2-Chloroethoxy)methane	UG/L	1 U	1.1 UJ	10%		1.1 U	NA	
Bis(2-Chloroethyl)ether	UG/L	1.2 U	1.3 UJ	8%		1.1 U	NA	
Bis(2-Chloroisopropyl)ether	UG/L	1 U	1.1 UJ	10%		1.1 U	NA	
Bis(2-Ethylhexyl)phthalate	UG/L	1 U	1.1 UJ	10%		0.23 J	NA	
Butylbenzylphthalate	UG/L	1 U	1.1 UJ	10%		0.12 J	NA	
Carbazole	UG/L	0.43 U	0.44 UJ	2%		1.1 U	NA	
Chrysene	UG/L	1.7 U	1.7 UJ			1.1 U	NA	
Di-n-butylphthalate	UG/L	1.2 U	1.3 UJ	8%		1.7	NA	
Di-n-octylphthalate	UG/L	1.6 U	1.6 UJ			1.1 U	NA	
Dibenz(a,h)anthracene	UG/L	1.6 UJ	1.6 UJ			1.1 UJ	NA	
Dibenzofuran	UG/L	1 U	1.1 UJ	10%		1.1 U	NA	
Diethyl phthalate	UG/L	1 U	1.1 UJ	10%		0.057 J	NA	
Dimethylphthalate	UG/L	1 U	1.1 UJ	10%		1.1 U	NA	
Fluoranthene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA	
Fluorene	UG/L	1.1 U	1.2 UJ	9%	· ·	1.1 U	NA	
Hexachlorobenzene	UG/L	1.1 U	1.2 UJ	9%		1.1 U	NA	

### Table C-1D **Quality Control of Field Duplicates Groundwater at SEAD-121C** SEAD-121C and SEAD-121I RI Report

		N	fW121C-4		N		
Parameter	Units	121C-2002	121C-2004	*RPD	EB023	EB153	*RPD
Hexachlorobutadiene	UG/L	1.6 U	1.6 UJ			0.061 J	NA
Hexachlorocyclopentadiene	UG/L	4 U	4 UJ			1.1 UJ	NA
Hexachloroethane	UG/L	1.1 U	1.2 UJ	9%		1.1 U	NA
Indeno(1,2,3-cd)pyrene	UG/L	1.7 U	1.7 UJ			1.1 U	NA
Isophorone	UG/L	1 U	1.1 UJ	10%		1.1 U	NA
N-Nitrosodiphenylamine	UG/L	2.1 U	2.1 UJ			1.1 U	NA
N-Nitrosodipropylamine	UG/L	1 U	1.1 UJ	10%		1.1 U	NA
Naphthalene	UG/L	1.2 U	1.3 UJ	8%		1.1 U	NA
Nitrobenzene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA
Pentachlorophenol	UG/L	2 U	2 U			2.7 U	NA
Phenanthrene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA
Phenol	UG/L	1 U	1.1 U	10%		1.1 U	NA
Pyrene	UG/L	1 U	1.1 UJ	10%		1.1 U	NA
Pesticides/PCBs							
4,4'-DDD	UG/L	0.01 R	0.01 R	NA	0.9	0.11 U	156%
4,4'-DDE	UG/L	0.005 UJ	0.005 UJ		0.27 J	0.093 J	98%
4,4'-DDT	UG/L	0.01 R	0.01 R	NA	0.29 J	0.28	4%
Aldrin	UG/L	0.02 U	0.02 U		0.057 U	0.057 U	
Alpha-BHC	UG/L	0.01 U	0.01 U		0.057 U	0.036 J	45%
Alpha-Chlordane	UG/L	0.02 U	0.02 U		0.096	0.068	34%
Beta-BHC	UG/L	0.01 U	0.01 U		0.56 J	0.096 J	141%
Chlordane	UG/L	0.14 U	0.14 U		-		
Delta-BHC	UG/L	0.004 UJ	0.004 UJ		0.23 J	0.094	- B4%
Dieldrin	UG/L	0.009 U	0.009 U		0.11 U	0.052 J	72%
Endosulfan I	UG/L	0.02 UJ	0.02 UJ		0.11 J	0.08 J	32%
Endosulfan II	UG/L	0.01 UJ	0.01 UJ		0.28 J	0.11 U	87%
Endosulfan sulfate	UG/L	0.02 U	0.02 U		0.28 J	0.14 J	67%
Endrin	UG/L	0.02 UJ	0.02 UJ		0.11 U	0.11 U	
Endrin aldehyde	UG/L	0.02 UJ	0.02 UJ		0.22 J	0.073 J	100%
Endrin ketone	UG/L	0.009 U	0.009 U		0.11 U	0.11 U	
Gamma-BHC/Lindane	UG/L	0.009 U	0.009 U		0.057 U	0.057 U	
Gamma-Chlordane	UG/L	0.01 U	0.01 U		0.47	0.086 J	138%
Heptachlor	UG/L	0.007 U	0.007 U		0.23 J	0.058 J	119%
Heptachlor epoxide	UG/L	0.009 UJ	0.009 UJ		0.057 U	0.072 J	23%
Methoxychlor	UG/L	0.008 UJ	0.008 UJ		0.57	0.057 U	164%
Toxaphene	UG/L	0.12 U	0.12 U		5.7 U	5.7 U	
Aroclor-1016	UG/L	0.24 U	0.24 U		1.1 U	1.1 U	
Aroclor-1221	UG/L	0.08 U	0.08 U		2.3 U	2.3 U	
Aroclor-1232	UG/L	0.09 U	0.09 U		1.1 U	1.1 U	
Aroclor-1242	UG/L	0.08 U	0.08 U		1.1 U	1.1 U	
Aroclor-1248	UG/L	0.12 U	0.12 U		1.1 U	1.1 U	
Aroclor-1254	UG/L	0.05 U	0.05 U		1.1 U	1.1 U	
Aroclor-1260	UG/L	0.01 U	0.01 U		1.1 U	1.1 U	
Metals & Cyanide							
Aluminum	UG/L	146 J	1030	150%	133	738 J	130%
Antimony	UG/L	7.5 U	10.9 J	37%	5.1 U	5.1 U	
Arsenic	UG/L	4.5 U	4.5 U		3.7 U	3.8	3%
Barium	UG/L	29.6	32.4	9%	39.5	38	4%

### Table C-1D

### **Quality Control of Field Duplicates**

### Groundwater at SEAD-121C

### SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

			N	/W121C-4	ļ			1	MW121C-1		
Parameter	Units	121C-2	2002	121C-2	2004	*RPD	EB02	23	EB15	53	*RPD
Beryllium	UG/L	0.9	U	0.9	U		0.1	U	0.1	U	
Cadmium	UG/L	0.8	U	0.8	U		0.39		0.3	U	26%
Calcium	UG/L	420000		513000		20%	172000	J	163000		5%
Chromium	UG/L	1.4	U	5.8		122%	1.2		2.4		67%
Cobalt	UG/L	2.3	U	4.8	J	70%	1.4	U	1.6		13%
Copper	UG/L	2	U	2	U		1.2	U	2		50%
Cyanide	UG/L						5	U	5	U	
Cyanide, Amenable	MG/L	0.01		0.01	U						
Cyanide, Total	MG/L	0.01	U	0.01	U						
Iron	UG/L	34.9	U	1720		192%	346		1430		122%
Lead	UG/L	5.6		4.8		15%	1.8	U	1.8	U	
Magnesium	UG/L	73600		88000		18%	23800		24100		1%
Manganese	UG/L	328		244		29%	1590		1140		33%
Mercury	UG/L	0.2	U	0.2	U		0.1	U	0.1	U	
Nickel	UG/L	2	U	3.2	J	46%	2.8		4.2		40%
Potassium	UG/L	9430		6320		39%	7610		10900		36%
Selenium	UG/L	3	U	5	U	50%	3.7	J	5.6	J	41%
Silver	UG/L	3.7	U	3.7	U		1.3	U	1.3	U	
Sodium	UG/L	60100		56700		6%	8920		11200		23%
Thallium	UG/L	4.2	U	4.2	U		6.7	U	6.7	U	
Vanadium	UG/L	2.5	U	2.5	U		1.5	U	2.4		46%
Zinc	UG/L	9.2	J	24		89%	2.4		9.3		118%
Other											
Total Petroleum Hydrocarbons	MG/L	0.041	U	0.04	U	2%					

### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $RPD = |SR - SDR| \times 100$ 

SR = Sample Result of a particular analyte.

(1/2) (SR + SDR)

SDR = Sample Duplicate Result of a particular analyte.

Shadhigandheales RUDS 1096 \_\_\_

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

---- = No difference between results or both results were non-detect



# Table C-1E Quality Control of Field Duplicates Surface Water at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

			SV	VDRMO-8		
Parameter	Units	DRMO-30		DRMO-3	005	*RPD
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/L	0.75	U	0.75	U	
1,1,2,2-Tetrachloroethane	UG/L	0.7		0.7		<b> </b>
1,1,2-Trichloroethane	UG/L	0.62		0.62		
1,1-Dichloroethane	UG/L	0.66		0.66		
1,1-Dichloroethene	UG/L	0.69		0.69		
1,2-Dichloroethane	UG/L	0.56		0.56		
1,2-Dichloropropane	UG/L	0.73		0.73		
Acetone	UG/L	3.5		3.5		
Benzene	UG/L	0.71		0.71		
Bromodichloromethane	UG/L	0.73		0.73		
Bromoform	UG/L	0.49		0.49		
Carbon disulfide	UG/L	0.72		0.72		
Carbon tetrachloride	UG/L	0.47		0.47		
Chlorobenzene '	UG/L	0.78	Ü	0.78		
Chlorodibromomethane	UG/L	0.66		0.66		
Chloroethane	UG/L	2.4		2.4		
Chloroform	UG/L	0.61		0.61	U	
Cis-1,2-Dichloroethene	UG/L	0.62	U	0.62		
Cis-1,3-Dichloropropene	UG/L	0.66		0.66		
Ethyl benzene	UG/L	0.76		0.76		
Meta/Para Xylene	UG/L	1.5		1.5		
Methyl bromide	UG/L	0.38		0.38	UJ	
Methyl butyl ketone	UG/L	0.6		0.6		
Methyl chloride	UG/L	0.51	_	0.51	U	
Methyl ethyl ketone	UG/L	2.3		2.3	U	
Methyl isobutyl ketone	UG/L	0.81		0.81	ļ	
Methylene chloride	UG/L	1.8		1.8		
Ortho Xylene	UG/L	0.72		0.72		
Styrene	UG/L	0.92		0.92		
Tetrachloroethene	UG/L	0.7		0.7		
Toluene	UG/L	0.71		0.71		
Trans-1,2-Dichloroethene	UG/L	0.81		0.81		
Trans-1,3-Dichloropropene	UG/L	0.66		0.66		
Trichloroethene	UG/L	0.72		0.72		
Vinyl chloride	UG/L	0.79		0.79		
Semivolatile Organic Compound						
1,2,4-Trichlorobenzene	UG/L	10 1	U	10	U	
1,2-Dichlorobenzene	UG/L	10 1		10		
1,3-Dichlorobenzene	UG/L	10		10		
1,4-Dichlorobenzene	UG/L	10 1		10		
2,4,5-Trichlorophenol	UG/L	10 [		10		
2,4,6-Trichlorophenol	UG/L	10 1		10		
2,4-Dichlorophenol	UG/L	10 [		10		
2,4-Dimethylphenol	UG/L	10 T		10		

# Table C-1E Quality Control of Field Duplicates Surface Water at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

		SWDRMO-8		
Parameter	Units	DRMO-3008	DRMO-3005	*RPD
2,4-Dinitrophenol	UG/L	10 U	10 U	
2,4-Dinitrotoluene	UG/L	10 U	10 U	
2,6-Dinitrotoluene	UG/L	10 U	10 U	
2-Chloronaphthalene	UG/L	10 U	10 U	
2-Chlorophenol	UG/L	10 U	10 U	
2-Methylnaphthalene	UG/L	10 U	10 U	
2-Methylphenol	UG/L	10 U	10 U	
2-Nitroaniline	UG/L	10 U	10 U	
2-Nitrophenol	UG/L	10 U	10 U	
3 or 4-Methylphenol	UG/L	10 U	10 U	
3,3'-Dichlorobenzidine	UG/L	10 U	10 U	
3-Nitroaniline	UG/L	10 U	10 U	
4,6-Dinitro-2-methylphenol	UG/L	10 U	10 U	
4-Bromophenyl phenyl ether	UG/L	10 U	10 U	
4-Chloro-3-methylphenol	· UG/L	10 U	· 10 U	
4-Chloroaniline	UG/L	10 U	10 U	
4-Chlorophenyl phenyl ether	UG/L	10 U	10 U	
4-Nitroaniline	UG/L	10 U	10 U	
4-Nitrophenol	UG/L	10 U	10 U	
Acenaphthene	UG/L	10 U	10 U	
Acenaphthylene	UG/L	10 U	10 U	
Anthracene	UG/L	10 U	10 U	
Benzo(a)anthracene	UG/L	10 U	10 U	
Benzo(a)pyrene	UG/L	10 U	10 U	
Benzo(b)fluoranthene	UG/L	10 U	10 U	
Benzo(ghi)perylene	UG/L	10 U	10 U	
Benzo(k)fluoranthene	UG/L	10 U	10 U	
Bis(2-Chloroethoxy)methane	UG/L	10 U	10 U	
Bis(2-Chloroethyl)ether	UG/L	10 UJ	10 UJ	<u> </u>
Bis(2-Chloroisopropyl)ether	UG/L	10 U	10 U	<del> </del>
Bis(2-Ethylhexyl)phthalate	UG/L	10 U	10 U	
Butylbenzylphthalate	UG/L	10 U	10 U	
Carbazole	UG/L	10 U	10 U	
Chrysene	UG/L	10 U	10 U	<b>+</b>
Di-n-butylphthalate	UG/L	10 U	10 U	
Di-n-octylphthalate	UG/L	10 U	10 U	
	UG/L	10 U	10 U	+
Dibenz(a,h)anthracene Dibenzofuran	UG/L UG/L	10 U	10 U	
Diethyl phthalate	UG/L UG/L	10 U	10 U	
	UG/L UG/L	10 U	10 U	
Dimethylphthalate Fluoranthene	UG/L UG/L	10 U	10 U	
	UG/L UG/L	10 U	10 U	
Fluorene	UG/L UG/L	10 U	10 U	+
Hexachlorobenzene		10 U	10 U	
Hexachlorobutadiene	UG/L UG/L	10 UJ		
Hexachlorocyclopentadiene	UG/L	10 03	10 UJ	

## Table C-1E Quality Control of Field Duplicates Surface Water at SEAD-121C SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

O-3005 10 U 10 U 10 U 10 U	*RPD
10 U 10 U	
10 U	
	1
10 II	
10,0	
10 U	
0.01 U	
005 U	
0.01 UJ	
0.02 U	
0.01 UJ	
0.02 U	
0.01 U	
).13 U	
004 U	
009 U	
0.01 U	
0.01 UJ	
0.02 U	
0.02 U	
0.02 U	
009 U	
0.01 U	
007 U	
008 U	
3.4	2%
4.7 U	
	1
	0.01 UJ 0.02 U 0.02 U 0.02 U 0.09 U 0.09 U 0.01 U 0.07 U 0.08 U 0.08 U 0.09 UJ 0.08 U 0.09 UJ 0.08 UJ 0.09 UJ 0.01 U 0.05 U 0.01 UJ

## Table C-1E Quality Control of Field Duplicates Surface Water at SEAD-121C SEAD-121C and SEAD-121I RI Report

Seneca	Army	Depot	Activity
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			SV	VDRMO-8		
Parameter	Units	DRMO-3	008	DRMO-3	005	*RPD
Barium	UG/L	43.7		47.4		8%
Beryllium	UG/L	0.14		0.12		15%
Cadmium	UG/L	0.4	U	0.4	U	
Calcium	UG/L	67700		72200		6%
Chromium	UG/L	0.6	U	0.6	U	
Cobalt	UG/L	0.6		0.6		
Copper	UG/L	1.8		2.1		15%
Cyanide, Amenable	MG/L	0.01	U	0.01	U	
Cyanide, Total	MG/L	0.01	U	0.01	U	
Iron	UG/L	19	J	34.2	J	57%
Lead	UG/L	3.7		5.1	J	32%
Magnesium	UG/L	11600		12300		6%
Manganese	UG/L	11.6		26.1		77%
Mercury	UG/L	0.2	U	0.2	U	
Nickel	UG/L	1.8	U	1.8	U	
Potassium	UG/L	/L 3 U 3 U /L 1 U 1 U	J	6%		
Selenium	UG/L		U			
Silver	UG/L		U			
Sodium	UG/L	102000	J	108000	J	6%
Thallium	UG/L	5.4	U	5.4	U	
Vanadium	UG/L	0.7	U	0.7	U	
Zinc	UG/L	13.9		16.8		19%
Other						
Total Petroleum Hydrocarbons	MG/L	1	U	1	U	

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $RPD = |SR - SDR| \times 100$ 

SR = Sample Result of a particular analyte.

(1/2) (SR + SDR)

SDR = Sample Duplicate Result of a particular analyte.

Sterims mineres RPD > 10% 🐍 🎉

U = not detected to the limit indicated

J = reported value is estimated

. UJ = not detected to the estimated limit indicated

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Table C-1F
Quality Control of Field Duplicates
Groundwater at Building 360
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

Location ID				MW-1					MW-1		
Sample Date	l			4/4/2003	000	Lannn	DD1 (0.0		5/9/2003	10	T +nnn
Parameter	Units	DRMO-2	005	DRMO-2	800	*RPD	DRMO-2	.013	121C-20	19	*RPD
Volatile Organic Compounds								,			
1,1,1-Trichloroethane	UG/L		U	5			0.4		0.4		
1,1,2,2-Tetrachloroethane	UG/L		U		U		0.3	_	0.3		
1,1,2-Trichloroethane	UG/L		U	5			0.3	U	0.3	U	
1,1-Dichloroethane	UG/L		UJ	4.4		13%	4.3		4.3		
1,1-Dichloroethene	UG/L	5	U	5	U		0.3	U	0.3	U	
1,2-Dibromo-3-chloropropane	UG/L										
1,2-Dibromoethane	UG/L										
1,2-Dichlorobenzene	UG/L										
1,2-Dichloroethane	UG/L	5		5			0.3		0.3		
1,2-Dichloropropane	UG/L	5	U	5	Ū		0.4	U	0.5	J	22%
1,3-Dichlorobenzene	UG/L										
1,4-Dichlorobenzene	UG/L										
Acetone	UG/L	5		5		NA	5.8	R	8.4	J	NA
Benzene	UG/L	5	U	5			0.3	U	0.3	U	
Bromochloromethane	UG/L										
Bromodichloromethane	. UG/L	5	U	5	U		0.4	U	0.4	U	
Bromoform	UG/L	5	U	5	U		0.3	U	0.3	U	
Carbon disulfide	UG/L	5	UJ	5	UJ		0.3	U	0.3	U	
Carbon tetrachloride	UG/L		Ü		U		0.4	U	0.4	U	
Chlorobenzene	UG/L	5	U		U		0.4	U	0.4	U	
Chlorodibromomethane	UG/L	5	U		U		0.4	U	0.4	U	
Chloroethane	UG/L	-	UJ		UJ		0.4		0.4		
Chloroform	UG/L		U		U		0.4		0.4	_	
Cis-1,2-Dichloroethene	UG/L		Ū	5	U		0.3	_	0.4	_	29%
Cis-1,3-Dichloropropene	UG/L		U	5	U		0.3		0.3		
Ethyl benzene	UG/L	- 1	U	_	U		0.4		0.4		
Meta/Para Xylene	UG/L		U	5	Ŭ		0.8		0.8		
Methyl bromide	UG/L		UJ	5	UJ	<u> </u>	0.4		0.4		
Methyl butyl ketone	UG/L		U	5	U		2.8		2.8	_	
Methyl chloride	UG/L		U		U		0.4		0.4		
Methyl ethyl ketone	UG/L		UJ	5	UJ		3.6	_	3.6		NA
Methyl isobutyl ketone	UG/L		U		U		2.5		2.5		
Methylene chloride	UG/L	_	UJ		UJ		1	J		J	
Ortho Xylene	UG/L		U		U		0.4	-	0.4		
Styrene	UG/L		U		U		0.3		0.3		
Tetrachloroethene	UG/L		UJ		UJ		0.5			Ü	
Toluene	UG/L		U		U		0.4		0.3		
	UG/L		U	, ,	<u> </u>		0.4		0.4	0	+
Total Xylenes	UG/L	5	U	5	U	-	0.4	ĪĪ	0.4	TI	<u> </u>
Trans-1,2-Dichloroethene			U		U		0.4		0.4		<del> </del>
Trans-1,3-Dichloropropene	UG/L		U	5			0.3		0.3		
Trichloroethene	UG/L								1.3	U	7%
Vinyl chloride	UG/L	2.2	J	2.4	J	9%	1.4		1.3		/70
Semivolatile Organic Compound		1.0	TIT	1.0	* * * *		1.0	T T	1.0	TT	<del></del>
1,2,4-Trichlorobenzene	UG/L	1.2	UJ	1.2			1.2		1.2		
1,2-Dichlorobenzene	UG/L		UJ		UJ			U		U	
1,3-Dichlorobenzene	UG/L		UJ	1.2			1.2		1.2		
1,4-Dichlorobenzene	UG/L		UJ		UJ			U		U	
2,4,5-Trichlorophenol	UG/L		R	1		NA		U	1		
2,4,6-Trichlorophenol	UG/L		U	1				U		U	
2,4-Dichlorophenol	UG/L	1.4		1.3		NA	1.3		1.3		
2,4-Dimethylphenol	UG/L	2.4	R	2.3	<u>R</u>	NA	2.3	Ü	2.3	U	

Table C-1F
Quality Control of Field Duplicates
Groundwater at Building 360
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

Location ID				MW-1					MW-1	
Sample Date				4/4/2003					5/9/2003	
Parameter	Units	DRMO-20	)05	DRMO-2	008	*RPD	DRMO-2		121C-2019	*RPD
2,4-Dinitrophenol	UG/L					ļ		UJ	2 UJ	
2,4-Dinitrotoluene	UG/L		UJ	1.1			1.1	1	1.1 U	
2,6-Dinitrotoluene	UG/L		UJ	1	UJ			U	1 U	
2-Chloronaphthalene	UG/L		UJ	1.2	UJ		1.2		1.2 U	
2-Chlorophenol	UG/L	1.1		1.1		NA	1.1		1.1 U	
2-Methylnaphthalene	UG/L	1.2		1.2			1.2		1.2 U	
2-Methylphenol	UG/L		R	1	R	NA	1	U	1 U	
2-Nitroaniline	UG/L		UJ	1	UJ		1	U	1 U	
2-Nitrophenol	UG/L	1.1	R	1.1	R	NA	1.1	U	1.1 U	
3 or 4-Methylphenol	UG/L									
3,3'-Dichlorobenzidine	UG/L		UJ	1	UJ		1	U	1 U	
3-Nitroaniline	UG/L		UJ	1.2				UJ	1.2 UJ	
4,6-Dinitro-2-methylphenol	UG/L	1.2		1.2		NA		UJ	1.2 UJ	
4-Bromophenyl phenyl ether	UG/L		UJ	1.3		7%	1.3		1.3 U	
4-Chloro-3-methylphenol	UG/L	1.1		1.1		NA	1.1		1.1 U	
4-Chloroaniline	UG/L	1.2		1.2		NA		UJ	1.2 UJ	
4-Chlorophenyl phenyl ether	UG/L	1.2	UJ	1.2			1.2	U	1.2 U _	
4-Methylphenol	UG/L		R	1.8	R	NA	1.8		1.8 U	·
4-Nitroaniline	UG/L	2.5	UJ	2.4		4%	2.4	UJ	2.4 UJ	
4-Nitrophenol	UG/L	1.1	R	1.1	R	NA	1.1	U	1.1 U	
Acenaphthene	UG/L	1	UJ	1	UJ		1	U	1 U	
Acenaphthylene	UG/L		UJ	1.2	UJ		1.2		1.2 U	
Anthracene	UG/L		UJ	1.3		7%	1.3		1.3 U	
Benzo(a)anthracene	UG/L		UJ	1	UJ		1		1 U	
Benzo(a)pyrene	UG/L	1.6	UJ	1.5	UJ	6%	1.5	U	1.5 U	
Benzo(b)fluoranthene	UG/L		UJ	1	UJ		1	U	1 U	
Benzo(ghi)perylene	UG/L	1.4	UJ	1.3	UJ	7%	1.3	UJ	1.3 UJ	
Benzo(k)fluoranthene	UG/L		UJ	2.7			2.6	U	2.7 U	4%
Bis(2-Chloroethoxy)methane	UG/L	1	Ü	1	U		1	U	1 U	
Bis(2-Chloroethyl)ether	UG/L	1.2	U	1.2	U		1.2		1.2 U	
Bis(2-Chloroisopropyl)ether	UG/L	1	UJ	1	UJ		1	U	1 U	
Bis(2-Ethylhexyl)phthalate	UG/L	1	U	1	U		1	U	1 U	
Butylbenzylphthalate	UG/L	1	UJ	· 1	UJ		1	U	1 U	
Carbazole	UG/L	0.43	UJ	0.42	UJ	2%	0.42	U	0.42 U	
Chrysene	UG/L	1.7	UJ	1.6	UJ	6%	1.6	U	1.6 U	
Di-n-butylphthalate	UG/L	1.2	UJ	1.2	UJ		1.2	U	1.2 U	
Di-n-octylphthalate	UG/L	1.6	UJ	1.5	UJ	6%	1.5	U	1.5 U	
Dibenz(a,h)anthracene	UG/L	1.6	ŨJ	1.5	UJ	6%	1.5	UJ	1.5 UJ	
Dibenzofuran	UG/L		UJ	1	_		1	1	1 U	
Diethyl phthalate	UG/L		UJ	1	UJ		1	U	1 U	
Dimethylphthalate	UG/L		UJ		UJ			U	1 U	
Fluoranthene	UG/L		UJ		UJ			U	1 U	
Fluorene	UG/L	1.1			UJ		1.1		1.1 U	
Hexachlorobenzene	UG/L	1.1			UJ		1.1		1.1 U	
Hexachlorobutadiene	UG/L	1.6			UJ	6%	1.5		1.5 U	
Hexachlorocyclopentadiene	UG/L		UJ		UJ	3%	3.8		3.9 R	NA
Hexachloroethane	UG/L		UJ		UJ		1.1		1.1 U	
Indeno(1,2,3-cd)pyrene	UG/L	1.7			UJ	6%		UJ	1.6 UJ	
Isophorone	UG/L		UJ	1	UJ			U	1 U	
N-Nitrosodiphenylamine	UG/L	2.1		2	UJ	5%		U	2 U	
N-Nitrosodipropylamine	UG/L		UJ		UJ			UJ	1 UJ	
Naphthalene	UG/L	1.2			UJ		1.2		1.2 U	
Litapinulaiciic	LOGIL	1.2	03	1.2	03		1.2	10	1.20	

Table C-1F Quality Control of Field Duplicates Groundwater at Building 360 SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

Location ID			MW-1				MW-1	
Sample Date			4/4/2003				5/9/2003	
Parameter	Units	DRMO-2005	DRMO-200	8 *RPD	DRMO-2	013	121C-2019	*RPD
Nitrobenzene	UG/L	1 UJ	1 U	J	1	U	1 U	
Pentachlorophenol	UG/L	2 R	1.9 R	NA	1.9	U	1.9 U	
Phenanthrene	UG/L	1 UJ	1 U	J	1	U	1 U	
Phenol	UG/L	1 R	1 R	NA	1	U	1 U	
Pyrene	UG/L	1 UJ	1 U	J	1	U	1 U	
Pesticides/PCBs							<u>'</u>	
4,4'-DDD	UG/L	0.01 U	0.01 U		0.01	UJ	0.01 UJ	
4,4'-DDE	UG/L	0.005 U	0.005 U		0.005	U	0.005 U	
4,4'-DDT	UG/L	0.01 UJ	0.01 U		0.01		0.01 UJ	
Aldrin	UG/L	0.02 U	0.02 U		0.02		0.02 UJ	
Alpha-BHC	UG/L	0.01 UJ	0.01 U		0.01		0.01 UJ	
Alpha-Chlordane	UG/L	0.02 U	0.02 U		0.02		0.02 UJ	
Beta-BHC	UG/L	0.01 U	0.01 U		0.01		0.01 U	
Chlordane	UG/L	0.14 U	0.14 U		0.01		0.01	
Delta-BHC	UG/L	0.004 UJ	0.004 U		0.004	UJ	0.004 UJ	
Dieldrin	UG/L	0.004 U	0.004 U		0.009		0.009 U	
Endosulfan I	UG/L	· 0.02 U	0.02 U		0.02		0.01 UJ	67%
Endosulfan II	UG/L	0.02 U	0.02 U		0.02		0.01 UJ	
Endosulfan sulfate	UG/L	0.01 U	0.02 U		0.02		0.02 U	
Endrin	UG/L	0.02 U	0.02 U		0.02		0.02 U	
Endrin aldehyde	UG/L	0.02 U	0.02 U		0.02		0.02 U	
Endrin ketone	UG/L	0.02 U	0.009 U		0.009		0.009 UJ	
Gamma-BHC/Lindane	UG/L	0.009 U	0.009 U		0.009		0.009 UJ	
	UG/L	0.009 U	0.009 U		0.009		0.009 U3	
Gamma-Chlordane	UG/L UG/L	0.01 UJ	0.007 U		0.01		0.007 U	
Heptachlor	UG/L	0.007 U	0.007 U		0.007		0.007 U	12%
Heptachlor epoxide	UG/L	0.009 UJ	0.009 U		0.009		0.008 U	12/0
Methoxychlor	UG/L UG/L	0.008 UJ 0.12 U	0.008 U		0.008		0.008 U	
Toxaphene					0.12		0.12 U	4%
Aroclor-1016	UG/L	0.24 UJ	0.25 U		0.23		0.24 UJ	2%
Aroclor-1221	UG/L	0.082 U	0.082 U		0.083		0.081 UJ	3%
Aroclor-1232	UG/L	0.092 UJ	0.093 U				0.091 UJ	2%
Aroclor-1242	UG/L	0.082 UJ	0.082 U		0.083			
Aroclor-1248	UG/L	0.12 U	0.12 U		0.12		0.12 U	20/
Aroclor-1254	UG/L	0.051 U	0.052 U		0.052		0.051 U	2%
Aroclor-1260	UG/L	0.01 U	0.01 U		0.01	UJ	0.01 UJ	
Metals & Cyanide	I IIO	150/17	20.21	1270/	22	TT	22 11	T
Aluminum	UG/L	150 U	28.3 J	137%	32		32 U	
Antimony	UG/L	3.8 U	3.8 U		7.5	U	7.5 U	450/
Arsenic	UG/L	4.5 U	4.5 U		7.1		4.5 U	45%
Barium	UG/L	135	147	9%	113		113	
Beryllium	UG/L	0.1 U	0.1 U		0.9		0.9 U	
Cadmium	UG/L	0.8 U	0.8 U		0.8		0.8 U	20/
Calcium	UG/L	88700	96900	9%	84200		87100	3%
Chromium	UG/L	1.4 U	1.4 U		1.4		1.4 U	
Cobalt	UG/L	0.7 U	0.7 U		2.3		2.3 U	
Copper	UG/L	3.6 U	3.6 U		2	U	2 U	
Cyanide	UG/L							
Cyanide, Amenable	MG/L	0.01 U	0.01 U		0.01	U	0.01 U	
Cyanide, Total	MG/L							
Iron	UG/L	3780 J	3290 J	14%	3810		3510	8%
Lead	UG/L	3 U	3 U			U	3 U	
Magnesium	UG/L	11400	12500	9%	11000		11400	4%

## Table C-1F Quality Control of Field Duplicates Groundwater at Building 360 SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

Location ID		MW-1				MW-1					
Sample Date		4/4/2003				5/9/2003					
Parameter	Units	DRMO-2	005	DRMO-2	800	*RPD	DRMO-2	.013	121C-20	19	*RPD
Manganese	UG/L	1580		1710		8%	1140		1180		3%
Mercury	UG/L	0.2	U	0.2	U.		0.2	U	0.2	U	
Nickel	UG/L	3	J	3.8	J	24%	2	U	2	U	
Potassium	UG/L	9450	J	10600	J	11%	8820		9430		7%
Selenium	UG/L	4.2	J	3.3	J	24%	1.3	U	3.2	J	84%
Silver	UG/L	3.7	U	3.7	U		3.7	U	3.7	U	
Sodium	UG/L	40400		45300		11%	41100		44000		7%
Thallium	UG/L	5.3	U	5.3	U		4.4	J	4.2	U	5%
Vanadium	UG/L	1.4	U	- 1.4	U		2.5	U	2.5	U	
Zinc	UG/L	7.1	J	7.1	J		14.4	J	17	J	17%
Other											
Total Petroleum Hydrocarbons	MG/L	1	U	1	U		1	U	1	U	

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = |\mathbf{SR} - \mathbf{SDR}| \times 100$ 

SR = Sample Result of a particular analyte.

(1/2) (SR + SDR)

SDR = Sample Duplicate Result of a particular analyte.

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U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result



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Table C-1G
Quality Control of Field Duplicates
Surface Soil at SEAD-1211
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

SS121I-10

			2-117100			07-17-100			221717	1
eter	Units	1211-1043	1211-1044	*RPD	1211-1006	1211-1031	*RPD	1211-1025	1211-1030	*
e Organic Compounds										
richloroethane	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
-Tetrachloroethane	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
nichloroethane	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
chloroethane	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
chloroethene	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
chloroethane	UG/KG	3.1 U	2.8 UJ	10%	2.5 UJ	2.2 U	13%	3.1 UJ	3.6 UJ	100
chloropropane	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
9	UG/KG	110 U	33 UJ	108%	4.5 J	2.2 U	93	3.1 U	3.6 UJ	
16	UG/KG	6.6 J	10 J	41%	2.5 U	2.2 U	13%	24	57 J	-
dichloromethane	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
m of m	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
ı disulfide	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
ı tetrachloride	UG/KG	3.1 U	2.8 UJ	10%	2.5 UJ	2.2 U	13%	3.1 UJ	3.6 UJ	
benzene	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
dibromomethane	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
ethane	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 UJ	3.6 UJ	
ботт	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
-Dichloroethene	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
-Dichloropropene	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
enzene	UG/KG	2 J	3.5 J	55%	2.5 U	2.2 U	13%	4.4	9.5 J	
ara Xylene	UG/KG	2.2 J	3.4 J	43%	2.5 U	2.2 U	13%	3.9	8.7 J	
bromide	UG/KG	3.1 U	2.8 UJ	10%	2.5 UJ	2.2 U	13%	3.1 UJ	3.6 UJ	
butyl ketone	UG/KG	3.1 U	2.8 UJ	10%	2.5 UJ	2.2 U	13%	3.1 UJ	3.6 UJ	
chloride	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
ethyl ketone	UG/KG	55	27 J	68%	2.5 U	2.2 U	13%	3.1 U	f 29	1
isobutyl ketone	UG/KG	3.1 U	2.8 U	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
ene chloride	UG/KG	3.1 U	2.7 J	14%	2.5 U	. 2.2 U	13%	3.1 U	3.6 UJ	
Kylene	UG/KG	1.1 J	2 J	58%	2.5 U	2.2 U	13%	2.1 J	5.1 J	
	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
loroethene	· UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 UJ	3.6 UJ	
a)	UG/KG	6.9	11 J	46%	2.5 U	2.2 U	13%	18	43 J	2 1
1,2-Dichloroethene	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
1,3-Dichloropropene	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
roethene	UG/KG	3.1 U	2.8 UJ	. 10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	
hloride	UG/KG	3.1 U	2.8 UJ	10%	2.5 U	2.2 U	13%	3.1 U	3.6 UJ	

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## Table C-1G Quality Control of Field Duplicates Surface Soil at SEAD-1211 SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

	-		SB1211-2		01	SS121I-10			SS1211-29	
leter	Units	1211-1043	1211-1044	*RPD	1211-1006	121I-1031	*RPD	1211-1025	121I-1030	*
olatile Organic Compounds	spı									
Trichlorobenzene	UG/KG	390 U	390 U		360 U	360 U	1	2100 U	2300 U	
chlorobenzene	UG/KG	390 U	390 U	1	360 U	360 U	1	2100 U	2300 U	
chlorobenzene	UG/KG	390 U	390 U	1	360 U	360 U	1	2100 U	2300 U	
chlorobenzene	UG/KG	390 U	390 U		360 U	360 U	-	2100 U	2300 U	
richlorophenol	UG/KG	U 079	D 086	1%	910 U	910 U	1	5200 U	5700 U	
richlorophenol	UG/KG	390 U	390 U	-	360 U	360 U		2100 U	2300 U	
chlorophenol	UG/KG	390 U	390 U	3959	360 U	360 U		2100 U	2300 U	
methylphenol	UG/KG	390 U	390 U	1	360 U	360 U	1	2100 U	2300 U	
nitrophenol	UG/KG	U 070	D 086	1%	910 UJ	910 UJ	1	5200 R	5700 UJ	
nitrotoluene	UG/KG	390 U	390 U	-	360 U	360 U	1	2100 U	2300 U	
nitrotoluene	UG/KG	390 U	390 U	1	360 U	360 U	1	2100 U	2300 U	
ronaphthalene	UG/KG	390 U	390 U	1	360 U	360 U	1	2100 U	2300 U	
rophenol	UG/KG	390 U	390 U	1	360 U	360 U	1	2100 U	2300 U	
lylnaphthalene	UG/KG	390 U	390 U	1	360 U	360 U	-	2100 U	2300 U	
iylphenol	UG/KG	390 U	390 U	-	360 U	360 U		2100 U	2300 U	
paniline	UG/KG	070 U	D 086	1%	U 016	910 UJ	1	5200 UJ	5700 UJ	
ophenol	UG/KG	390 U	390 U	-	360 U	360 U		2100 U	2300 U	
Methylphenol	UG/KG	390 U	390 U	-	360 U	360 U	-	2100 U	2300 U	
chlorobenzidine	UG/KG	390 UJ	390 U	1	360 U	360 U	1	2100 UJ	2300 R	
aniline	UG/KG	U 070	D 086	1%	910 U	910 U		5200 U	5700 UJ	
nitro-2-methylphenol	UG/KG	970 U	10 086	1%	910 UJ	910 UJ	-	5200 R	5700 UJ	
nophenyl phenyl ether	UG/KG	390 U	390 U	-	360 U	360 U	1	2100 U	2300 U	
ro-3-methylphenol	UG/KG	390 U	390 U	1	360 U	360 U	-	2100 U	2300 U	-
roaniline	UG/KG	390 U	390 U	1	360 UJ	360 U	1	2100 U	2300 U	
rophenyl phenyl ether	UG/KG	390 U	390 U		360 U	360 U		2100 U	2300 U	
lylphenol	UG/KG									
paniline	UG/KG	U 076	O 086	1%	910 U	910 U	*****	5200 U	IU 0072	
phenol	UG/KG	U 076	D 086	1%	910 U	910 U	1	5200 U	5700 U	
ohthene	UG/KG	390 U	390 U		360 U	360 U		2100 U	2300 U	
ohthylene	UG/KG	390 U	390 U		360 U ·	360 U	*****	2100 U	2300 U	
eueo	UG/KG	f 68	74 J	18%	360 U	360 U		330 J	2300 U	7 46
(a)anthracene	UG/KG	350 J	350 J	-	48 J	47 J	7%	700 J	260 J	- 1
(a)pyrene	UG/KG	390 J	450 J	14%	66 J	f 09	10%	700 J	2300 R	
(b)fluoranthene	UG/KG	f 009	620 J	3%	53 J	51 J	4%	720 J	2300 R	
(ghi)perylene	UG/KG	220 J	140 J	44%	67 J	63 J	%9	430 J	2300 R	
(k)fluoranthene	UG/KG	300 J	360 J	18%	360 U	360 U		720 J	2300 R	

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### SEAD-121C and SEAD-1211 RI Report Quality Control of Field Duplicates Seneca Army Depot Activity Surface Soil at SEAD-1211 Table C-1G

			CD1711.7			00131110			981211-20
meter	Units	121I-1043	1211-1044	*RPD	1211-1006	1211-1031	*RPD	1211-1025	1211-1030
-Chloroethoxy)methane	UG/KG	390 U	390 U		360 U	360 U	-	2100 U	2300 U
-Chloroethyl)ether	UG/KG	390 U	390 U		360 U	360 U	-	2100 U	2300 U
-Chloroisopropyl)ether	UG/KG	390 U	390 U	-	360 U	360 U	****	2100 U	2300 U
-Ethylhexyl)phthalate	UG/KG	78 J	390 U	1330%	360 UJ	360 U		2100 U	260 J
benzylphthalate	UG/KG	390 UJ	390 U	-	360 U	360 U		2100 U	2300 R
zole	UG/KG	56 J	f 29	18%	360 U	360 U	1	340 J	2300 UJ
sene	UG/KG	380 J	400	2%	62 J	63 J	7%	790 J	2300 R
butylphthalate	UG/KG	390 U	390 U		360 U	360 U	1	2100 U	2300 U
octylphthalate	UG/KG	390 UJ	390 U	-	360 U	360 U		2100 U	2300 R
ız(a,h)anthracene	UG/KG	390 UJ	390 U	-	360 U	360 UJ		2100 UJ	2300 R
nzofuran	UG/KG	390 U	390 U	1	360 U	360 U		2100 U	2300 U
yl phthalate	UG/KG	390 U	390 U	-	360 U	360 U	1	2100 U	230 J
thylphthalate	UG/KG	390 U	390 U		360 U	360 U	1	2100 U	2300 U
anthene	UG/KG	720	920	24%	100 J	78 J	25%	2500	490 J
ene	UG/KG	390 U	390 U	1	360 U	360 U		2100 U	2300 U
chlorobenzene	UG/KG	390 U	390 U	-	360 U	360 U		2100 U	2300 U
chlorobutadiene	UG/KG	390 UJ	390 UJ	1	360 U	360 U		2100 U	2300 U
chlorocyclopentadiene	UG/KG	390 U	390 U		360 U	360 U		2100 UJ	2300 U
chloroethane	UG/KG	390 U	390 U	-	360 U	360 U		2100 U	2300 U
o(1,2,3-cd)pyrene	UG/KG	63 J	79 J	23%	83 J	74 J	11%	2100 UJ	2300 R
orone	UG/KG	390 UJ	390 UJ	1	360 U ·	360 U	*****	2100 U	2300 U
trosodiphenylamine	UG/KG	390 U	390 U		360 U	360 U		2100 U	2300 U
trosodipropylamine	UG/KG	390 U	390 U	4000	360 U	360 UJ		2100 U	2300 UJ
thalene	UG/KG	390 U	390 U	-	360 U	360 U		2100 U	2300 U
benzene	UG/KG	390 UJ	390 UJ	1	360 U	360 U		2100 U	2300 U
chlorophenol	UG/KG	D 079	D 086	1%	010 U	910 U	-	5200 UJ	5700 U
anthrene	UG/KG	450	. 440	2%	60 J	56 J	7%	2200	530 J
lo	UG/KG	390 U	390 U		360 U	360 U		2100 U	2300 U
le	UG/KG	1200 J	099	58%	79 J	98 J	21%	2300	1600 J
cides/PCBs									
DDD	UG/KG	2 UJ	2 UJ	-	1.9 UJ	1.8 UJ	2%	2.2 UJ	2.3 UJ
ODE	UG/KG	2 U	2 U		U 6.1	1.8 U	2%	2.2 U	2.3 U
DT	UG/KG	2 U	2 U		1.9 UJ	1.8 UJ	2%	2.2 UJ	2.3 UJ
п	UG/KG	2 U	2 U	-	1.9 U	1.8 U	5%	2.2 U	2.3 U
a-BHC	UG/KG	2 UJ	2 U		1.9 UJ	1.8 UJ	2%	2.2 UJ	2.3 UJ
a-Chlordane	UG/KG	2 U	2 U		1.9 UJ	1.8 UJ	2%	2.2 UJ	2.3 UJ
BHC	UG/KG	2 U	2 U	1	1.9 U	1.8 U	5%	2.2 U	2.3 U

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## Quality Control of Field Duplicates Surface Soil at SEAD-1211 SEAD-121C and SEAD-121I RI Report Seneca Army Depot Activity

neter	Units	1211-1043	SB1211-2 1211-1044	*RPD	1211-1006 ·	SS1211-10 1211-1	11-10 1211-1031 1811	031 *	031
dane	UG/KG	2 111	20 0		1.9 U.I	1	1.8 UJ	1.8 UJ 5%	2%
in	UG/KG	2 UJ	2 UJ	****	1.9 UJ		1.8 UJ		2%
iulfan I	UG/KG	11 J	6.9 J	46%	3.7 J		4.2 J		13%
ulfan II	UG/KG	2 U	2 U	-	1.9 U	1.	1.8 U	8 U 5%	2%
ulfan sulfate	UG/KG	2 U	2 U	1	1.9 U	1.8 U	n		2%
	UG/KG	2 U	2 U	-	1.9 UJ	1.8 UJ	11	13 5%	2%
ı aldehyde	UG/KG	2 U	2 U	***	1.9 U	1.8 U			5%
1 ketone	UG/KG	2 U	2 U	-	1.9 U	1.8 U			2%
la-BHC/Lindane	UG/KG	2 U	2 U		1.9 UJ	1.8 UJ	1	2%	
ia-Chlordane	UG/KG	2 U	2 U	***************************************	1.9 U	1.8 U		2%	
chlor	UG/KG	2 U	2 U	1	. 1.9 U	1.8 U		2%	5% 2.2 U
chlor epoxide	UG/KG	2.U	2 U	***	1.9 U	1.8 U		2%	
oxychlor	UG/KG	2 U	2 U	1	1.9 U	1.8 U		2%	
hene	UG/KG	. 20 U	20 U	-	19 U	18 U		2%	5% 22 U
or-1016	UG/KG	20 U	20 U		19 UJ	19 UJ			21 UJ
or-1221	UG/KG	20 U	20 U		19 U	19 U			21 UJ
or-1232	UG/KG	20 U	20 U		19 UJ	19 UJ			21 UJ
or-1242	UG/KG	20 U	20 U	1	19 UJ	19 UJ			21 UJ
or-1248	UG/KG	20 U	20 U	-	19 U	19 U		-	21 UJ
or-1254	UG/KG	20 UJ	20 UJ		19 U	19 U		-	21 UJ
or-1260	UG/KG	20 UJ	20 UJ	m 40 to 40	19 U	19 U			21 UJ
s & Cyanide									
num	MG/KG	0026	9020	1%	6480	7510		15%	
lony	MG/KG	1.8	8.6	131%	3.4	2.5	- 1	31%	31% 1.1 U
c	MG/KG	21.2 J	43 J	68%	5.2	5.2			
	MG/KG	74.3 J	83.6 J	12%	116	119		3%	
ium	MG/KG	0.49	0.46	%9	0.38 J	0.43 J		12%	12% 0.16 U
ium	MG/KG	0.14 U	0.14 U	40 th 10 to	5	4.1		70%	
ım	MG/KG	30900	27800	11%	166000	143000		15%	15% 29900 J
nium	MG/KG	25.9 J	50 J	64%	14.3	14.7		3%	
	MG/KG	23.9 J	40.6 J	52%	8.4	8.9		%9	6% 237 J
	MG/KG	37.5 R	66.1 R	NA	24.5 J	22.6 J		%8	
de, Amenable	MG/KG	0.59 U	0.6 U	2%	0.56 UJ	· 0.55 UJ		2%	
de, Total	MG/KG	0.592 U	0.595 U	1%	0.556 UJ	0.551 UJ		1%	
	MG/KG	27100	31500	15%	17100	17600		3%	3% 69400
	MG/KG	31.3	42.1	767	19	16.3		15%	

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### SEAD-121C and SEAD-121I RI Report Quality Control of Field Duplicates Seneca Army Depot Activity Surface Soil at SEAD-1211 Table C-1G

			SB1211-2	_		SS1211-10			SS1211-29
neter	Units	1211-1043	1211-1044	*RPD	1211-1006	1211-1031	*RPD	121I-1025	121I-1030
esium	MG/KG	6110	4240	36%	13500	9040	40%	2770 J	f 0609
anese	MG/KG	33200 J	57800 J	54%	786	. 822	4%	349000	272000
пу	MG/KG	0.04	0.05	22%	0.03	0.03	4	0.02	0.02
	MG/KG	38.9 J	46.3 J	17%	26.7	26.9	1%	394 J	289 J
sium	MG/KG	859 J	929 J	%8	786	1150	38%	959	612
mm	MG/KG	5.1 J	17.9 J	111%	0.87	8.0	%8	160 J	131 J
	MG/KG	1.9 J	4.2 J	75%	1.1 U	1.1 U	1	24.1 R	18.6 R
E	MG/KG	118 U	115 U	3%	210	188	11%	126 U	135 U
un	MG/KG	3	14.4	113196	1.1 U	1.1 U	-	173 J	152 J
lium	MG/KG	22.6 J	31.6 J	33%	11.6	13.2	13%	217 J	147 J
	MG/KG	85.1 J	82 J	4%	84 J	f 6.79	21%	47.7 J	37.8 J
Organic Carbon	MG/KG	2600	0089	19%	2600	4500	22%	7300	4900
Petroleum Hydrocarbons	MG/KG	47 U	48 U	2%	44 UJ	44 UJ		240	1600

tula for Relative Percent Difference (RPD)

e: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

= ISR - SDR | X 100 (1/2) (SR + SDR)

SR = Sample Result of a particular analyte.
SDR = Sample Duplicate Result of a particular analyte.

ot detected to the limit indicated

ported value is estimated not detected to the estimated limit indicated

sult is rejected

Not Applicable, i.e. result rejected or missing result

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#### Table C-1H Quality Control of Field Duplicates

#### Ditch Soil at SEAD-121I SEAD-121C and SEAD-121I RI Report

				SD121I-7		
Parameter	Units	121I-40	05	121I-40	07	*RPD
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/KG	3.1	UJ	3.2	UJ	3%
1,1,2,2-Tetrachloroethane	UG/KG	3.1			UJ	3%
1,1,2-Trichloroethane	UG/KG	3.1		i -	UJ	3%
1,1-Dichloroethane	UG/KG	3.1			UJ	3%
1,1-Dichloroethene	UG/KG	3.1			UJ	3%
1,2-Dichloroethane	UG/KG	3.1			UJ	3%
1,2-Dichloropropane	UG/KG	3.1			UJ	3%
Acetone	UG/KG	25		10		86%
Benzene	UG/KG	3.1	_		UJ	3%
Bromodichloromethane	UG/KG	3.1			UJ	3%
Bromoform	UG/KG	3.1			UJ	3%
Carbon disulfide	UG/KG	3.1			UJ	3%
Carbon tetrachloride	UG/KG	3.1			UJ	3%
Chlorobenzene	UG/KG	3.1			UJ	3%
Chlorodibromomethane	UG/KG	3.1		1	UJ	3%
Chloroethane	UG/KG	3.1			UJ	3%
Chloroform	UG/KG	3.1			UJ	3%
Cis-1,2-Dichloroethene	UG/KG	3.1			UJ	3%
Cis-1,3-Dichloropropene	UG/KG	3.1			UJ	3%
Ethyl benzene	UG/KG	3.1			UJ	3%
Meta/Para Xylene	UG/KG	3.1			UJ	3%
Methyl bromide	UG/KG	3.1			UJ	3%
Methyl butyl ketone	UG/KG	3.1			UJ	3%
Methyl chloride	UG/KG	3.1			UJ	3%
Methyl ethyl ketone	UG/KG	3.1			UJ	3%
Methyl isobutyl ketone	UG/KG	3.1			UJ	3%
Methylene chloride	UG/KG	2.5		1.9		27%
Ortho Xylene	UG/KG	3.1			UJ	3%
Styrene	UG/KG	3.1			UJ	3%
Tetrachloroethene	UG/KG	3.1			UJ	3%
Toluene	UG/KG	3.1			UJ	3%
Trans-1,2-Dichloroethene	UG/KG	3.1			UJ	3%
Trans-1,3-Dichloropropene	UG/KG	3.1		3.2		3%
Trichloroethene	UG/KG	3.1		3.2		3%
Vinyl chloride	UG/KG	3.1			UJ	3%
Semivolatile Organic Compoun			-			
1,2,4-Trichlorobenzene	UG/KG	420	U	420	U	
1,2-Dichlorobenzene	UG/KG	420		420		
1,3-Dichlorobenzene	UG/KG	420		420		
1,4-Dichlorobenzene	UG/KG	420		420		
2,4,5-Trichlorophenol	UG/KG	1100		1100		
2,4,6-Trichlorophenol	UG/KG	420		420		
2,4-Dichlorophenol	UG/KG	420		420		
2,4-Dimethylphenol	UG/KG	420		420		
2,4-Dinitrophenol	UG/KG	1100		1100		
2,4-Dinitrotoluene	UG/KG	420		420		

### Table C-1H Quality Control of Field Duplicates Ditch Soil at SEAD-121I

#### SEAD-121C and SEAD-121I RI Report

				SD121I-7		
Parameter	Units	121I-40		1211-40		*RPD
2,6-Dinitrotoluene	UG/KG	420		420	U	
2-Chloronaphthalene	UG/KG	420		420	U	
2-Chlorophenol	UG/KG	420	U	420	U	
2-Methylnaphthalene	UG/KG	420	U	130	J	105%
2-Methylphenol	UG/KG	420		420	U	
2-Nitroaniline	UG/KG	1100	U	1100	U	
2-Nitrophenol	UG/KG	420	U	420	U	
3 or 4-Methylphenol	UG/KG	420	U	420	U	
3,3'-Dichlorobenzidine	UG/KG	420	UJ	420	UJ	
3-Nitroaniline	UG/KG	1100	U	1100	U	
4,6-Dinitro-2-methylphenol	UG/KG	1100	U	1100		
4-Bromophenyl phenyl ether	UG/KG	420	U	420	U	
4-Chloro-3-methylphenol	UG/KG	420	U	420	U	
4-Chloroaniline	UG/KG	420		420	U	
4-Chlorophenyl phenyl ether	UG/KG	420	U	420	U	
4-Methylphenol	UG/KG					
4-Nitroaniline	UG/KG	1100	U	1100	U	
4-Nitrophenol	UG/KG	1100		1100		
Acenaphthene	UG/KG	280		1200		124%
Acenaphthylene	UG/KG	70		420	U	143%
Anthracene	UG/KG	420		1900		128%
Benzo(a)anthracene	UG/KG	2200		5000	J	78%
Benzo(a)pyrene	UG/KG	2800		5900		71%
Benzo(b)fluoranthene	UG/KG	3600		8100		77%
Benzo(ghi)perylene	UG/KG	1400		3200		78%
Benzo(k)fluoranthene	UG/KG	2500		4900		65%
Bis(2-Chloroethoxy)methane	UG/KG	420		420		
Bis(2-Chloroethyl)ether	UG/KG	420		420		
Bis(2-Chloroisopropyl)ether	UG/KG	420		420		
Bis(2-Ethylhexyl)phthalate	UG/KG	75		110		38%
Butylbenzylphthalate	UG/KG	420		420		3070
Carbazole	UG/KG	440	,	1700	1	118%
Chrysene	UG/KG	2400	T	5400	T	77%
Di-n-butylphthalate	UG/KG	420		420		
Di-n-octylphthalate	UG/KG	420		420		
Dibenz(a,h)anthracene	UG/KG	130		350		92%
Dibenz(a,n)antiracene  Dibenzofuran	UG/KG	71		640		AND ADDRESS OF THE PARTY OF
		420		420		160%
Diethyl phthalate	UG/KG UG/KG	420		420	_	
Dimethylphthalate Fluoranthene	UG/KG	4400				0002
				13000		99%
Fluorene	UG/KG	190		1100		141%
Hexachlorobenzene	UG/KG	420		420		
Hexachlorobutadiene	UG/KG	420		420		
Hexachlorocyclopentadiene	UG/KG	420		420		
Hexachloroethane	UG/KG	420		420		
Indeno(1,2,3-cd)pyrene	UG/KG	400		1300		106%
Isophorone	UG/KG	420	J	420	U	

#### Table C-1H

#### Quality Control of Field Duplicates Ditch Soil at SEAD-121I

#### SEAD-121C and SEAD-121I RI Report

				SD121I-7		
Parameter	Units	121I-40		121I-40		*RPD
N-Nitrosodiphenylamine	UG/KG	420		420		
N-Nitrosodipropylamine	UG/KG	420		420		
Naphthalene	UG/KG	420		490		15%
Nitrobenzene	UG/KG	420		420	U	
Pentachlorophenol	UG/KG	1100	U	1100	U	
Phenanthrene	UG/KG	2500		10000		120%
Phenol	UG/KG	420	J	420	U	
Pyrene	UG/KG	6500	J	17000	J	89%
Pesticides/PCBs						
4,4'-DDD	UG/KG	2,2	U	2.2	U	
4,4'-DDE	UG/KG	14	J	2.2	UJ	146%
4,4'-DDT	UG/KG	2.2	UJ	2.2	UJ	
Aldrin	UG/KG	2.2	U	2.2	U	
Alpha-BHC	UG/KG	2.2		2.2		
Alpha-Chlordane	UG/KG	2.2		2.2		
Beta-BHC	UG/KG	2.2		2.2	U	
Chlordane	UG/KG	22	5	22	U	
Delta-BHC	UG/KG		UJ	2.2	1	
Dieldrin	UG/KG		UJ	2.2		
Endosulfan I	UG/KG	2.2		56		NA
Endosulfan II	UG/KG	2.2		2.2		
Endosulfan sulfate	UG/KG	2.2		2.2		
Endrin	UG/KG		UJ	2.2	1	
Endrin aldehyde	UG/KG		UJ	2.2		Q1 N1 10 Q1
Endrin ketone	UG/KG	2.2		2.2	1	
Gamma-BHC/Lindane	UG/KG	2.2		2.2		
Gamma-Chlordane	UG/KG	2.2		2.2		
Heptachlor	UG/KG	2.2		2.2		
Heptachlor epoxide	UG/KG	2.2		2.2		
Methoxychlor	UG/KG	2.2		2.2		
Toxaphene	UG/KG	22		22		
Aroclor-1016	UG/KG	22		22		
Aroclor-1221	UG/KG	22		22		
Aroclor-1232	UG/KG	22		22		
Aroclor-1242	UG/KG	22		22		
Aroclor-1248	UG/KG			22		
Aroclor-1248 Aroclor-1254		22 22				
	UG/KG			22		2604
Aroclor-1260	UG/KG	22	U	17	NJ	26%
Metals & Cyanide	MOWO	(050		(170		100/
Aluminum	MG/KG	6950		6170		12%
Antimony	MG/KG	1.1	U	0.99	U	11%
Arsenic	MG/KG	7.8		6.9		12%
Barium	MG/KG	72.2		58.9	T	20%
Beryllium	MG/KG	0.48	J	0.43	J	11%
Cadmium	MG/KG	0.83		0.77		7%
Calcium	MG/KG	145000		110000		27%
Chromium	MG/KG	14.5		13.5		7%

#### Table C-1H

#### Quality Control of Field Duplicates Ditch Soil at SEAD-121I

#### SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

				SD121I-7		
Parameter	Units	121I-40	05	121I-40	07	*RPD
Cobalt	MG/KG	11		10.5		5%
Copper	MG/KG	33.8	J	34.7	J	3%
Cyanide, Amenable	MG/KG	0.64	U	0.65	U	2%
Cyanide, Total	MG/KG	0.644	U	0.648	U	1%
Iron	MG/KG	15200	J	13900	J	9%
Lead	MG/KG	71.2	J	77.4	J	8%
Magnesium	MG/KG	11700	J	9890	J	17%
Manganese	MG/KG	588	J	541	J	8%
Mercury	MG/KG	0.12	UJ	0.11	UJ	9%
Nickel	MG/KG	27.9	J	26.9	J	4%
Potassium	MG/KG	1340	J	1230	J	9%
Selenium	MG/KG	0.53	U	0.46	U	14%
Silver	MG/KG	0.34	U	0.3	U	13%
Sodium	MG/KG	288		211		31%
Thallium	MG/KG	0.71	J	0.34	U	70%
Vanadium	MG/KG	20.2	J	18.4	J	9%
Zinc	MG/KG	124	J	125	J	1%
Other						
Total Organic Carbon	MG/KG	5300		4500		16%
Total Petroleum Hydrocarbons	MG/KG	1000	J	630	J	45%

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = \underline{|SR - SDR | X 100}$  (1/2) (SR + SDR)

SR = Sample Result of a particular analyte.

SDR = Sample Duplicate Result of a particular analyte.

Standing multiplies RED 50% 11 1822

U = not detected to the limit indicated

NJ = reported value is estimated and tentatively identified based on Mass Spec

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

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## Table C-1I Quality Control of Field Duplicates Surface Water at SEAD-121I SEAD-121C and SEAD-121I RI Report

				SW121I-7		
Parameter	Units	121I-30	07	121I-30	05	*RPD
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/L	5	U	5	U	
1,1,2,2-Tetrachloroethane	UG/L		U	5	U	
1,1,2-Trichloroethane	UG/L	5	U	5	U	
1,1-Dichloroethane	UG/L	5	U	5	Ū	
1,1-Dichloroethene	UG/L	5	U	5	U	
1,2-Dichloroethane	UG/L	5	U	5	U	
1,2-Dichloropropane	UG/L	5	U	5	U	
Acetone	UG/L	5	UJ	5	UJ	
Benzene	UG/L	5	U	5	U	
Bromodichloromethane	UG/L	5	U	5	U	
Bromoform	UG/L	5			U	
Carbon disulfide	UG/L	5			U	
Carbon tetrachloride	UG/L	. 5	U	5	_	
Chlorobenzene	UG/L	5		5	U	
Chlorodibromomethane	UG/L	5	UJ	5	UJ	
Chloroethane	UG/L	5	UJ	5	UJ	
Chloroform	UG/L	5	U	5	U	
Cis-1,2-Dichloroethene	UG/L	5	U	5	U	
Cis-1,3-Dichloropropene	UG/L	5	U	5	U	
Ethyl benzene	UG/L	5	U	5	U	
Meta/Para Xylene	UG/L	5	U	5	U	
Methyl bromide	UG/L	5	U	5	U	
Methyl butyl ketone	UG/L	5	U	5	U	
Methyl chloride	UG/L	5	U	5	U	
Methyl ethyl ketone	UG/L	5.	UJ	5	UJ	
Methyl isobutyl ketone	UG/L	5	U	5	U	
Methylene chloride	UG/L	5	U	5	U	
Ortho Xylene	UG/L	5	U	5	Ū	
Styrene	UG/L	5	U	5	U	
Tetrachloroethene	UG/L	5	U	5	U	
Toluene	UG/L	5	U	5	U	
Trans-1,2-Dichloroethene	UG/L	5	U	5	U	
Trans-1,3-Dichloropropene	UG/L	5	UJ	5	UJ	
Trichloroethene	UG/L	5	U	5	U	
Vinyl chloride	UG/L	5	UJ	5	UJ	
Semivolatile Organic Compour	ıds			<u></u>		
1,2,4-Trichlorobenzene	UG/L	10	U	10	UJ	
1,2-Dichlorobenzene	UG/L	10		10		
1,3-Dichlorobenzene	UG/L	10		10		
1,4-Dichlorobenzene	UG/L	10		10	U	
2,4,5-Trichlorophenol	UG/L	10		10		NA
2,4,6-Trichlorophenol	UG/L	10		10		NA
2,4-Dichlorophenol	UG/L	10		10		NA
2,4-Dimethylphenol	UG/L	10		10		NA

Table C-1I
Quality Control of Field Duplicates
Surface Water at SEAD-121I
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

	L			SW121I-7		
Parameter	Units	121I-30		121I-30	05	*RPD
2,4-Dinitrophenol	UG/L	10	UJ	10	R	NA
2,4-Dinitrotoluene	UG/L	10	U	10		
2,6-Dinitrotoluene	UG/L	10	U	10	U	
2-Chloronaphthalene	UG/L	10	U	10	U	
2-Chlorophenol	UG/L	10	U	10	R	NA
2-Methylnaphthalene	UG/L	10	U	10	U	
2-Methylphenol	UG/L	10	U	10	U	
2-Nitroaniline	UG/L	10	UJ	10	U	
2-Nitrophenol	UG/L	10	U	10	R	NA
3 or 4-Methylphenol	UG/L	10	U	10	UJ	
3,3'-Dichlorobenzidine	UG/L	10	U	10	R	NA
3-Nitroaniline	UG/L	10	U	. 10	U	
4,6-Dinitro-2-methylphenol	UG/L	10	U	10	R	NA
4-Bromophenyl phenyl ether	UG/L	10	U	10	U	
4-Chloro-3-methylphenol	UG/L	10	U	10	R	NA
4-Chloroaniline	UG/L	10	U	10	U	
4-Chlorophenyl phenyl ether	UG/L	10	U	10	U	
4-Nitroaniline	UG/L	10	U	10	U	
4-Nitrophenol	UG/L	10	Ū	10	R	NA
Acenaphthene	UG/L	10	U	10	U	
Acenaphthylene	UG/L	10	U	10	U	
Anthracene	UG/L	10	U	10	U	
Benzo(a)anthracene	UG/L	10		10		
Benzo(a)pyrene	UG/L	10	U	10		
Benzo(b)fluoranthene	UG/L	10		10		
Benzo(ghi)perylene	UG/L	10		10		
Benzo(k)fluoranthene	UG/L	10	U	10	U	
Bis(2-Chloroethoxy)methane	UG/L	10		10		
Bis(2-Chloroethyl)ether	UG/L		UJ		UJ	
Bis(2-Chloroisopropyl)ether	UG/L	10			U	
Bis(2-Ethylhexyl)phthalate	UG/L	10			U	
Butylbenzylphthalate	UG/L	10			U	
Carbazole	UG/L	10		10		
Chrysene	UG/L	10		10		
Di-n-butylphthalate	UG/L	10		10		
Di-n-octylphthalate	UG/L	10		10		
Dibenz(a,h)anthracene	UG/L	10		10		
Dibenzofuran	UG/L	10		10		
Diethyl phthalate	UG/L	10		10		
Dimethylphthalate	UG/L	10		10		
Fluoranthene	UG/L	10		10		
Fluorene	UG/L	10		10		
Hexachlorobenzene	UG/L	10		10		
Hexachlorobutadiene	UG/L UG/L		Ω1		UJ	
Hexachlorocyclopentadiene	UG/L UG/L		UJ		UJ	

Table C-1I
Quality Control of Field Duplicates
Surface Water at SEAD-121I
SEAD-121C and SEAD-121I RI Report
Seneca Army Depot Activity

	L			SW121I-7		
Parameter	Units	121I-30	07	121I-30	05	*RPD
Hexachloroethane	UG/L	10	U	10	U	
Indeno(1,2,3-cd)pyrene	UG/L	10	U	10	UJ	
Isophorone	UG/L	10	UJ	10	U	
N-Nitrosodiphenylamine	UG/L	10	UJ	10	UJ	
N-Nitrosodipropylamine	UG/L	10		10	U	
Naphthalene	UG/L	10		10		
Nitrobenzene	UG/L	10		10	U	
Pentachlorophenol	UG/L	10		10		NA
Phenanthrene	UG/L	10		10		
Phenol	UG/L	10		10		NA
Pyrene	UG/L	10		10		
Pesticides/PCBs	00,2	10		10		
4,4'-DDD	UG/L	0.01	TII T	0.01	III	
4,4'-DDE	UG/L	0.005		0.005		
4,4'-DDT	UG/L	0.003		0.003		
Aldrin	UG/L	0.01		0.01		
Alpha-BHC	UG/L	0.02		0.02		
•	UG/L	0.01		0.01		
Alpha-Chlordane						
Beta-BHC	UG/L	0.01		0.01		
Chlordane	UG/L	0.13		0.13		
Delta-BHC	UG/L	0.004		0.004		
Dieldrin	UG/L	0.009		0.009		
Endosulfan I	UG/L	0.01		0.01		
Endosulfan II	UG/L	0.01		0.01		
Endosulfan sulfate	UG/L	0.02		0.02		
Endrin	UG/L	0.02		0.02		
Endrin aldehyde	UG/L	0.02		0.02		
Endrin ketone	UG/L	0.009		0.009		
Gamma-BHC/Lindane	UG/L	0.009		0.009	UJ	
Gamma-Chlordane	UG/L	0.01		0.01	UJ	
Heptachlor	UG/L	0.007	UJ	0.007	UJ	
Heptachlor epoxide	UG/L	0.008	UJ	0.008	UJ	
Methoxychlor	UG/L	0.008	U	0.008	U	
Toxaphene	UG/L	0.12	U	0.12	U	
Aroclor-1016	UG/L	0.5		0.5		
Aroclor-1221	UG/L	0.5		0.5		
Aroclor-1232	UG/L	0.5		0.5		
Aroclor-1242	UG/L	0.5		0.5		
Aroclor-1248	UG/L	0.5		0.5		
Aroclor-1254	UG/L	0.5		0.5		
Aroclor-1260	UG/L	0.5		0.5		
Metals & Cyanide		0.5		0.5	00	
Aluminum	UG/L	45.8		46.3		1%
Antimony	UG/L	3.8	TI	3.8	TT	1 /0
Arsenic	UG/L	4.5		4.5		

## Table C-1I Quality Control of Field Duplicates Surface Water at SEAD-121I SEAD-121C and SEAD-121I RI Report

#### Seneca Army Depot Activity

				SW121I-7		
Parameter	Units	121I-30	07	121I-30	05	*RPD
Barium	UG/L	9.9	U	9.9	U	
Beryllium	UG/L	0.1	U	0.1	U	
Cadmium	UG/L	0.8	U	0.8	U	
Calcium	UG/L	18300		17700		3%
Chromium	UG/L	1.4	U	1.4	U	
Cobalt	UG/L	0.7	U	0.7	U	
Copper	UG/L	3.6	U	3.6	U	
Cyanide, Amenable	MG/L	0.01	U	0.01	U	
Cyanide, Total	MG/L	0.01	U	0.01	U	
Iron	UG/L	41.8	J	41.8	J	
Lead	UG/L	3	U	3	U	
Magnesium	UG/L	3660		3610		1%
Manganese	UG/L	5.3		. 3		55%
Mercury	UG/L	0.2	U	0.2	U	
Nickel	UG/L	2	U	2	U	
Potassium	UG/L	630		660		5%
Selenium	UG/L	3.1	J	1.8	J	53%
Silver	UG/L	3.7	U	3.7	U	
Sodium	UG/L	2180		2300		5%
Thallium	UG/L	5.3	U	5.3	U	
Vanadium	UG/L	1.4	UJ	1.4	UJ	
Zinc	UG/L	14.7	J	13.8	J	6%
Other						
Total Petroleum Hydrocarbons	MG/L	0.412	UJ	0.408	UJ	1%

#### NOTES:

\*Formula for Relative Percent Difference (RPD)

Source: p. 921 of http://www.epa.gov/region02/desa/hsw/clp.pdf

 $\mathbf{RPD} = |\operatorname{SR} - \operatorname{SDR}| \times 100$ 

SR = Sample Result of a particular analyte.

(1/2) (SR + SDR)

SDR = Sample Duplicate Result of a particular analyte.

Shading indigites RPD \$50%

U = not detected to the limit indicated

J = reported value is estimated

UJ = not detected to the estimated limit indicated

R = result is rejected

NA = Not Applicable, i.e. result rejected or missing result

Table C-1J
SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

SEAD-121C SBDRMO-16 SOIL DRMO-1074/DRMO-1080 2 10/27/2002 SA/DU PID-RI	Value (Q)		2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 0	2.7 U	2.7 UJ	2.7 U			2.7 U		2.7 0	2.7 0	2.7 U	0 / - 2	27 []	27 11	2.7 []	2.7 U	2.7 U	2.7 UJ	2.7 U	2.7 U	2.7 U	2.7 U	2.7 UJ	2.7 UJ	2.7.0		2.7 U		2.7 U		360 U	360 U	360 U
SEAD-121C SBDRMO-16 SOIL DRMO-1080 0 1027/2002 SA PID-RI	Value (Q)		2.8 U	2.8 U	2.8 U	2.8 ∪	2.88	0 0	2.8 ∪	2.8 UJ	2.8 U	2.8 U	2.8 UJ	2.8 U	2.8 0	2.8	2.8	2.8 0	2 80	2.8 U	2 8 2	2.8 U	2.8 U	2.8 U	2.8 UJ	2.8 U	2.8 U	2.8 U	2.8 U	2.8 UJ	7.8 0	7.9	2.8.11	2.8 C	2.8 U	2.8 U		360 U	360 U	360 U
SEAD-121C SBDRMO-16 SOIL DRMO-1074 0 10/27/2002 SA PID-RI	Value (Q)		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	9,4	2.6 U	2.6 UJ	2.6 U	2.6 U	2.6 UJ	2.6 U	2.6 U	7.0 0	2.6 0	2.6 U	2.5.0	2.6 U	2.6 11	2.6 U	2.6 U	2.6 U	2.6 UJ	2.6 U	2.6 U	2.6 U	2.6 U	2.6 UJ	2.0 0.7	0 6.7	26 U	2.6 U	2.6 U	2.6 U		360 U	360 0	360 U
SEAD-121C SB121C-4 SOLL EB229/EB020 0 3/9/198 SADU EBS	Value (Q)			II UI	5 =	5:	5 = =	3 3	3 3	7.8 J	11 UJ	11 03	i :	5 ::	3 3	3 = =	3 = =	48 1		11 U	II II	:	11 U	D II	11 U	11 U	11 UJ	11 03	:	3 :	3 -		3	11 UJ	11 UJ	11 UJ		72 U	72 11	72 0
SEAD-121C SB121C-4 SOIL EB229 0 0,2 3/9/1998 SA EBS	Value (Q)		11 UJ	11 UJ	11 UJ	n ::	3 5	3 3		10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10 Sept. 10	11 UJ	11 UJ	m ::	3 11	3 2	311		· · · · · · · · · · · · · · · · · · ·	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	11 UJ	50 11		11 UJ	11 UJ	11 UJ	11 UJ	11 03	11 03		3 :	5 -	5 2 2		11 UJ	3 II	11 UI		71 U	71 17	U 17
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	Units		UG/KG	UG/KG	UG/KG	UG/KG	00/80	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	OG/KG	10/80	10/80	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	08/50	0 0 0 0 0 1	10/80	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG		00/KG	UG/KG	UG/KG
Loc Sample Depth to Top of Sample Depth to Bottom of Sample Top of C	Parameter	Volatile Organic Compounds	I, I, I - Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-1 nchloroethane	1,1-Dichlomethane	1.2-Dichloroethane	1,2-Dichloroethene (total)	1,2-Dichloropropane	Acetone	Benzene	Bromodiciloromethane	Cotton director	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chlorocthane	Chloroform	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene	Ethyl benzene	Meta/Para Xylene	Methyl bromide	Methyl butyl ketone	Methyl chlonde	Methyl ethyl ketone	Methyl Booutyl Ketone	Ortho Yulene	Shine	Tetrachlomethene	Toluene	Total Xylenes	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Vinyl chloride	Semivolatile Organic Compounds	1,2,4-1 richlorobenzene 1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene

SENECA/PID Area/Report/Draft Final/Appendix/App-C-1B-H-SADU merge results.xls/121C SS SADU merge

# Table C-1J SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL SEAD-121C SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

		Facility SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Matrix	SOIL	SOIL	SBIZICS	SBIZICA	SBIZIC-4 SOIL	SBIZICA	SEDKMO-16 SOIL	SBDKMO-16	SBDRMO-16 SOIL
Orango Comple ID	Cample ID	EB231	EB014	EB231/EB014	EB020	EB229	EB229/EB020	DRMO-1074	DRMO-1080	DRMO-1074/DRMO-1080
Samuel Denth to Bottom of Samuel	top of Sample	0 0	000	0 0	000	200	0 0	2 6	2 0	٦ (
	Sample Date	3/9/1998	3/9/1998	3/9/1998	3/9/1998	3/9/1998	3/9/1998	10/27/2002	10/27/2002	10/27/2002
	OC Code	SA	SA	SAVDU	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	EBS	EBS	EBS	EBS	EBS	EBS	PID-RI	PID-RI	PID-RI
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (O)
2,4,5-Trichlorophenol	UG/KG	190 U	180 U	185 U	170 U	170 U	170 U	U 006	11 006	U 006
2,4,6-Trichlorophenol	UG/KG	78 U	73 U	76 U	72 U	71 U	72 U	360 U	360 U	360 U
2,4-Dichlorophenol	UG/KG	78 U	73 U	76 U	72 U	71 U	72 U	360 U	360 U	360 U
2,4-Dimethylphenol	UG/KG	78 U	73 U	76 U	72 U	71 U	72 U	360 U	360 U	360 U
2,4-Dinitrophenol	UG/KG	190 U	180 U	185 U	U 0/1	U 071	170 U	D 006	U 006	900 UJ
2,4-Dinitrotoluene	UG/KG	U 87	73 U	U 97	72 U	71 U	72 U	360 U	360 U	360 U
2,6-Dinitrotoluene	UG/KG	U 87	73 U	76 U	72 U	71 U	72 U	360 U	360 U	360 U
2-Chloronaphthalene	UG/KG	78 U	J 82	76 U	72 U	71 U	72 U	360 U	360 U	360 U
2-Chlorophenol	UG/KG	78 U	73 U	U 97	72 U	71 U	72 U	360 U	360 U	360 U
2-Methylnaphthalene	UG/KG		+	21.7 J	72 U	71 U	72 U	200 J	210 J	205 J
2-Methylphenol	UG/KG	U 87	73 U	D 92	72 U	71 U	72 U	360 U	360 U	360 U
2-Nitroamline	UG/KG	190 U	180 U	185 U	170 U	170 U	170 U	D 006	D 006	D 006
2-Nitrophenol	UG/KG	78 U	73 U	76 U	72 U	71 U	72 U	360 U	360 U	360 U
3 or 4-Methylphenol	UG/KG	1						360 U	360 U	360 U
3,3'-Dichlorobenzidine	UG/KG	78 U	73 U	16 U	72 U	71 U	72 U	360 U	360 UJ	360 UJ
3-Nitroaniline	UG/KG	190 U	180 U	185 U	170 U	170 U	170 U	D 006	D 006	D 006
4,6-Dinitro-2-methylphenol	UG/KG	190 U	180 U	185 U	170 U	170 U	170 U	D 006	D 006	D 006
4-Bromophenyl phenyl ether	UG/KG	78 U	73 U	76 U	72 C	71 U	72 U	360 U	360 U	360 U
4-Chloro-3-methylphenoi	UG/KG	78 U	73 U	76 U	72 U	71 U	72 U	360 U	360 U	360 U
4-Chloroaniline	UG/KG	78 U	73 U	76 U	72 U	71 U	72 U	360 U	360 U	360 U
4-Chlorophenyi phenyi ether	UG/KG	78 U	73 U	76 U	72 U	71 U	72 U	360 U	360 U	360 U
4-Methylphenol	UG/KG	78 U	73 U	76 U	72 U	71 0	72 U			
4-Nitroaniline	UG/KG	190 U	180 0	185 U	170 U	170 U	170 U	006 n	D 006	000
4-Nitrophenol	UG/KG	190 U	180 0	185 U	170 U	170 U	170 U	D 006	006	0.006
Accordingne	DANCE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY	1000	11.00	1 6.77	2 2 2	7:	72.0	001	720	165 J
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Benzo(a)pyrene	UGAG	11 65	1 15	48 1	25.5	71 17	11 27	4800 [	2700 1	1750 1
Benzo(b) fluoranthene	DOWE	1161	- 96	67 3	Section Albandalist		24.1	6 0099	3700 I	5150 1
Benzo(ghi)perylene	UGKG	39 U	423	41 J	72 U	71 U	72 U	1700 1	740 J	1220 J
Benzo(k) fluoranthene.	DAMO	39 U.	1 29	53 J	72 U	71 U	72 U	3000 J	1700 J	2350 J
Bis(2-Chloroethoxy)methane	UG/KG	U 87	U 87	U 97	72 U	71 U	72 U	360 U	. 360 U	360 U
Bis(2-Chloroethyl)ether	UG/KG	U 87	73 U	76 U	72 U	71 U	72 U	360 U	360 U	360 U
Bis(2-Chloroisopropyf)ether	UG/KG	78 U	73 U	U 97	72 U	71 U	72 U	360 U	360 U	360 U
Bis(2-Ethylhexyl)phthalate	UG/KG		0.25	25 J	9.3 J	13 J	11 J	97 J	74 J	86 J
Butylbenzylphthalate	UG/KG	78 U	73 U	76 U	72 U	71 U	72 U	360 U	360 UJ	360 UJ
Carbazole	OG/KG			28 ]	72.0	0 IZ	72 U	170 J	130 J	150 J
Chrysene	UG/KG	o with	106	65 5	8.8 J	12 J	10 ]	2000 J	2700 J	3850 J
Di-n-bulyiphthalate	DG/KG	∩ 8/	13 U	700	77 T. 77 T. 77 T. 77 T.	11.11	20 J	360 U	360 U	360 U
Diberry's Doubleste	DA/SC			23 3	72 0	21.0	0 2/	2000	360 UJ	360 UJ
Dibenzofiran	04/01 04/01	1.00		30 ]	22 22	0 1 2	72 U	250 J	1001	175 J
		ALIEN ALIEN MAN PARK			2 4		2		7 761	f 001

Table C-1J
SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

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SEAD-121C SB121C-1 SOIL EB231/EB014 0 0 3/9/1998 SA/DU EBS	Value (O) (Value (C) (Value (C) (C) (C) (C) (C) (C) (C) (C) (C) (C)
SEAD-121C SB121C-1 SOIL EB014 0 0 0,2 3/9/1998 SA EBS	Appendix (Appendix Appendix Ap
Facility SBAD-121C ntion ID SB121C-1 Matrix SOIL Sample De 231 Sample 0 Sample 0 Sample 0 Sample SA stigation EBS	Nature (Q)  28  28  28  28  38  38  38  38  39  39  39  39  39  3
Facility & Location ID Matrix Sample Depth to Top of Sample Depth to Dop the Depth to Power Sample Cample Cample Cample Cample Cample Cample Cample Cample Date QC Code (CC Code Investigation	UMCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGWCG  UGW
Facility  Location ID  Matrix  Matrix  Matrix  Sample Depth to Top of Sample  Sample Depth to Bottom of Sample  Sample Depth to Bottom of Sample  Sample Depth to Bottom of Sample  Sample Depth to Bottom of Sample  Matrix	Diethyl phhalate Diethyl phhalate Diethyl phhalate Diethyl phhalate Fluoranhene Hexachlorobeutzen Hexachloropensadiene Hexachloropensadiene Hexachloropensadiene Hexachlorostloane Hexachlorostloane Hexachlorostloane Hexachlorostloane Hexachlorostloane Hexachlorostloane Nivrosodiprenylamine Nivrosodiprenylamine Nivrosodiprenylamine Nivrosodiprenylamine Nivrosodiprenylamine Nivrosodiprenylamine Nivrosodiprenylamine Nivrosodiprenylamine Nivrosodiprenylamine Nivrosodiprenylamine Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol Pennachlorophenol P

SENECAVID ArealReport/Draft Final/Appendix/App-C-1B-H-SADU merge results.xls/121C SS SADU merge

# Table C-1J SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL SEAD-121C SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility	Facility SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID	SB121C-1	SB121C-1	SB121C-1	SB121C-4	SB121C-4	SB121C-4	SBDRMO-16	SBDRMO-16	SBDRMO-16
	Comple I	SOIL	SOIL	SOIL	TOOL	SOIL	TIOS	TOS ONGO	TOS COMPA	DDMO-1074/DDMO-1080
Sample Der	Sample Depth to Too of Sample	0	0	0	07077	0	0	0	0	0
Sample Depth	to Bottom of Sample	0.2	0.2	0.2	0.2	0.2	0.2	2	2	2
	Sample Date		3/9/1998	3/9/1998	3/9/1998	3/9/1998	3/9/1998	10/27/2002	10/27/2002	10/27/2002
	OC Code	SA	SA	SA/DU	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation		EBS	EBS	EBS	EBS	EBS	PID-RI	PID-RI	PID-RI
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1221	UG/KG	U 67	74 UJ	IU 77	73 U	72 U	U 82	U 81	18 U	U 81
Aroclor-1232	UG/KG	39 U	37 UJ	38 UJ	36 U	35 U	36 U	18 UJ	18 UJ	18 UJ
Aroclor-1242	UG/KG	39 U	37 UJ	38 UJ	36 U	35 U	36 U	18 UJ	18 UJ	18 UJ
Aroclor-1248	UG/KG	39 U	37 UJ	38 UJ	36 U	35 U	36 U	18 U	18 U	18 U
Aroclor-1254	UG/KG	39 U	37 UJ	38 UJ	36 U	35 U	36 U	18 UJ	18 UJ	18 UJ
Aroclor-1260	UG/KG	1873 1 100	14 (B) 1	25 J	36 U	35 U	36 U	22 J	35 3	29 J
Metals and Cyanide										
Aluminum	MG/KG	12800	14500	13650	14400	13000	13700	3100	3760	3430
Antimony	MG/KG	1.1 J	19.3 J	10.2 J	1.7.1	0.81 J	1.3 J		一、中で しょう	0.74 J
Arsenic	MG/KG	5.5	6.1	5.8	\$	3.7	4.4	4.00	5.5	5.2
Barium	MG/KG	64.9	1600	832	999	9.69	78.1	42	45.6	4
Beryllium	MG/KG		9.0	6.6	0.57	0.49	0.53	0.26 J	0.32 J	0.29 J
Cadmium	MG/KG	Ì		1.4 5	0.07 U	0.05 U	0.06 U	0.56	0.49 J	0.53 J
Calcium	MG/KG		31300	16940	17200	25500	21350	199000	157000	178000
Chromium	MG/KG	20.9	32.9	26.9	27.8	22.6	25.2	13	13.8	13
Cobalt	MG/KG	12.8	16.5	14.7	17.6	12.5	15.1	5,9	6.1	0.9
Copper	MG/KG	19.7 J	0692	3855 J	39.1 J	33 J	36 J	28.8	34.3	31.6
Cyanide	MG/KG	0.63 U	0.59 U	0.61 U	0.56 U	0.61 U	0.59 U			
Cyanide, Amenable	MG/KG							0.54 U	0.55 U	0.55 U
Cyanide, Total	MG/KG							0.542 U	0.545 U	0.544 U
Iron	MG/KG	25700	41100	33400	32000	25900	28950	8710	10500	9605
Lead	MG/KG	11.8 J	5280	2646 J	27.1	23.5 J	25.3 J	89.3	94.5	91.9
Magnesium	MG/KG	4590	6820	5025	0869	5630	. 6305	17900	13000	15450
Manganese	MG/KG	865	612	909	413	359	386	425	390	408
Mercury	MG/KG	0.06 U	0.05 U	0.06 U	0.04 U	0.04 U	0.04 U	0.07	0.07	0.07
Nickel	MG/KG	40.5	54.2 J	47.4 J	61.8	49.3	55.6	19.4 J	22.1 J	20.8 J
Potassium	MG/KG	1600	1840	1720	1980	1450	1715	934 J	882 1	f 806
Selenium	MG/KG	1.1 U	0.92 UJ	1.0 UI	0.1	0.8 U	O 6'0	0.46 U	0,45 U	0.46 U
Silver	MG/KG	0.48 U	0.41 U	0.45 U	0.46 U	0.36 U	0.41 U	0.29 U	0.29 U	0.29 U
Sodium	MG/KG		ij	338 1	N 99	110	88 1	276	232	254
Thallium	MG/KG	1.4 UJ	1.2 U	1.3 UJ	1.4 J	0.55 UJ	0.98	0.34 U	0,33 U	0.34 U
Vanadium	MG/KG	20.8	19.5 J	20.2 J	21	17	19	11 J	10.7 J	11.3
Zinc	MG/KG	80.3	1280	089	153	196	175	130 J	135 J	133 J
Other										
Total Organic Carbon								5200	5300	5250
Total Petroleum Hydrocarbons	s MG/KG				_			2800 J	6200 J	4500 J
NOTES										

NOTES:
Shaded cells indicate a detect/non-detect pair.
Concernations reported as not detected in the shaded pair, as indicated by "U" or "U" detalled qualifiers, are presented at 1.7 the value reported by the aboratory. The modified value (i.e., 1.2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the deplicate, as indicated by "U" or "U" fait aquilifiers, the average of the two reported detection limits at full value is reported as the first value.

SENECAIPID ArealReport\Draft Final\Appendix\App-C-1B-H-SADU merge results.xls\121C SS SADU merge

Table C-1J
SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

SEAD-121C SSDRMO-7 SOIL DRMO-1002/DRMO-1003 0.2 1072/2002 SA/DU PID-RJ	Value (Q)	10 111	3.0 UJ	3.0 UJ	3.0 UJ	3.0 0.5	6000	3.0 UJ	3.1 UJ	3.0 0.5	3.0 111	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UI	3.0 UJ	3.0 0.0	3.0 U.S	3.0 UJ	3.0 UJ	3.0 UI	3.0 0.0	3.0 UJ	3.0 UJ	2.4 UJ	3.0 UJ	3.0 UJ	3.0 O.	5000	3.0 UJ	3.0 UJ	3.0 U3	3.0 UJ	380 U	380 U	380 U	380 U
SEAD-121C SSDRMO-7 SOIL DRMO-1003 0 0.2 10724/2002 SA PID-RI	Value (Q)	11 6 6	2.9 U	2.9 U	2.9 U	2.9 U	0 6:3			2.9 U	2.9.0	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 0	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 UI	2.9 U	1.7 U	2.9 U	2.9 U	2.9 0		2.9 U	2.9 U	2.9 U	2.9 U	380 U	380 U	380 U	380 0
SEAD-121C SSDRMO-7 SOIL DRMO-1002 0 0.2 10/24/2002 SA PID-RI	Value (Q)	3.1.111		3.1 UJ	3.1 UJ	3.1 03	5			3.1 00				3.1 UJ	3.1 UJ	3.1 0	2.1.5	3.18		3.1 UJ		3.1.0				3.1 UJ	3.1 03	5.1 00	3	3.1 UJ	3.1 UJ	3.1	3.1 UJ	380 U	380 U	380 U	380 0
SBAD-121C SBDRMO-6 SOIL DRMO-1043/DRMO-1050 0 10/25/2002 SA/DU PID-RJ	Value (Q)	2.7 111	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UI	3	2.7 UJ	3.6 UJ	2.7 03	27 01	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	27.03	2.7 UJ	1.0 J	2.7 J	2.7 UJ	2.7 0.1	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 0	3	2.7 UJ	2.7 UJ	2.7 UJ	2.7 03	345 U	345 U	345 U	345 U
SEAD-121C SBDRMO-6 SOIL DRMO-1050 0 10/25/2002 SA PID-RI	Value (Q)	11 2 6	2.7 U	2.7 U	2.7 U	2.7 U	3	2.7 U	4.6 U	2.7 0	2.7.0	2.7 U	2.7 UJ	2.7 U	2.7 U	2.7 U	27.1	2.7 U	1011011	一年 本本の 中の	2.7 UJ	2.7 0.1	2.7 UJ	2.7 U	2.7 U	2.7 U	2.7 U	2.7 0	ì	2.7 U	2.7 U	2.7 U	2.7 0	350 U	350 U	350 U	350 U
SEAD-121C SBDRMO-6 SOIL DRMO-1043 0 10/25/2002 SA PID-RI	Value (Q)	111 9 6	2.6 UJ	2.6 UJ	2.6 UJ	2.6 0.1	50.05	2.6 UJ	2.6 UJ	2.6 0.5	2.6 UI	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.8 0.2	2.6 UJ	O. Carle	Section and	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 03		2.6 UJ	2.6 UJ	2.6 UJ	2.6 U)	340 U	340 U	340 U	340 C
Facility Location ID Matrix Sample ID Top of Sample Sample Date QC Code [Investigation	Units	110/80	UG/KG	UG/KG	UG/KG	06/80	UG/KG	UG/KG	UG/KG	0 K C L	DW/CD	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	10/80	UG/KG	UG/KG	UG/KG	UG/KG	DA/CII	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	2800	UG/KG	UG/KG	UG/KG	UG/KG	DG/RG		UG/KG	UG/KG	06/86
Facility Location ID Matrix Matrix Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample	Parameter	Volatile Organic Compounds	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichlomethere	1,2-Dichloroethene (total)	1,2-Dichloropropane	Acetone	Brownelland	Bromoform	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Cis-12-Dichlomethens	Cis-1,3-Dichloropropene	Ethyl benzene	Meta/Para Xylene	Methyl bromide	Methyl chloride	Methyl ethyl ketone	Methyl isobutyl ketone	Methylene chloride	Ortho Xylene	Styrene	Tolinge	Total Xylenes	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Vinyl chloride Semicologie Organic Compounds	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Licnorobenzene

SENECAIPID ArealReport\Draft Final\Appendix\App-C-1B-H-SADU merge results.xls\121C SS SADU merge

# Table C-1J SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL SEAD-121C SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Hamiling	SEAD-121C	SEAD-1210	SEAP. 1210	CEAD 1210	CICL CANO	טוכו עואם
	Location ID	SBDRMO-6	SBDRMO-6	SBDRMO-6	SSDRMO-7	SSDRMO-7	SSDRMO-7
	Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sample ID	DRMO-1043	DRMO-1050	DRMO-1043/DRMO-1050	DRMO-1002	DRMO-1003	DRMO-1002/DRMO-1003
Sample Depth t	Sample Depth to Top of Sample	0	0	0	0	0	0
Sample Depth to Bottom of Sample	ottom of Sample	2	2	2	0.2	0.2	0.2
	Sample Date	10/25/2002	10/25/2002	10/25/2002	10/24/2002	10/24/2002	10/24/2002
	QC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Units	Value (O)	Value (O)	(O) Alue	Value (O)	Value (O)	Value (O)
2 4 5. Trichlormhenol	TIGARG	870 11	880 11	875 11	11 090	11 050	055 11
2 4 6. Trichlormhenol	TIGKG	340 11	350 11	345 11	380 11	180 11	11 086
2.4-Dichlomohenol	13G/KG	340 11	350 11	345 11	180 11	180 11	
2 4 Dimetrophenol	0201	240 11	150 11	345 11	1 000	11 000	
2 4-Dinitrohenol	04/01	870 0	880 111	243 0	380 0	980 0	380 0
2 d Dinitrotalisme	02/011	340 11	11 055	17 27	1000	11 000	0 000
2 6 Dinitroteliume	02/01	340 11	150 11	345 11	380 0	360 01	380 0
2-Chlomanhthalene	TIG/KG	340 11	350 11	345 11	380 0	380 0	380 0
2 Chlomohanol	02/01/	340 11	11 035	0 545	2000	11 000	280
2-Methylnorhthalene	110/01	340 11	350 11	345 11	140 0	100	380 0
2 Machinehamal	02/01	240	11 056	245 11	1100	1100	180
2 Viensylphenol	02/00	340 0	330 0	343 U	380 0	380 0	380 0
2 Ville Simile	02/00	0000	0 000	8/3 M	0 006	0 006	0 666
Z-Nirophenol	DG/KG	340 U	350 0	345 0	380 0	380 0	380 0
3 or 4-Methylphenol	DG/KG	340 U	350 U	345 U	380 U	380 U	380 U
3,3'-Dichlorobenzidine	UG/KG	340 UJ	350 UJ	345 UJ	380 UJ	380 UJ	380 UJ
3-Nitroaniline	UG/KG	N 078	880 U	875 U	D 096	950 U	955 U
4,6-Dinitro-2-methylphenol	UG/KG	870 UJ	880 UJ	875 UJ	D 096	950 U	955 U
4-Bromophenyl phenyl ether	UG/KG	340 U	350 U	345 U	380 U	380 U	380 U
4-Chloro-3-methylphenol	UG/KG	340 U	350 U	345 U	380 U	380 U	380 U
4-Chloroaniline	UG/KG	340 U	350 U		380 U	380 U	
4-Chlorophenyl phenyl ether	UG/KG	340 U	350 U	345 U	380 U	380 U	380 U
4-Methylphenol	UG/KG						
4-Nitroaniline	UG/KG	870 U	880 U	875 U	O 096	056 U	955 U
4-Nitrophenol	UG/KG	870 UJ	088 n	875 UJ	O 096	950 U	955 U
Acenaphthene	UG/KG	340 U	350 U	345 U	310 J	190 J	250 J
Acenaphthylene	UG/KG	340 U	350 U	345 U	1000	810	905
Anthracene	UG/KG	340 U	350 U	345 U	1600	850	1225
Benzo(a)anthracene	UG/KG		350 UJ	345 UJ	6700 J	3900 J	5300 J
Benzo(a)pyrene	UG/KG	61	350 UJ	345 UJ	7600 J	2000 J	6300 J
Benzo(b)fluoranthene	UG/KG			113 J	11000 J	f 0099	8800 J
Benzo(ghi)perylene	UG/KG	110 J	57 J	84 J	3800 J	2500 J	3150 J
Benzo(k)fluoranthene	UG/KG	340 UJ	350 UJ	345 UJ	4900 J	3100 J	4000 J
Bis(2-Chloroethoxy)methane	UG/KG	340 U	350 U	345 U	380 U	380 ∪	380 U
Bis(2-Chloroethyl)ether	UG/KG	340 U	350 U	345 U	380 U	380 ∪	380 U
Bis(2-Chloroisopropyl)ether	UG/KG	340 U	350 U	345 U	380 U	380 U	380 U
Bis(2-Ethylhexyl)phthalate	UG/KG	340 UJ	350 UJ	345 UJ	200 J	97 J	149 J
Butylbenzylphthalate	UG/KG	340 UJ	350 UJ	345 UJ	380 UJ	380 UJ	380 UJ
Carbazole	UG/KG	340 U	350 U	345 U	910	550	730
Chrysene	UG/KG	340 UJ	350 UJ	345 UJ	6800 J	4300 J	\$550 J
Di-n-butylphthalate	UG/KG	340 U	350 U	345 U	10.001		132 J
Di-n-octyiphthalate	UG/KG	340 UJ	350 UJ	345 UJ	380 UJ	380 UJ	380 UJ
Dibenz(a,h)anthracene	UG/KG		350 UJ	345 UJ	570 3	370 J	470 J
Dibenzofuran	UG/KG	340 U	350 U	345 U	330 J	160 J	245 J

Table C-1J
SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

SEAD-121C SSDRMG-7 SOIL DRMO-1003 0 10/24/2002 SA/DU FID-RI	Value (Q) 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 11900 U 1190	2.0 UJ 20 U 20 U
SEAD-121C SSDRMO-7 SOIL DRMO-1003 0 0.2 10/24/2002 SA PID-RI	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) 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) 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) 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) 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) 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) Value	U 6.1 U 61 U 61
SEAD-121C SSDRMO-7 SOIL DRMO-1002 0 0.2 1024/2002 SA PID-RI	Value (Q)  15000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  10000  100000  10000  10000  10000  10000  10000  10000  10000  10000  1000	20 U 20 U 20 U
SEAD-121C SBDRMO-6 SOIL DRMO-1043/DRMO-1050 0 10725/2002 SA/DU PID-RI	7 April 1	1.8 UJ 18 U 18 U
SEAD-121C SBDRMO-6 SOIL DRMO-1050 0 10/25/2002 PID-RI	Value (O)  1 350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350 U  350	1.8 U 18 U 18 U
SEAD-121C SBDRMO-6 SOIL DRMO-1043 0 10.Z5/2002 SA PID-RI	Value (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 140 to (O) 1	1.8 UJ 18 U 18 U
Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bortom of Sample Sample Depth to Bortom of Sample Sample Dete Sample Date Investigation	Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Units   Unit	UG/KG UG/KG UG/KG
Sample Depth to	Parameter Dienkyl phthalate Dienkyl phthalate Fluorandener Fluorandener Hexachlorobundener Hexachlorobundener Hexachlorobundener Hexachloropundener Hexachloropundener Hexachloropundener Hexachloropundener Hexachloropundener Hexachloropundener Hofferer N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Nitrosodipunghamine N. Altarian Peraticles/CBs 4,4-DDE A,4-DDE A,4-DDE A,4-DDE A,4-DDE Bertalder Peraticlorane Bertalder Dielderin Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan Endorer Gamma-Chlordane Gamma-Chlordane Heptachlor epoxide	Methoxychlor Toxaphene Aroclor-1016

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Table C-1J
SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL
SEAD-121C

## SEAD-121C and SEAD-1211 RI REPORT Seneca Army Depot Activity

	Facility Location ID	SEAD-121C	SEAD-121C SEDRMO-6	SEAD-121C SBDRMO-6	SEAD-121C SSDRMO-7	SEAD-121C	SEAD-121C SSDRMO-7
1	Мастіх	SOIL	SOIL	SOIL	SOIL	SOIL	SOL
Sample Danis to Ton of Sample	Sample ID	DRMO-1043	DRMO-1050	DRMO-1043/DRMO-1050	DRMO-1002	DRMO-1003	DRMO-1002/DRMO-1003
Sample Depth to Bottom of Sample	of Sample	2 0	2 6	2 7	0.5	0.2	0.2
S	Sarriple Date	10/25/2002	10/25/2002	10/25/2002	10/24/2002	10/24/2002	10/24/2002
	OC Code	SA	SA	SA/DU	SA	SA	SA/DU
ln	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Units	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)
Aroctor-1221	UG/KG	18 U	18 U	18 U	20 U	D 61	20 U
Aroclor-1232	UG/KG	18 U	18 U	18 U	20 U	U 61	20 U
Aroclor-1242	UG/KG	18 U	18 U	18 U	20 U	U 61	20 U
Aroclor-1248	UG/KG	U 8 I	18 U	18 U	20 C	U 61	20 U
Aroclor-1254	UG/KG	U 8 I	18 U	18 U	20 UJ	ID 61	20 UJ
Aroclar-1260	UG/KG	18 U	18 U	18 U	20 UJ	I) 61	20 UJ
Metals and Cyanide							
Aluminum	MG/KG	8030	11100	9565	7420	8280	7850
Antimony	MG/KG		1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	I 66'0	3.2 J	1.4 3	2.3 J
Arsenic	MG/KG	3.7	4.7	4.2	6.2	5.4	5.8
Barium	MG/KG	37.9 J	F 4.99	52.3 3	80.9 J	84.5 J	82.7 J
Beryllium	MG/KG	0.44 J	9.0	0.52 J	0.5	0.53	0.5
Cadmium	MG/KG	の 東京 からり 中央をする	0.54800	0.1 J	0.57	0.44	0.51
Calcium	MG/KG	36500 J	41400 J	38950 J	63600 J	61200 J	62400 3
Chromium	MG/KG	38.8	38.6	38.7	17.6 J	18.8 J	18.2 J
Cobalt	MG/KG	9.5	14.2	12	8.6 R	8.7 R	
Copper	MG/KG	(*)	39.6 J	37.1 J	39.8 J	32.8 J	36.3 J
Cyanide	MG/KG						
Cyanide, Amenable	MG/KG	0.52 U	0.53 U	0.53 U	0.58 U	U 257 U	0.58 U
Cyanide, Total	MG/KG	0.525 U	0.535 U	0.53 U	0.582 U	0.575 U	U 6/5/0
Iron	MG/KG	18300	24200	21250	18500	18700	18600
Lead	MG/KG	6.99	56.3	61.6	117	93.8	105
Magnesium	MG/KG	ν,	6940	6010	12700	6180	9440
Manganese	MG/KG		376	362	480	553	517
Метситу	MG/KG		0.03	0.04	0.07	90.0	0.07
Nickel	MG/KG		44.4 ]	38.1 J	22.4 J	23.5 J	23.0 J
Potassium	MG/KG		1770 J	1495 J	862 J	712 J	787 J
Selenium	MG/KG		0.45 U	0.445 U	0.49 U	0.47 U	0.48 U
Silver	MG/KG	:	0.29 U	0.29 U	. 0.31 U	0.3 U	0.3 U
Sodium	MG/KG	223	772	250	161	194	193
Thallium	MG/KG	0.33 U	0,33 U	0,33 U	0.36 U	0.35 U	0.36 U
Vanadium	MG/KG	12.9	17.9	15.4	15.3 J	14.4 ]	14.9 J
Zinc	MG/KG	123	196	160	107 J	₽ 8.96	102 J
Other	0.000				0000	0000	0000
Total Organic Carbon	MG/KG	Ý	8500	0066	0086	0000	0066
I otal Petroleum Hydrocarbons	MG/KG	47 O	43 03	43 00	190	20	110 J

NOTES:
Shaded cells indicate a detect/non-detect pair.
Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "U" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

		00.0.00	0212 1010	0E 4 D 121 C
		SEAD-121C	SEAD-121C	SEAD-121C
		SDDRMO-8	SDDRMO-8	SDDRMO-8
		DITCHSOIL	DITCHSOIL	DITCHSOIL
		DRMO-4005	DRMO-4008	DRMO-4008/DRMO-4005
Sample Depth to 3		0	0	0
Sample Depth to Bott		2	2	2
	Sample Date	11/5/2002	11/5/2002	11/5/2002
	QC Code	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
		1	1	I
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds				
1,1,1-Trichloroethane	UG/KG	6.6 UJ	11 UJ	8.8 UJ
1,1,2,2-Tetrachloroethane	UG/KG	6.6 UJ	11 UJ	8.8 UJ
1,1,2-Trichloroethane	UG/KG	6.6 UJ	11 UJ	8.8 UJ
1,1-Dichloroethane	UG/KG	6.6 UJ	11 UJ	8.8 UJ
1,1-Dichloroethene	UG/KG	6.6 UJ	11 UJ	8.8 UJ
1,2-Dichloroethane	UG/KG	6.6 UJ	11 UJ	8.8 UJ <sub>.</sub>
1,2-Dichloropropane	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Acetone .	UG/KG	21 J	72 J	47 J
Benzene	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Bromodichloromethane	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Bromoform	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Carbon disulfide		a Pragation		5.0 J
Carbon tetrachloride	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Chlorobenzene	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Chlorodibromomethane	UG/KG		11 UJ	8.8 UJ
Chloroethane	UG/KG		11 UJ	8.8 UJ
Chloroform	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Cis-1,2-Dichloroethene	UG/KG		11 UJ	8:8 UJ
Cis-1,3-Dichloropropene	UG/KG		11 UJ	8.8 UJ
Ethyl benzene	UG/KG		11 UJ	8.8 UJ
Meta/Para Xylene	UG/KG		11 UJ	8.8 UJ
	UG/KG		11 UJ	8.8 UJ
Methyl bromide	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Methyl butyl ketone	UG/KG		11 UJ	8.8 UJ
Methyl chloride			11 UJ	8.8 UJ
Methyl ethyl ketone	UG/KG		11 UJ	8.8 UJ
Methyl isobutyl ketone	UG/KG			
Methylene chloride	UG/KG		11 UJ	8.8 UJ
Ortho Xylene	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Styrene	UG/KG		11 UJ	8.8 UJ
Tetrachloroethene	UG/KG		11 UJ	8.8 UJ
Toluene	UG/KG		11 UJ	8.8 UJ
Trans-1,2-Dichloroethene	UG/KG		11 UJ	8.8 UJ
Trans-1,3-Dichloropropene	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Trichloroethene	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Vinyl chloride	UG/KG	6.6 UJ	11 UJ	8.8 UJ
Semivolatile Organic Compo				
1,2,4-Trichlorobenzene	UG/KG		1100 UJ	875 UJ
1,2-Dichlorobenzene	UG/KG		1100 UJ	875 UJ
1,3-Dichlorobenzene	UG/KG		1100 UJ	875 UJ
1,4-Dichlorobenzene	UG/KG		1100 UJ	875 UJ
2,4,5-Trichlorophenol	UG/KG	1600 UJ	2600 UJ	2100 UJ
2,4,6-Trichlorophenol	UG/KG	650 UJ	1100 UJ	875 UJ
2,4-Dichlorophenol	UG/KG	650 UJ	1100 UJ	875 UJ
2,4-Dimethylphenol	UG/KG	650 UJ	1100 UJ	875 UJ
2,4-Dinitrophenol	UG/KG	1600 UJ	2600 UJ	2100 UJ
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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID	SDDRMO-8	SDDRMO-8	SDDRMO-8
	Matrix	DITCHSOIL	DITCHSOIL	DITCHSOIL
		DRMO-4005	DRMO-4008	DRMO-4008/DRMO-4005
Sample Depth to	Top of Sample	0	0	0
Sample Depth to Bot		2	2	2
•	Sample Date	11/5/2002	11/5/2002	11/5/2002
	QC Code	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
		1	1	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
2,4-Dinitrotoluene	UG/KG	650 UJ	1100 UJ	875 UJ
2,6-Dinitrotoluene	UG/KG	650 UJ	1100 UJ	875 UJ
2-Chloronaphthalene	UG/KG	650 UJ	1100 UJ	875 UJ
2-Chlorophenol	UG/KG	650 UJ	1100 UJ	875 UJ
2-Methylnaphthalene	UG/KG	650 UJ	1100 UJ	875 UJ
2-Methylphenol	UG/KG	650 UJ	1100 UJ	875 UJ
2-Nitroaniline	UG/KG	1600 UJ	2600 UJ	2100 UJ
2-Nitrophenol	UG/KG	650 UJ	1100 UJ	875 UJ
3 or 4-Methylphenol	UG/KG	650 UJ	1100 UJ	875 UJ
3,3'-Dichlorobenzidine	UG/KG	650 UJ	1100 UJ	875 UJ
3-Nitroaniline	UG/KG	1600 UJ	2600 UJ	2100 UJ
4,6-Dinitro-2-methylphenol	UG/KG	1600 UJ	2600 UJ	2100 UJ
4-Bromophenyl phenyl ether	UG/KG	650 UJ	1100 UJ	875 UJ
4-Chloro-3-methylphenol	UG/KG	650 UJ	1100 UJ	875 UJ
4-Chloroaniline	UG/KG	650 UJ	1100 UJ	875 UJ
4-Chlorophenyl phenyl ether	UG/KG	650 UJ	1100 UJ	875 UJ
4-Nitroaniline	UG/KG	1600 UJ	2600 UJ	2100 UJ
4-Nitrophenol	UG/KG	1600 UJ	2600 UJ	2100 UJ
Acenaphthene	UG/KG	650 UJ	1100 UJ	875 UJ
Acenaphthylene	UG/KG	650 UJ	1100 UJ	875 UJ
Anthracene	UG/KG	650 UJ	1100 UJ	875 UJ
Benzo(a)anthracene	UG/KG	650 UJ	1100 UJ	875 UJ
Benzo(a)pyrene	UG/KG	650 UJ	1100 UJ	875 UJ
Benzo(b)fluoranthene	UG/KG	650 UJ	1100 UJ	875 UJ
Benzo(ghi)perylene	UG/KG	650 UJ	1100 UJ	875 UJ
Benzo(k)fluoranthene	UG/KG		1100 UJ	875 UJ
Bis(2-Chloroethoxy)methane	UG/KG		1100 UJ	875 UJ
Bis(2-Chloroethyl)ether	UG/KG		1100 UJ	875 UJ
Bis(2-Chloroisopropyl)ether	UG/KG		1100 UJ	875 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG		1100 UJ	875 UJ
Butylbenzylphthalate	UG/KG		1100 UJ	875 UJ
Carbazole	UG/KG		1100 UJ	875 UJ
Chrysene	UG/KG		1100 UJ	875 UJ
Di-n-butylphthalate	UG/KG		1100 UJ	875 UJ
Di-n-octylphthalate	UG/KG		1100 UJ	875 UJ
Dibenz(a,h)anthracene	UG/KG		1100 UJ	875 UJ
Dibenzofuran	UG/KG		1100 UJ	875 UJ
Diethyl phthalate	UG/KG		1100 UJ	875 UJ
Dimethylphthalate	UG/KG		1100 UJ	875 UJ
Fluoranthene	UG/KG		1100 UJ	875 UJ
Fluorene	UG/KG		1100 UJ	875 UJ
Hexachlorobenzene	UG/KG		1100 UJ	875 UJ
Hexachlorobutadiene	UG/KG		1100 UJ	875 UJ
Hexachlorocyclopentadiene	UG/KG		1100 UJ	875 UJ
Hexachloroethane	UG/KG		1100 UJ	875 UJ
Indeno(1,2,3-cd)pyrene	UG/KG		1100 UJ	875 UJ
nideno(1,2,3-cu)pyrene	JOING	050 03	1100 03	3,5 03

### SEAD-121C and SEAD-121I RI REPORT

### Seneca Army Depot Activity

		SEAD-121C		SEAD-121C		SEAD-121C
	Location ID	SDDRMO-8		SDDRMO-8		SDDRMO-8
	Matrix	DITCHSOIL		DITCHSOIL		DITCHSOIL
	Sample ID	DRMO-4005		DRMO-4008		DRMO-4008/DRMO-4005
Sample Depth	to Top of Sample	0		0		0
Sample Depth to E		2		. 2		2
	Sample Date	11/5/2002		11/5/2002		11/5/2002
	QC Code	SA		SA		SA/DU
	Investigation	PID-RI		PID-RI		PID-RI
		1		1		1
Parameter	Units	Value	(O)	Value	(O)	Value (Q)
Isophorone	UG/KG			1100		875 UJ
N-Nitrosodiphenylamine	UG/KG	650		1100		875 UJ
N-Nitrosodipropylamine	UG/KG	650		1100		875 UJ
Naphthalene	UG/KG	650		1100		875 UJ
Nitrobenzene	UG/KG	650		1100		875 UJ
	UG/KG	1600		2600		2100 UJ
Pentachlorophenol	UG/KG	650		1100		875 UJ
Phenanthrene				1100		875 UJ
Phenol	UG/KG	650				
Pyrene	UG/KG	650	OJ	1100	OJ	875 ŲJ
Pesticides/PCBs		0.4		0.65	* * * *	0.5.111
4,4'-DDD	UG/KG	0.4		0.65		0.5 UJ
4,4'-DDE	UG/KG			0.65		0.5 UJ
4,4'-DDT	UG/KG	0.4		0.65		0.5 UJ
Aldrin	UG/KG	0.2		0.32		0.3 UJ
Alpha-BHC	UG/KG	2.4		3.9		3.2 UJ
Alpha-Chlordane	UG/KG	0.6	UJ	0.97		0.8 UJ
Beta-BHC	UG/KG	0.2	UJ	0.32	UJ	0.3 UJ
Chlordane	UG/KG	3.8	UJ	6.1		5.0 UJ
Delta-BHC	UG/KG	0.4	UJ	0.65	UJ	, 0.5 UJ
Dieldrin	UG/KG	0.2	UJ	0.32	UJ	0.3 UJ
Endosulfan I	UG/KG	1	UJ	1.6	UJ	1 UJ
Endosulfan II	UG/KG	0.6	UJ	0.97	UJ	0.8 UJ
Endosulfan sulfate	UG/KG	1.2	UJ	1.9	UJ	1.6 UJ
Endrin	UG/KG	1.6	UJ	2.6	UJ	2.1 UJ
Endrin aldehyde	UG/KG	1.6	UJ	2.6	UJ	2.1 UJ
Endrin ketone	UG/KG		UJ	0.32	UJ	0.3 UJ
Gamma-BHC/Lindane	UG/KG			0.32		0.3 UJ
Gamma-Chlordane	UG/KG			0.97		0.8 UJ
Heptachlor	UG/KG		UJ	3.2		3 UJ
Heptachlor epoxide	UG/KG			0.97		0.8 UJ
Methoxychlor	UG/KG			0.32		0.3 UJ
Toxaphene	UG/KG			10		8.2 UJ
Aroclor-1016	UG/KG	10		17		13.5 UJ
Aroclor-1010 Aroclor-1221	UG/KG			4.2		3.4 UJ
Aroclor-1221 Aroclor-1232				26		21 UJ
	UG/KG				UJ	6 UJ
Aroclor-1242	UG/KG					15 UJ
Aroclor-1248	UG/KG			18 34		28 UJ
Aroclor-1254	UG/KG					
Aroclor-1260	UG/KG	3.9	ΟJ	6.4	ΟJ	5.2 UJ
Metals and Cyanide	10000	10100		1.4700	T	12400 7
Aluminum	MG/KG		* * *	14700		12400 J
Antimony	MG/KG		ΟĴ	2.9		2.4 UJ
Arsenic	MG/KG			5.9		4.0 J
Barium	MG/KG		J	122		97.1 J
Beryllium	MG/KG			1		0.8 J
Cadmium	MG/KG		U	0.39		0.32 UJ
Calcium	MG/KG	24000		34500	J	29250 Ј

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID	SDDRMO-8	SDDRMO-8	SDDRMO-8
	Matrix	DITCHSOIL	DITCHSOIL	DITCHSOIL
	Sample ID	DRMO-4005	DRMO-4008	DRMO-4008/DRMO-4005
Sample Depth to	Fop of Sample	0	0	0
Sample Depth to Bott	om of Sample	2	2	2
	Sample Date	11/5/2002	11/5/2002	11/5/2002
	QC Code	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
		1	1	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
Chromium	MG/KG	22.6	32.7 J	27.7 J
Cobalt	MG/KG	11.4	20.2 J	15.8 Ј
Copper	MG/KG	34	50.6 J	42 J
Cyanide, Amenable	MG/KG	1.1 U	1.59 UJ	1.3 UJ
Cyanide, Total	MG/KG	1.1 U	1.59 UJ	1.3 UJ
Iron	MG/KG	20500	34100 J	27300 Ј
Lead	MG/KG	58.3	85.2 J	71.8 J
Magnesium	MG/KG	5150	7310 J	6230 J
Manganese	MG/KG	471	885 J	678 J
Mercury	MG/KG	0.11	0.18 J	0.15 J
Nickel	MG/KG	30.9	45.3 J	38.1 J
Potassium	MG/KG	905	1270 J	1088 J
Selenium	MG/KG	0.82 U	1.4 UJ	1.1 UJ
Silver	MG/KG	0.65	1 J	0.8 J
Sodium	MG/KG	388	656 J	522 J
Thallium	MG/KG	0.61 U	1 UJ	1 UJ
Vanadium	MG/KG	17.8	27.3 J	22.6 J
Zinc	MG/KG	135 J	195 J	165 J
Other				
Total Organic Carbon	MG/KG	7100 J	7100 J	7100 J
Total Petroleum Hydrocarbons	MG/KG	80 UJ	130 UJ	105 UJ

### NOTES:

Shaded cells indicate a detect/non-detect pair. Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

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SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER SEAD-121C Table C-1L

ATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER GROUNDWATER G		T C C	Enciller, SEAD-121C	Seneca Army	Seneca Army Depot Activity	SEAD-121C	SEAD-121C	SEAD-121C
Marrix AgroUNDWATER GROUNDWATER GROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUNDGROUN		racility Location ID	MW121C-4	MW121C4	MW121C-4	MW121C-1	MW121C-1	
Sample Depth to Top of Sample         4.5         4.5         4.5         2.1         2.1           pip Depth to Depth to Top of Sample         2.3AA         SAMDU         2.4Z003         2.4Z003         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.17/1998         3.		Matrix Sample ID		GROUNDWATER	GROUNDWATER 121C-2004/121C-2002	GROUNDWATER FB023	GROUNDWATER FB153	
apple Depth to Bottom of Sample Date         10         10         10         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97         97		op of Sample	4.5	4.5	4.5	2.1	2.1	2.1
Sample Date         2/3/2003         2/4/2003         2/4/2003         2/4/2003         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998         3/17/1998	Sample Depth to Bottor	m of Sample	01	10	10	9.7	9.7	7.6
QC Code         SA         SADU         SA         SADU         SA         SADU         SA         SADU         SA         SADU         SA         SADU         SADU <td></td> <td>Sample Date</td> <td></td> <td>2/4/2003</td> <td>2/4/2003</td> <td>3/17/1998</td> <td>3/17/1998</td> <td>3/17/1998</td>		Sample Date		2/4/2003	2/4/2003	3/17/1998	3/17/1998	3/17/1998
Investigation   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID-R1   PID		QC Code	SA	SA	SA/DU	SA	SA	SA/DU
Same Compounds         Units         Value (Q)         <	I	Investigation	PID-RI	PID-RI	PID-RI	EBS	EBS	EBS
gaile Compounds         UG/L         SU         SU         1U         1U           achlorocethane         UG/L         SU         SU         1U         1U           achlorocethane         UG/L         SU         SU         1U         1U           octame         UG/L         SU         SU         1U         1U         1U           octame         UG/L         SU         SU         1U         <	Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
UGAL         SU         SU         1U         1U           UGAL         SU         SU         SU         1U	Volatile Organic Compounds							
UGGL         SU         SU         1U         1U           UGGL         SU         SU         SU         1U	1,1,1-Trichloroethane	NG/L	5 U	5 U		1 U	1 U	1 U
UGAL         \$ U         \$ U <td>1,1,2,2-Tetrachloroethane</td> <td>UG/L</td> <td></td> <td>5 U</td> <td></td> <td>1 U</td> <td>1 U</td> <td>1 U</td>	1,1,2,2-Tetrachloroethane	UG/L		5 U		1 U	1 U	1 U
UGAL         \$ U         \$ U <td>1,1,2-Trichloroethane</td> <td><math>\Omega G \Lambda L</math></td> <td>5 U</td> <td>5 U</td> <td></td> <td>1 U</td> <td>1 U</td> <td>1 U</td>	1,1,2-Trichloroethane	$\Omega G \Lambda L$	5 U	5 U		1 U	1 U	1 U
UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         S U         1 U           UG/L         S U         S U         S U         1 U           UG/L         S U         S U         S U         1 U           UG/L         S U         S U         S U         1 U           UG/L         S U         S U         S U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S U         S U         1 U         1 U           UG/L         S	1,1-Dichloroethane	NG/L		5 U		10	1 U	1 U
Dame         UG/L           UG/L         SU         SU         1U         1U           UG/L         SU         SU         1U         1U           UG/L         SU         SU         1U         1U           UG/L         SU         SU         SU         SU           UG/L         SU         SU         SU         SU           UG/L         SU	1,1-Dichloroethene	NG/L	5 U	5 U	5 U	1 U	1 U	1 U
UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL  UGAL	1,2-Dibromo-3-chloropropane	UG/L				1 U	1 U	ΩI
UGAL         SU         SU         1U         1U           UGAL         SU         SU         SU         1U         1U           UGAL         SU         SU         SU         1U         1U         1U           UGAL         SU         SU         SU         SU         1U         1U <t< td=""><td>1,2-Dibromoethane</td><td>NG/L</td><td></td><td></td><td></td><td>1 U</td><td>U I</td><td>1 U</td></t<>	1,2-Dibromoethane	NG/L				1 U	U I	1 U
UGAL         SU         SU         SU         1U         1U           UGAL         SU         SU         SU         1U	1,2-Dichlorobenzene	NG/L				10	ΠI	1 U
UGAL         S U         S U         I U         I U           UGAL         S U         S U         I U         I U           UGAL         S U         S U         S U         I U         I U           UGAL         S U         S U         S U         I U         I U         I U           UGAL         S U         S U         S U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U         I U	1,2-Dichloroethane	NG/L		5 U		1 U	1 U	1 U
UGAL       5 UJ       5 UJ       5 UJ       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       1 U       2 U       2 U       2 U       <	1,2-Dichloropropane	NG/L		5 U		1 U	1 U	ΠI
UG/L         5 UJ         5 UJ         5 UJ         5 UJ         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1	1,3-Dichlorobenzene	NG/L				U 1 .	1 U	ΠI
UGAL         S UJ         S UJ         S UJ         S UJ         S UJ         S UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ         D UJ <th< td=""><td>1,4-Dichlorobenzene</td><td><math>\Omega G/\Gamma</math></td><td></td><td></td><td></td><td>ΠI</td><td>ΠI</td><td>ΠI</td></th<>	1,4-Dichlorobenzene	$\Omega G/\Gamma$				ΠI	ΠI	ΠI
UGAL         5 U         5 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         2 U         2 U <td>Acetone</td> <td>NG/L</td> <td>5 UJ</td> <td>5 UJ</td> <td>s UJ</td> <td>52</td> <td>19</td> <td>27</td>	Acetone	NG/L	5 UJ	5 UJ	s UJ	52	19	27
UGAL         SU         SU         1U         2         2         2 </td <td>Benzene</td> <td>NG/L</td> <td>5 U</td> <td>5 U</td> <td>5 U</td> <td>1 U</td> <td>ΠI</td> <td>1 U</td>	Benzene	NG/L	5 U	5 U	5 U	1 U	ΠI	1 U
UGAL         SU         SU         SU         1U         2U         2U         2U         2	Bromochloromethane	NG/L				1 U	ΠI	1 U
UGAL         SU         SU         1U         2U         2U         2U         2	Bromodichloromethane	UG/L	S U	5 U	5 U	n n	1 U	1 U
UGAL         5 UJ         5 UJ         5 UJ         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         2         <	Вготобот	NG/L	5 U	5 U		1 U	1 U	1 U
UGAL         SU         SU         1U         2U         2	Carbon disulfide	NG/L	s UJ	s UJ	S UJ	2	2	2
UG/L         S U         S U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U <td>Carbon tetrachloride</td> <td><math>\Omega G/\Gamma</math></td> <td>5 U</td> <td>5 U</td> <td>5 U</td> <td>n n</td> <td>1 U</td> <td>1 U</td>	Carbon tetrachloride	$\Omega G/\Gamma$	5 U	5 U	5 U	n n	1 U	1 U
UG/L         SU         SU         1U         2         2         2         2         2         2         2         2         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3         3	Chlorobenzene	$\Omega G/\Gamma$	5 U	5 U	5 U	1 U	1 U	1 U
UG/L         5 U         5 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U <td>Chlorodibromomethane</td> <td><math>\Omega G/\Gamma</math></td> <td>5 U</td> <td></td> <td></td> <td>1 U</td> <td>1 U</td> <td>1 U</td>	Chlorodibromomethane	$\Omega G/\Gamma$	5 U			1 U	1 U	1 U
UGAL         \$ U         \$ U <td>Chloroethane</td> <td><math>\Omega G/\Gamma</math></td> <td></td> <td>5 U</td> <td></td> <td>1 U</td> <td>1 U</td> <td>1 U</td>	Chloroethane	$\Omega G/\Gamma$		5 U		1 U	1 U	1 U
UG/L         S U         S U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U <td>Chloroform</td> <td><math>\Omega G/\Gamma</math></td> <td>5 U</td> <td>5 U</td> <td></td> <td>1 U</td> <td>1 U</td> <td>1 U</td>	Chloroform	$\Omega G/\Gamma$	5 U	5 U		1 U	1 U	1 U
UG/L         S U         S U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U <td>Cis-1,2-Dichloroethene</td> <td>NG/L</td> <td></td> <td></td> <td></td> <td>10</td> <td>1 U</td> <td>1 U</td>	Cis-1,2-Dichloroethene	NG/L				10	1 U	1 U
UG/L         S U         S U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         2 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U         5 U <td>Cis-1,3-Dichloropropene</td> <td>NG/L</td> <td></td> <td>5 U</td> <td></td> <td>1 U</td> <td>1 U</td> <td>1 U</td>	Cis-1,3-Dichloropropene	NG/L		5 U		1 U	1 U	1 U
te UG/L 5 U 5 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	Ethyl benzene	NG/L		5 U	5 U	1 U	1 U	ΠI
One UG/L 5 U 5 U 5 U 1 U 1 U 1 U 1 U 1 U 1 U 1 U	Meta/Para Xylene	NG/L	S U					
UG/L         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U         S U <td>Methyl bromide</td> <td>NG/L</td> <td>5 U</td> <td>5 U</td> <td></td> <td>1 U</td> <td>1 U</td> <td>ΠI</td>	Methyl bromide	NG/L	5 U	5 U		1 U	1 U	ΠI
UG/L 5 UJ 5 UJ 1 U 1 U 1 U 1 U UG/L 5 UJ 5 UJ 5 UJ 5 UJ 5 UJ 5 UJ 5 UJ 5 U	Methyl butyl ketone	NG/L		5 U	5 U	S U	SU	5 U
UG/L s UJ s UJ s UJ s U	Methyl chloride	NG/L		5 UJ	5 UJ	1 U	1 U	1 U
	Methyl ethyl ketone	NG/L	5 UJ	S UJ	S UJ	\$ U	5 U	5 U

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SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER SEAD-121C Table C-1L

## Seneca Army Depot Activity

SEAD-121C   SEAD-121C   SEAD-121C     MW121C-1	Value (Q) Value (Q) Valu	s us su s	$\begin{bmatrix} 1 & 2 & 2 & 2 & 2 & 2 & 1 \\ 1 & 1 & 1 & 1 & 1 \end{bmatrix}$			-	1 U 1	J 1U 1U 1U	10 10	10 10	J 10 10 10		1.1 U 1.1	1.1 U 1.1	1.1 U 1.1	1.1 U I.1	2.7 U 2.7	1.1 U 1.1	1.1 U 1.1	1.1 U 1.1	2.7 U 2.7	U.1 U	1.1 U	1.1 U 1.1	1.1 U 1.1	1.1 U 1.1	1.1 U 1.1	2.7 U	1.1 U		11111 11111
SEAD-121C MW121C-4 GROUNDWATER 121C-2004/121C-2002 4.5 10 2/4/2003 SA/DU PID-RI		S U	0 S		) S	5 U		5 U	5 U	5 U	5 U		1.3 U	1 UJ	1.3 UJ	1 UJ	1 U	1 U	1.4 U	2.4 U		1.2 UJ	1 UJ	1.3 UJ	1.2 U	1.3 UJ	1 U	1 UJ	1.2 U	1.9 U	11111
SEAD-121C  MW121C-4  GROUNDWATER 121C-2004 4.5 10 2/4/2003 SA PID-RI	Value (Q)	5 U	S U	0 5	5 C	5 U		5 U	5 U	2 U	5 U		1.3 UJ		1.3 UJ	1.1 UJ	1.1 U	1.1 U		2.4 U		1.2 UJ	1.1 UJ		1.2 U	1.3 UJ	1.1 U	1.1 UJ	1.2 U	1.9 U	111111
Facility SEAD-121C tion ID MW121C-4 Matrix GROUNDWATER mple ID 121C-2002 Sample 4.5 Sample 10 le Date 2/3/2003 C Code SA igation PID-RI			5 U		5 U	5 U		5 U	2 U	5 U	5 U		1.2 U	1 U	1.2 U	1 U	1 U	1 U	1,4 U	2.4 U		1.1 U		1.2 U	1.1 U	1.2 U	1 U	1 U	1.1 U	1.9 U	1111
Facility Location ID Matrix Sample ID Top of Sample Com of Sample Sample Date QC Code Investigation	Units	ng/L	UG/L	100/1	OG/L	UG/L	T/S/I			NG/L	UG/L	spunodu	NG/L	NG/T	NG/L	T/Sn	NG/L	T/90	NG/L	T/90	UG/L	NG/L	T/S/	T/90	NG/L	NG/L	T/SN	NG/L	UG/L	NG/L	116/1
Sample Depth to nple Depth to Boi		Methyl isobutyl ketone	Methylene chloride	all c	Tetrachloroethene		Total Xylenes	Frans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Vinyl chloride	Semivolatile Organic Compounds	1,2,4-Trichlorobenzene	.,2-Dichlorobenzene	,3-Dichlorobenzene	.,4-Dichlorobenzene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol	2-Methylnaphthalene	2-Methylphenol	2-Nitroaniline	2-Nitrophenol	3 or 4-Methylphenol	3.3'-Dichlorobenzidine

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Table C-1L SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER SEAD-121C

# SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

SEAD-121C MW121C-1 GROUNDWATER EB153/EB023 2.1 9.7 3/17/1998 SA/DU EBS	Value (Q)	2.7 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	2.7 0	2.7 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.23 J	0.12 J	1.1 U	1.1 U	1.7	1.1 U	1.1 UJ	1.1 U	0.057 J	1.1 U	1.1 U	1.1 U	;
SEAD-121C MW121C-1 GROUNDWATER EB153 2.1 9.7 3/17/1998 SA EBS	Value (Q)	2.7 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	2.7 0	2.7 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.23 J	0.12 J	1.1 U	1.1 U	1.7	1.1 U	1.1 UJ	1.1 U	0.057 J	1.1 U	1.1 U	1.1 U	:
SEAD-121C MW121C-1 GROUNDWATER EB023 2.1 9.7 3/17/1998 SA EBS	Value (Q)																																
SEAD-121C MW121C-4 GROUNDWATER 121C-2004/121C-2002 4.5 10 2/4/2003 SA/DU PID-RI	Value (Q)	1.3 U	1.4 UJ	1.2 U	1.3 UJ	1.3 UJ	4	2.5 UJ	1.2 U	1.1 UJ	1.3 UJ	1.4 UJ	. IUI	1.6 UJ	1 UJ	1.4 UJ	2.7 UJ	1 UJ	1.3 UJ	1 UJ	l UJ	I UJ	0.44 UJ	1.7 UJ	1.3 UJ	1.6 UJ	1.6 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ 1.2 UJ	1
SEAD-121C  MW121C-4  GROUNDWATER 121C-2004  4.5  10 2/4/2003  SA  PID-RI	Value (Q)	1.3 U	1.4 UJ	1.2 U	1.3 UJ	1.3 UJ		2.5 0.1	1.2 U	1.1 UJ	1.3 UJ	1.4 UJ	1.1 UJ	1.6 UJ	1.1 UJ	1.4 UJ	2.7 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ	1.1 UJ	0.44 UJ	1.7 UJ	1.3 UJ	1.6 UJ	1.6 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.2 UJ	
Facility SEAD-121C ttion ID MW121C-4 Matrix GROUNDWATER nple ID 121C-2002 Sample 4.5 Sample 10 ole Date 2/3/2003 C Code SA tigation PID-RI	Value (Q)	1.2 U	1.4 U	1.1 U	1.2 UJ	1.2 U		2.5 U	1.1 U	1 U	1.2 U	1.4 U	1 U	1.6 U	1 U	1.4 UJ	2.7 U	1 U	1.2 U	1 U	1 U	1 U	0.43 U	1.7 U	1.2 U	1.6 U	1.6 UJ	1 U	1 U	1 U	1 U	1.1 d	1
Facility SEAD-121C Location ID MW121C-4 Matrix GROUNDW Sample ID 121C-2002 Top of Sample 4-5 stom of Sample Date 2/3/2003 Sample Date 2/3/2003 QC Code SA	Units	NG/L	NG/L	NG/L	NG/L	NG/L	NGA	7/50	NG/L	$\Omega G/\Gamma$	$\Omega$	$\Omega G/\Gamma$	NG/L	NG/L	NG/L	$\Omega G \Lambda L$	$\Omega$	NG/L	NG/L	NG/L	T/D/I	$\Omega G/\Gamma$	NG/L	NG/L	$\Omega Q T$	T/S/	$\Omega G/\Gamma$	$\Omega G/\Gamma$	NG/L	NG/L	NG/L	NG/L NG/L	
Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Date QC Code Investigation	Parameter	4,6-Dinitro-2-methylphenol	4-Bromophenyl phenyl ether	4-Chloro-3-methylphenol	4-Chloroaniline	4-Chlorophenyl phenyl ether	4-Methylphenol	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(ghi)perylene	Benzo(k)fluoranthene	Bis(2-Chloroethoxy)methane	Bis(2-Chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-Ethylhexyl)phthalate	Butylbenzylphthalate	Carbazole	Chrysene	Di-n-butylphthalate	Di-n-octylphthalate	Dibenz(a,h)anthracene	Dibenzofuran	Diethyl phthalate	Dimethylphthalate	Fluoranthene	Fluorene Hexachforobenzene	

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SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER SEAD-121C Table C-1L

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

			Seneca Army	Seneca Army Depot Activity			
	Facility	Facility SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID	Location ID MW121C-4	MW121C-4	MW121C-4	MW121C-1	MW121C-1	MW121C-1
	Matrix	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
	Sample ID	121C-2002	121C-2004	121C-2004/121C-2002	EB023	EB153	EB153/EB023
Sample Depth to	Top of Sample	4.5	4.5	4.5	2.1	2.1	2.1
Sample Depth to Bottom of Sample	tom of Sample	10	10	10	6.7	9.7	6.7
	Sample Date	2/3/2003	2/4/2003	2/4/2003	3/17/1998	3/17/1998	3/17/1998
٠	QC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	EBS	EBS	EBS
		2	2	2			
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Hexachlorobutadiene	NG/L	1.6 U	1.6 UJ	1.6 UJ		0.061 J	0.061 J
Hexachlorocyclopentadiene	NG/L	4 U	4 OJ	4 OI		1.1 UJ	1.1 UJ
Hexachloroethane	UG/L	1.1 U	1.2 UJ	1.2 UJ		1.1 U	1.1 U
Indeno(1,2,3-cd)pyrene	NG/L	1.7 U	1.7 UJ	1.7 UJ		1.1 U	1.1 U
Isophorone	UG/L	1 U	1.1 UJ	1 UI		1.1 U	1.1 U
N-Nitrosodiphenylamine	NG/L	2.1 U	2.1 UI	2.1 UJ		1.1 U	1.1 U
N-Nitrosodipropylamine	NG/L	10	1.1 UJ	1 UJ		1.1 U	1.1 U
Naphthalene	NG/L	1.2 U	1.3 UJ	1.25 UJ		1.1 U	1.1 U
Nitrobenzene	UG/L	1 U	1.1 UJ	1 01		1.1 U	1.1 U
Pentachlorophenol	UG/L	2 U	2 U	2 U		2.7 U	2.7 U
Phenanthrene	NG/L	1 U	1.1 UI	1 1		1.1 U	1.1 U
Phenol	NG/L	1 U	1.1 U	1 U		1.1 U	1.1 U
Pyrene	NG/L	1 U	1.1 U	1 01		1.1 U	1.1 U
Pesticides/PCBs							
4,4'-DDD	ng/r	0.01 R	0.01 R		6.0	0.055 U	0.5 J
4,4'-DDE	NG/L	0.005 UJ	0.005 UI	0.005 UJ	0.27 J	0.093 J	0.18 J
4,4'-DDT	NG/L	0.01 R	0.01 R		0.29 J	0.28	0.29 J
Aldrin	UG/L	0.02 U	0.02 U	0.02 U	0.057 U	0.057 U	0.057 U
Alpha-BHC	NG/L	0.01 U	0.01 U	0.01 U	-0.0285 0.	1,960,04	0.032 J
Alpha-Chlordane	UG/L	0.02 U	0.02 U	0.02 U	960.0	0.068	0.082
Beta-BHC	NG/L	0.01 U	0.01 U	0.01 U	0.56 J	0.096 J	0.33 J
Chlordane	NG/L	0.14 U	0.14 U	0.14 U			
Delta-BHC	NG/L	0.004 UJ	0.004 UJ	0.004 UI	0.23 J	0.094	0.16 J
Dieldrin	NG/L	O.009 U	O.009 U	O.009 U	0.055 U		0.05 J
Endosulfan I	UG/L	0.02 UJ	0.02 UJ	0.02 UJ	0.11 J	0.08 J	0.10 J
Endosulfan II	NG/L	0.01 UJ	0.01 UJ	0.01 UJ	80.28 U	0.055.0	0.17 J
Endosulfan sulfate	UG/L	0.02 U	0.02 U	0.02 U	0.28 J	0.14 J	0.21 J
Endrin	NG/L	0.02 UJ	0.02 UJ	0.02 UJ	0.11 U	0.11 U	0.11 U
Endrin aldehyde	NG/L	0.02 UJ	0.02 UJ	0.02 UJ	0.22 J	0.073 J	0.15 J
Endrin ketone	UG/L	O.009 U	0.009 U	O.009 U	0.11 U	0.11 U	0.11 U
Gamma-BHC/Lindane	T/Sn	U 600.0	0.009 U	U 600.0	0.057 U	0.057 U	0.057 U
Gamma-Chlordane	OG/L	0.01	0.01	0.01	0.47	0.086 J	0.28 J

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SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER SEAD-121C Table C-1L

		CONTRACTOR	COO NUM OTAL	TOTAL DE LITTE	CIVI		
			Seneca Army	Seneca Army Depot Activity			
	Facility	Facility SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Location D	Location D MW121C-4	MW121C-4	MW121C-4	MW121C-1	MW121C-1	MW121C-1
	Matrix	Matrix GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
	Sample ID	121C-2002	121C-2004	121C-2004/121C-2002	EB023	EB153	EB153/EB023
Sample Depth to T	0	4.5	4.5	4.5	2.1	2.1	2.1
Sample Depth to Bottom of Sample	tom of Sample	10	10	10	9.7	6.4	9.7
	Sample Date	2/3/2003	2/4/2003	2/4/2003	3/17/1998	3/17/1998	3/17/1998
	QC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	EBS	EBS	EBS
	,	2	2	2			
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Heptachlor	NG/L	U 2000	U 2000	U 700.0	0.23 J	0.058 J	0.14 J
Heptachlor epoxide	NG/L	U 600.0	0.009 UJ	. IN 600.0	0.68500	00018	0.050 J
Methoxychlor	NG/L	0.008 UJ	0.008 UJ	0.008 UJ	0.57	0.282.0	0.43 J
Toxaphene	NG/L	0.12 U	0.12 U	0.12 U	5.7 U	5.7 U	5.7 U
Aroclor-1016	NG/L	0.24 U	0.24 U	0.24 U	1.1 U	1.1 U	1.1 U
Aroclor-1221	NGA	0.08 U	0.08 U	0.08 U	2.3 U	2.3 U	2.3 U
Aroclor-1232	UG/L	U 60:0	U 60.0	U 60.0	1.1 U	1.1 U	1.1 U
Aroclor-1242	UG/L	0.08 U	0.08 U	0.08 U	1.1 U	1.1 U	1.1 U
Aroclor-1248	NG/L	0.12 U	0.12 U	0.12 U	1.1 U	1.1 U	1.1 U
Aroclor-1254	NG/L	0.05 U	0.05 U	0.05 U	1.1 U	1.1 U	1.1 U
Aroclor-1260	NG/L	0.01 U	0.01 U	0.01 U	1.1 U	1.1 U	1.1 U
Metals and Cyanide							
Aluminum	NG/L	146 J	1030	588 J	133	738 J	436 J
Antimony	UG/L		18000	7.33 J	5.1 U	5.1 U	5.1 U
Arsenic	UG/L	4.5 U	4.5 U	4.5 U	1.88.0	8.8	2.8 J
Barium	UG/L	29.6	32.4	31.0	39.5	38	39
Beryllium	NG/L	0.9 U	D 6.0	U 6.0	0.1 U	0.1 U	0.1 U
Cadmium	NG/L	0.8 U	0.8 U	0.8 U	600	0.15 U	0.27 J
Calcium	NG/L	420000	513000	466500	172000 J	163000	167500 J
Chromium	NG/L			3.3 J	1.2	2.4	1.8
Cobalt	UG/L	(3) (4)		3.0 J		978	17
Copper	NG/L	2 U	2 U	2 U	2000	Co. Co. Co. Co. Co. Co. Co. Co. Co. Co.	17
Cyanide	NG/L				SU	5 U	5 U
Cyanide, Amenable	MGL	0.01 U	0.01 U	0.01 U			
Cyanide, Total	MG/L	0.01 U	0.01 U	0.01 U			
Iron	NG/L	17.45 U	1720	868.725 J	346	1430	888
Lead	NGAL	5.6	4.8	5.2	1.8 U	1.8 U	1.8 U
Magnesium	NG/L	73600	88000	80800	23800	24100	23950
Manganese	NGAL	328	244	286	1590	1140	1365
Mercury	NG/L	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U
Nickel	NGA		-	2.1 J	2.8	4.2	3.5
Potassium	NGAL	9430	6320	7875	7610	10900	9255

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SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER SEAD-121C Table C-1L

## Seneca Army Depot Activity

	Facility	Facility SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID	Location ID MW121C-4	MW121C-4	MW121C-4	MW121C-1	MW121C-1	MW121C-1
	Matrix	Matrix GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	$\sim$
	Sample ID	Sample ID 121C-2002	121C-2004	121C-2004/121C-2002	EB023	EB153	EB153/EB023
Sample Depth to Top of Sample	op of Sample	4.5	4.5	4.5	2.1	2.1	2.1
Sample Depth to Bottom of Sample	om of Sample	10	10	10	2.6	2.6	9.7
	Sample Date	2/3/2003	2/4/2003	2/4/2003	3/17/1998	3/17/1998	3/17/1998
	QC Code		SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	EBS	EBS	EBS
		2	7	2			
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Selenium	T/9N	3 U	5 U	4 U	3.7 J	5.6 J	4.7 J
Silver	UG/L	3.7 U	3.7 U	3.7 U	1.3 U	1.3 U	1.3 U
Sodium	UG/L	00109	26700	58400	8920	11200	10060
Thallium	UG/L	4.2 U	4.2 U	4.2 U	0.7 U	0.7 U	6.7 U
Vanadium	UG/L	2.5 U	2.5 U	2.5 U	10.00		1.6 J
Zinc	UG/L	9.2 J	24	17 J	2.4	9.3	5.9
Other							
Total Petroleum Hydrocarbons	s MG/L	0.041 U	0.04 U	0.04 U			

"U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result. pair. Concentrations reported as not detected in the shaded pair, as indicated by NOTES: Shaded cells indicate a detect/non-detect

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER
BUILDING 360 (SEAD-27)
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity Table C-1M

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	Facility Location ID	Building 360 MW-1	Building 360 MW-1	Building 360 MW-1	Building 360 MW-1	Building 360 MW-1	Building 360 MW-1
Said Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee C	Sample D	matrix GROUNDWAIER mple D DRMO-2005	DRMO-2008	GROUND WATER DRMO-2005/DRMO-2008	DRMO-2013	121C-2019	GROUNDWAIEK DRMO-2013/DRMO-2019
Sample Depth to Bottom of	om of Sample	16.5	16.5	16.5	16.6	16.6	16.6
	Sample Date	4/4/2003	4/4/2003	4/4/2003	5/9/2003	5/9/2003	5/9/2003
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
		2	2	7	3	E	8
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds			;	:			
1,1,1-1 nchlorocthane	7/50	0 5			0.4 U	0.4 0	0.4 U
1,1,2,2-1 et achioroemane	7,50	0 5	0 5		0.3 0	0.3 0	0.3 U
1.1-Dichloroethane	ng/r		000	0 60	4.3	0.5	0.3 0
1,1-Dichloroethene	UGAL	SU	5 U	D S	0.3 U	0.3 U	0.3 U
1,2-Dibromo-3-chloropropane	NG/L						
1,2-Dibromoethane	UG/L						
1,2-Dichloroethere	1000	11.5	11.5	11.5	0.3 11	11 20	200
1.2-Dichlorontonane	1197	2 5	0 50	, v	0.00	0.00	0.3
1.3-Dichlorobenzene	UGAL		0	0	The same state of the same	Annual Annual Mark Market Land	
1,4-Dichlorobenzene	UGAL						
Acetone	UG/L	S R	5 R	5 R	5.8 R	8.4 J	8.4 J
Benzene	UGL	5 U	5 U	5 U	0.3 U	0.3 U	0.3 U
Bromochloromethane	UG/L						
Bromodichloromethane	UGA	2 0	SUS	2 0	0.4 U	0.4 U	
Bromotorm	JOG/L	200	200	0.5	0.3 U	0.3 U	
Carbon distuite	1007	200	20.4	TO 5	0.3 U	0.3 U	0.3 U
Chlorobenzene	11911	2 5	2 4	D =	0.4.0	0 4.0	0 1 2
Chlorodibromomethane	UGAL	2 5	0.5	2 2	0.4.0	1 4 0	0 1
Chloroethane	UGAL	s UJ	s UJ	in s	0.4 U	0.4 U	0.4 U
Chloroform	UGAL	5 U	5 U	5 U	0.4 U	0.4 U	0.4 U
Cis-1,2-Dichloroethene	UGAL	5 U	S U	2 U	0.1810	190	0.3 J
Cis-1,3-Dichloropropene	UG/L	2 0 5	2 0	S U	0.3 U	0.3 U	0.3 U
Meta/Para Xvlene	7,00	0 4	0 4	0 4	0.4.0	0.4.0	0.4 0
Methyl bromide	UGAL	s UJ	s UJ	10.5	0.9 0	0.8 0	0.50
Methyl butyl ketone	UGAL	SU	5 U	200	2.8 U	2.8 U	2.8 U
Methyl chloride	UGAL	5 U	5 U	5 U	0.4 U	0.4 U	0.4 U
Methyl ethyl ketone	UGAL	s UJ	s UJ	s us	3.6 R	3.6 R	
Methyl isobutyl ketone	DOL.	SU	5 U	o s	2.5 U	2.5 U	2.5 U
Memylene chorne	1000	5 5	5 5				
Styrene	1001	5 11	0.5	0.0	0.4.0	0.4.0	0.4.0
Tetrachloroethene	UG/L	S UJ	5 UJ		0.5 11	0.5 11	11 5 0
Toluene	UG/L	SU	5 U	SU	0.4 U	0.4 U	0.4 U
Total Xylenes	UGAL						
Trans-1,2-Dichloroethene	UG/L	SU	SU	S U	0.4 U	0.4 U	0.4 U
I rans-1,3-Dichloropropene	DOV	S U	S U	S U	0.3 U	0.3 U	0.3 U

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# Table C-1M SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER RITH DING 360 (SEAD, 27)

### BUILDING 360 (SEAD-27) SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Building 360  MW-1  IER GROUNDWATER  DRMO-2013/DRMO-2019  16.6  16.6  5/9/2003  SADU  PID-R1  3  (O) Value (Q)	U 0.4 U					1 U 1 U 1 U 1 U 1 2 UJ 1 1 2 UJ 1 2 UJ 1 2 UJ 1 2 UJ 1 2 UJ 1 3 U 1 3 U 1 1 1 U 1 U 1 1 U 1 U 1 1 U 1 U	1.2 U 1.2 U 1.2 U 1.8 U 1.8 U 1.8 U 1.8 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U 1.1 U	1.2 U 1.2 U 1.3 U 1.3 U 1.3 U 1.5 U 1.5 U 1.5 U 1.5 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U 1.3 U
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Building 360  MW-1  GROUNDWATER  DRMO-2008  16.5  16.5  4/4/2003  SA  PID-RI  2  Value (Q)	5 U 2.4 J	12 U 1 U 1 U 1 U 1 U	1.3 R	1.1 U 1 U 1.2 U 2.3 U	12 U 12 U 1 U 1 U	1 UU 12 NU 12 NU 13 NU 13 UU 11 RV 12 R	1.2 UJ 1.8 R 2.4 UJ 1.1 R 1 UJ	1.2 U U 1.3 U U 1.3 U U 1.5 U U 1.5 U U 1.5 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.7 U 1.
tion D Mw-1  Matrix GROUNDWATER  Matrix GROUNDWATER  mple ID DRMO-2005  Sample 16.5  Sample 4/4/2003  C Code SA  rigation PID-R1  2  Units Value (Q)	5 U 2.2 J	12.UJ 1 UJ 12.UJ	1 R 1 L 1 U 1 L 4 R R L 4 R R L 4 R R L 4 R R L 4 R R L 4 R R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4 R L 4	1.1 UU 1.1 UU 1.2 UU 1.5 UU	1.1 K 1.2 UJ 1 R 1 UJ 1.1 R	1 UJ 1.2 UJ 1.2 R 1.4 UJ 1.1 R	1.2 UJ 1.9 R 2.5 UJ 1.1 R 1 UJ	12 U 14 U 16 U 16 U 16 U 1 U 17 U 17 U 17 U 12 U
Facility Location D Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Date QC Code Investigation	ł	TON TON TON	750 750 750	7,50 7,50 7,50 7,50 7,50 7,50	TYDO TYDO TYDO TYDO TYDO		l ether UG/L UG/L UG/L UG/L UG/L UG/L UG/L	UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L
Sample Dept Sample Dept	Trichloroethene Vinyl chloride Semivolatla Oraanic Commounds	1,2,4-Trichlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene	1,4-Dictuoropenzene 2,4,5-Trichlorophenol 2,4-Dichlorophenol	2,4-Dimenylphonol 2,4-Dimitrophenol 2,4-Dimitrophenol 2,6-Dimitrotoluene 2-Chloropaphthalene	2-Chioropheriol 2-Methylphenol 2-Nitrophenol 2-Nitrophenol 3-ret Almehylphenol	3,3-Dichlorobenzidine 3-Nitroaniline 4,6-Dinitro-2-methylphenol 4-Bromophenyl phenyl ether 4-Chloro-3-methylphenol 4-Chloro-amethylphenol	4-Chlorophenyl phenyl ether 4-Methylpbenol 4-Nitroaniline 4-Nitrophenol Acenaphthene	Acenaphthylene Authracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(gh)perylene Benzo(k)fluoranthene Bis(2-Chloroethoxy)methane Bis(2-Chloroethoxy)methane

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# Table C-1M SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER BUILDING 360 (SEAD-27) SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	ŝ	:	SCHECA	Seneca Army Depot Activity			
	raculity Location ID	Building 360 MW-1	Building 360 MW-1	Building 360 MW-1	Building 360	Building 300 MW-1	Building 500 MW-1
	Matrix (	Matrix GROUNDWATER	GROUNDWATER DRMO-2008	GROUNDWATER DRMO-2005/DRMO-2008	GROUNDWATER DRMO-2013	GROUNDWATER 121C-2019	GROUNDWATER
Sample Depth to Top of Sample	op of Sample	16.5	16.5	16.5	16.6	16.6	16.6
Sample Depth to Bottom of Sample	om of Sample	16.5	16.5	16.5	16.6	16.6	16.6
	Sample Date	4/4/2003	4/4/2003	4/4/2003	5/9/2003	5/9/2003	5/9/2003
	C Code	A CHA	AS AT	SADO	AS AIR	AN CHA	SAUC PER PI
	пуеѕиваноп	7.U-KI	7.U-X	FID-KI	rID-KI	Z-G-Z	rio-ki
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Bis(2-Chloroisopropyl)ether	UG/L	I UJ	1 UJ	1 UJ	1 U	חח	1 U
Bis(2-Ethylhexyl)phthalate	UG/L	1 C	1 U	1 U	1 U	1 C	1 U
Butylbenzylphthalate	UG/L	1 03	1 UJ	1 UJ	D I	1 U	1 U
Carbazole	UG/L	0.43 UJ	0.42 UJ	0.43 UJ	0.42 U	0.42 U	0.42 U
Chrysene	UG/L	1.7 UJ	1.6 UJ	1.7 UJ	1.6 U	1.6 U	1.6 U
Di-n-butylphthalate	UG/L	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 U
Di-n-octylphthalate	OG/L	1.6 UJ	1.5 UJ	1.6 UJ	1.5 U	1.5 U	1.5 U
Dibenz(a,h)anthracene	UG/L	1.6 UJ	1.5 UJ	1.6 UJ	1.5 UJ	1.5 UJ	1.5 UJ
Dioenzorman	0.G/L	3 :	5.	5:	); -	o :	o :
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Hexacmoropenzene	7,00/L	0 1:1		1.1 0.1	0 1 1	0 1.1	0 1:1
Hexachiologicalisms  Hexachlorocyclonentadiene	1001	0.1	111 0 5	20 4	2 8 6	0 0 0 %	0 5:1
Useshlososkas	9 5		2000		0.5	4	
Indexe(1.23.cd)mmma	7,501	11 6	1.1 01		0 1:1	0 1.1	0 1:1
Iconhorona	7001	3 5		56 (-1	3 :	0 0.1	0 0:1
N-Mirosodiahandamina	100/1	3 5	6				
N Min osombhen ylanıne	00/L	2.1 0	f0 7	7 :	0 7	0.7	0.7
N-Nifrosodipropylamine	OG/L	G ;	5 :	55	D :	5 :	101
Naphthalene	OGAL	1.2 UJ	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 U
Nitrobenzene	NG/L	1 CI	1 0	1 01	D	n n	1 U
Pentachlorophenol	NG/T	2 R	1.9 R		U 6:1	U 6.1	1.9 U
Phenanthrene	NG/L	1 0	1 G	1 UJ	I U	1 U	חו
Phenol	OG/L	I R	X		0 7	0 1	0
Fyrene Poetfoides/PCRs	OG/L	1 01		1 03	0	10	0 1
4 4'-DDD	110.4	11 10 0	11 100	11 100	11 100	111 100	111 100
4 4'-DDE	1001	11 500 0	0.000	11 500 0	11 500 0	0.00	10.00
4 4'-DDT	1001	111 100	0.000	0 5000		0.000	0 500.0
Aldrin	1001	0.00	0.01	0.02	0.01	0.01 0.01	111 000
Alaha BHO	501	111 100	11 100	111 100	50.50	50 70:0	50.500
Alpha-Chlordane	1001	0.01	0.01	0.00	0.01	0.01	0.01
Bets BUC	1 50 1	1 100	0.700	20:0		0.00	50.50
Chlordane	100	0.01 0	0.01 0	0.15.0	0.10.0		0 10:0
Delta-BHC	1001	111 0000	0 111	11 700 0	111 00 00	111 800 0	111
Dieldrin	1/001	0.004	0.004 0	11 000 0	0.004	17 000 0	5000
Endosiifan I	100	0.000	0.009 0	0.000	0.00%	0.600.0	0 600.0
Endosition II	7,01	0.00	0.02 0	0.200	0.00	0.10.0	50.50
Endosulfan sulfate	100	0.01	0.01 0	0.01	0.01	0.01	0.00
Walter Sustain	5	7	0 400	) 42:5	> 40:0		0 400

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# Table C-1M SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER

## BUILDING 360 (SEAD-27) SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility	Building 360	Building 360	Building 360	Building 360	Building 360	Building 360
	Location ID	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1
	Matrix	Matrix GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
Cample Door to the Complete	Ton of Sounds	5007-OWN/	DKMO-2008	DKMO-2003/DKMO-2008	DKMO-2013	1210-2019	DKMO-2013/DKMO-2019
Sample Denth to Bottom	for of Sample	16.5	16.5	5.91	16.6	16.6	16.6
	Sample Date	4/4/2003	4/4/2003	4/4/2003	5/9/2003	5/9/2003	5/9/2003
	OC Code	SA	SA	SADU	AS.	SA	SADU
	Investigation	PID-RI	PID-R1	PD-RI	PID-RI	PID-RI	PD-RI
	)	7	7	2	en.	60	m
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Endrin	NG/L	0.02 U	0.02 U	0.02 U	. 0.02 U	0.02 U	0.02 U
Endrin aldehyde	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin ketone	UG/L	O.009 U	O.009 U	U 600.0	U 600.0	U 6000	U 6000
Gamma-BHC/Lindane	NG/L	0.009 U	O.009 U	U 600.0	U 600.0	0.009 UJ	U 6000
Gamma-Chlordane	UG/L	0.01 UJ	0.01 UJ	0.01 UJ	U 10:0	0.01 U	0.01 U
Heptachlor	UG/L	0.007 U	U 700.0	U 2000	U 700.0	0.007 U	0.007 U
Heptachlor epoxide	UG/L	O.009 U	0.009 U	O 600.0	O.009 U	0.008 U	0.0085 U
Methoxychlor	UG/L	0.008 UJ	0.008 UJ	0.008 UJ	0.008 U	0.008 U	0.008 U
Toxaphene	UG/L	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Aroclor-1016	UG/L	0.24 UJ	0.25 UJ	0.25 UJ	0.25 UJ	, 0.24 UJ	0.25 UJ
Aroclor-1221	UG/L	0.082 U	0.082 U	0.082 U	0.083 U	0.081 U	0.082 U
Aroclor-1232	UG/L	0.092 UJ	0.093 UJ	0.093 UJ	0.094 UJ	0.091 UJ	0.093 UJ
Aroclor-1242	UG/L	0.082 UJ	0.082 UJ	0.082 UJ	0.083 UJ	0.081 UJ	0.082 UJ
Aroclor-1248	UG/L	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Aroclor-1254	UG/L	0.051 U	0.052 U	0.052 U	0.052 U	0.051 U	0.052 U
Aroclor-1260	UG/L	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 UJ	0.01 UJ
Metals and Cyanide	,						
Aluminum	UG/L	19. 191	1.00	52 J	32 U	32 U	32 U
Antimony	UG/L	3.8 U	3.8 U	3.8 U	7.5 U	7.5 U	7.5 U
Arsenic	UG/L	4.5 U	4.5 U	4.5 U	7.1	2.25 U	4.7 J
Barium	UG/L	135	147	141	113	113	113
· Beryllium	UG/L	0.1 U	0.1 U	0.1 U	U 6.0	D 6.0	U 6.0
Cadmium	UG/L	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Calcium	NG/L	88700	00696	92800	84200	87100	85650
Chromium	UG/L	1,4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Cobalt	UG/L	0.7 U	0.7 U	0.7 U		2.3 U	2.3 U
Copper	1/6/L	3.6 U	3.6 U	3.6 U	2 U	2 U	2 U
Cyanide. Amenable	MG/I.	0.01 11	11 10 0	11 100	0.01 11	11 10 0	11 100
Cyanide, Total	MG/L						
Iron	UG/L	3780 J	3290 J	3535 J	3810	3510	3660
Lead	UG/L	3 U	3 U	3.0	3 U	3 U	3.0
Magnesium	UG/L	11400	12500	11950	11000	11400	11200
Manganese	UG/L	1580	1710	1645	1140	1180	1160
Mercury	NG/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	UG/L	3 J	3.8 J	3,4 J	2 U	2 U	2 U
Potassium	UG/L	9450 J	10600 J	10025 J	. 8820	9430	9125
Selenium	UG/L	4.2 J	3.3 J	3.89	11/09/11		1.9 J
Silver	UGL	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U
Thellium	7/90	40400	45300	42850	41100	44000	42550
A LEGITABLE	5	3	0.00	0 0:0	7.7.		ר כינ

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## Table C-1M SAMPLE-DUPLICATE MERGING RESULTS - GROUNDWATER BUILDING 360 (SEAD-27)

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility	Building 360	Building 360	Building 360	Building 360	Building 360	Building 360
	Location ID	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1
	Matrix	Matrix GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
	Sample ID	DRMO-2005	DRMO-2008	DRMO-2005/DRMO-2008	DRMO-2013	121C-2019	19 DRMO-2013/DRMO-2019
Sample Depth to Top of Sample	op of Sample	16.5	16.5	16.5	16.6	16.6	16.6
Sample Depth to Botto	m of Sample		16.5	16.5	16.6	16.6	16.6
	Sample Date		4/4/2003	4/4/2003	5/9/2003	5/9/2003	5/9/2003
	QC Code		SA	SADU	SA	SA	SADU
Investigation	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
	ı	2	2	2	3	60	e
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Vanadium	UG/L	1.4 U	1.4 U	1.4 U	2.5 U	2.5 U	2.5 U
Zinc	UG/L	7.1 J	7.1 J	7.1 J	14.4 J	17 J	16 J
Other							
Total Petroleum Hydrocarbons	MG/L	1 U	1 U	1 U	חח	1 0	1 U

### NOTES:

Shaded cells indicate a detect/non-detect pair. Concentrations reported as not detected in the shaded pair, as indicated by, "U" or "U," data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

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### SEAD-121C and SEAD-121I RI REPORT

### **Seneca Army Depot Activity**

		• •	•	
	-	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID	SWDRMO-8	SWDRMO-8	SWDRMO-8
	Matrix	SURFACE WATER	SURFACE WATER	SURFACE WATER
	•	DRMO-3008	DRMO-3005	DRMO-3008/DRMO-3005
Sample Depth to T	op of Sample	0	0	0
Sample Depth to Botte	om of Sample	N/A	N/A	N/A
	Sample Date	11/5/2002	11/5/2002	11/5/2002
	QC Code	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
		1		1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds				
1,1,1-Trichloroethane	UG/L	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	UG/L	0.7 U	0.7 U	0.7 U
1,1,2-Trichloroethane	UG/L	0.62 U	0.62 U	0.62 U
1,1-Dichloroethane	UG/L	0.66 U	0.66 U	0.66 U
1,1-Dichloroethene	UG/L	0.69 U	0.69 U	0.69 U
1,2-Dichloroethane	UG/L	0.56 U	0.56 U	0.56 U
1,2-Dichloropropane	UG/L	0.73 U	0.73 U	0.73 U
Acetone	UG/L	3.5 UJ	3.5 UJ	3.5 UJ
Benzene	UG/L	0.71 U	0.71 U	0.71 U
Bromodichloromethane	UG/L	0.73 U	0.73 U	0.73 U
Bromoform	UG/L	0.49 U	0.49 U	0.49 U
Carbon disulfide	UG/L	0.72 U	0.72 U	0.72 U
Carbon tetrachloride	UG/L	0.47 U	0.47 U	0.47 U
Chlorobenzene	UG/L	0.78 U	0.78 U	0.78 U
Chlorodibromomethane	UG/L	0.66 U	0.66 U	0.66 U
Chloroethane	UG/L	2.4 U	2.4 U	2.4 U
Chloroform	UG/L	0.61 U	0.61 U	0.61 U
Cis-1,2-Dichloroethene	UG/L	0.62 U	0.62 U	0.62 U
Cis-1,3-Dichloropropene	UG/L	0.66 U	0.66 U	0.66 U
Ethyl benzene	UG/L	0.76 U	0.76 U	0.76 U
Meta/Para Xylene	UG/L	1.5 U	1.5 U	1.5 U
Methyl bromide	UG/L	0.38 UJ	0.38 UJ	0.38 UJ
Methyl butyl ketone	UG/L	0.6 U	0.6 U	0.6 U
Methyl chloride	UG/L	0.51 U	0.51 U	0.51 U
Methyl ethyl ketone	UG/L	2.3 U	2.3 U	2.3 U
Methyl isobutyl ketone	UG/L	0.81 UJ	0.81 UJ	0.81 UJ
Methylene chloride	UG/L	1.8 U	1.8 U	1.8 U
Ortho Xylene	UG/L	0.72 U	0.72 U	0.72 U
Styrene	UG/L	0.92 U	0.92 U	0.92 U
Tetrachloroethene	UG/L	0.7 UJ	0.7 UJ	0.7 UJ
Toluene	UG/L	0.71 U	0.71 U	0.71 U
Trans-1,2-Dichloroethene	UG/L	0.81 U	0.81 U	0.81 U
Trans-1,3-Dichloropropene	UG/L	0.66 U	0.66 U	0.66 U
Trichloroethene	UG/L	0.72 U	0.72 U	0.72 U
Vinyl chloride	UG/L	0.72 U	0.72 U	0.72 U
Semivolatile Organic Compour		0.77	0.77	0.77 0
1,2,4-Trichlorobenzene	UG/L	10 U	10 U	10 U
1,2-Dichlorobenzene	UG/L	10 U	10 U	10 U
1,3-Dichlorobenzene	UG/L	10 U	10 U	10 U
1,5 Diemorocomzone		10 0	10 0	10 0

### **SEAD-121C and SEAD-121I RI REPORT**

### **Seneca Army Depot Activity**

			•	
	-	SEAD-121C	SEAD-121C	SEAD-121C
		SWDRMO-8	SWDRMO-8	SWDRMO-8
		SURFACE WATER	SURFACE WATER	SURFACE WATER
		DRMO-3008	DRMO-3005	DRMO-3008/DRMO-3005
Sample Depth to '	Top of Sample	0	0	0
Sample Depth to Bott	tom of Sample	N/A	N/A	N/A
	Sample Date	11/5/2002	11/5/2002	11/5/2002
	QC Code	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
		1		1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
1,4-Dichlorobenzene	UG/L	10 U	10 U	10 U
2,4,5-Trichlorophenol	UG/L	10 U	10 U	10 U
2,4,6-Trichlorophenol	UG/L	10 U	10 U	10 U
2,4-Dichlorophenol	UG/L	10 U	10 U	10 U
2,4-Dimethylphenol	UG/L	10 U	10 U	. 10 U
2,4-Dinitrophenol	UG/L	10 U	10 U	10 U
2,4-Dinitrotoluene	UG/L	10 U	10 U	10 U
2,6-Dinitrotoluene	UG/L	10 U	10 U	10 U
2-Chloronaphthalene	UG/L	10 U	10 U	10 U
2-Chlorophenol	UG/L	10 U	10 U	10 U
2-Methylnaphthalene	UG/L	10 U	10 U	10 U
2-Methylphenol	UG/L	10 U	10 U	10 U
2-Nitroaniline	UG/L	10 U	10 U	10 U
2-Nitrophenol	UG/L	10 U	10 U	10 U
3 or 4-Methylphenol	UG/L	10 U	10 U	10 U
3,3'-Dichlorobenzidine	UG/L	10 U	10 U	10 U
3-Nitroaniline	UG/L	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	UG/L	10 U	10 U	10 U
4-Bromophenyl phenyl ether	UG/L	10 U	10 U	10 U
4-Chloro-3-methylphenol	UG/L	10 U	10 U	10 U
4-Chloroaniline	UG/L	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	UG/L	10 U	10 U	10 U
4-Nitroaniline	UG/L	10 U	10 U	10 U
4-Nitrophenol	UG/L	10 U	10 U	10 U
Acenaphthene	UG/L	10 U	10 U	10 U
Acenaphthylene	UG/L	10 U	10 U	10 U
Anthracene	UG/L	10 U	10 U	10 U
Benzo(a)anthracene	UG/L	10 U	10 U	10 U
Benzo(a)pyrene	UG/L	10 U	10 U	10 U
Benzo(b)fluoranthene	UG/L	10 U	10 U	10 U
Benzo(ghi)perylene	UG/L	10 U	10 U	10 U
Benzo(k)fluoranthene	UG/L	10 U	10 U	10 U
Bis(2-Chloroethoxy)methane	UG/L	10 U	10 U	10 U
Bis(2-Chloroethyl)ether	UG/L	10 UJ	10 UJ	10 UJ
Bis(2-Chloroisopropyl)ether	UG/L	10 U	10 U	10 U
Bis(2-Ethylhexyl)phthalate	UG/L	10 U	10 U	10 U
Butylbenzylphthalate	UG/L	10 U	10 U	10 U
Carbazole	UG/L	10 U	10 U	10 U
Chrysene	UG/L	10 U	10 U	10 U
Di-n-butylphthalate	UG/L UG/L	10 U	10 U	10 U
Di-ii-outyipiitiiaiate	OG/L	10 0	10 0	10 0

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility	SEAD-121C	SEAD-121C	SEAD-121C
		SWDRMO-8	SWDRMO-8	SWDRMO-8
			SURFACE WATER	
		DRMO-3008	DRMO-3005	DRMO-3008/DRMO-3005
Sample Depth to		0	0	0
Sample Depth to Bot		N/A	N/A	N/A
Sample Depth to Bot	Sample Date	11/5/2002	11/5/2002	11/5/2002
	QC Code	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
	Investigation	1 12-10	I ID-IG	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
Di-n-octylphthalate	UG/L	10 U	10 U	10 U
Dibenz(a,h)anthracene	UG/L	10 U	10 U	10 U
Dibenzofuran	UG/L	10 U	10 U	10 U
Diethyl phthalate	UG/L	10 U	10 U	10 U
Dimethylphthalate	UG/L	10 U	10 U	10 U
Fluoranthene	UG/L	10 U	10 U	10 U
Fluorene	UG/L	10 U	10 U	10 U
Hexachlorobenzene	UG/L	10 U	10 U	10 U
Hexachlorobutadiene	UG/L	10 U	10 U	10 U
Hexachlorocyclopentadiene	UG/L	10 UJ	10 UJ	10 UJ
Hexachloroethane	UG/L	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	UG/L	10 U	10 U	10 U
Isophorone	UG/L	10 U	10 U	10 U
N-Nitrosodiphenylamine	UG/L	10 U	10 U	10 U
N-Nitrosodipropylamine	UG/L	10 U	10 U	10 U
Naphthalene	UG/L	10 U	10 U	10 U
Nitrobenzene	UG/L	10 U	10 U	10 U
Pentachlorophenol	UG/L	10 U	10 U	10 U
Phenanthrene	UG/L	10 U	10 U	10 U
Phenol	UG/L	10 U	10 U	10 U
Pyrene	UG/L	10 U	10 U	10 U
Pesticides/PCBs	00.2			
4,4'-DDD	UG/L	0.01 U	0.01 U	0.01 U
4,4'-DDE	UG/L	0.005 U	0.005 U	0.005 U
4,4'-DDT	UG/L	0.01 UJ	0.01 UJ	0.01 UJ
Aldrin	UG/L	0.02 U	0.02 U	0.02 U
Alpha-BHC	UG/L	0.01 UJ	0.01 UJ	0.01 UJ
Alpha-Chlordane	UG/L	0.02 U	0.02 U	0.02 U
Beta-BHC	UG/L	0.01 U	0.01 U	0.01 U
Chlordane	UG/L	0.13 U	0.13 U	0.13 U
Delta-BHC	UG/L	0.004 U	0.004 U	0.004 U
Dieldrin	UG/L	0.004 UJ	0.009 U	0.009 UJ
Endosulfan I	UG/L	0.01 U	0.01 U	0.01 U
Endosulfan II	UG/L	0.01 UJ	0.01 UJ	0.01 UJ
Endosulfan sulfate	UG/L	0.02 U	0.02 U	0.02 U
Endosulian sulfate Endrin	UG/L	0.02 U	0.02 U	0.02 U
Endrin aldehyde	UG/L	0.02 U	0.02 U	0.02 U
Endrin ketone	UG/L	0.02 U	0.009 U	0.002 U
Gamma-BHC/Lindane	UG/L	0.009 U	0.009 U	0.009 U
	UG/L UG/L	0.009 U	0.009 U	0.009 U
Gamma-Chlordane	UG/L	0.01 0	0.01	0.01

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility	SEAD-121C	SEAD-121C	SEAD-121C
	-	SWDRMO-8	SWDRMO-8	SWDRMO-8
			SURFACE WATER	SURFACE WATER
		DRMO-3008	DRMO-3005	DRMO-3008/DRMO-3005
Sample Depth to	•	0	0	0
Sample Depth to Bott		N/A	N/A	N/A
Sample Depth to Don	Sample Date	11/5/2002	11/5/2002	11/5/2002
	QC Code		SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
	in vonganon	1		1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
Heptachlor	UG/L	0.007 U	0.007 U	0.007 U
Heptachlor epoxide	UG/L	0.008 U	0.008 U	0.008 U
Methoxychlor	UG/L	0.008 U	0.008 U	0.008 U
Toxaphene	UG/L	0.12 U	0.12 U	0.12 U
Aroclor-1016	UG/L	0.24 UJ	0.24 UJ	0.24 UJ
Aroclor-1221	UG/L	0.08 U	0.08 U	0.08 U
Aroclor-1232	UG/L	0.09 UJ	0.09 UJ	· 0.09 UJ
Aroclor-1242	UG/L	0.08 UJ	0.08 UJ	0.08 UJ
Aroclor-1248	UG/L	0.12 U	0.12 U	0.12 U
Aroclor-1254	UG/L	0.05 U	0.05 U	0.05 U
Aroclor-1260	UG/L	0.01 UJ	0.01 UJ	0.01 UJ
Metals and Cyanide				
Aluminum	UG/L	23.9	23.4	23.7
Antimony	UG/L	4.7 U	4.7 U	4.7 U
Arsenic	UG/L	2.8 U	2.8 U	2.8 U
Barium	UG/L	43.7	47.4	45.6
Beryllium	UG/L	0.14	0.12	0.13
Cadmium	UG/L	0.4 U	0.4 U	0.4 U
Calcium	UG/L	67700	72200	69950
Chromium	UG/L	0.6 U	0.6 U	0.6 U
Cobalt	UG/L	0.6	0.6	0.6
Copper	UG/L	1.8	2.1	2.0
Cyanide, Amenable	MG/L	0.01 U	0.01 U	0.01 U
Cyanide, Total	MG/L	0.01 U	0.01 U	0.01 U
Iron	UG/L	I9 J	34.2 J	27 Ј
Lead	UG/L	3.7	5.1 J	4.4 J
Magnesium	UG/L	11600	12300	11950
Manganese	UG/L	11.6	26.1	18.9
Mercury	UG/L	0.2 U	0.2 U	0.2 U
Nickel	UG/L	1.8 U	1.8 U	1.8 U
Potassium	UG/L	3450 J	3660 J	3555 J
Selenium	UG/L	3 U	3 U	3 U
Silver	UG/L	1 U	1 U	1 U
Sodium	UG/L	102000 J	108000 J	105000 J
Thallium	UG/L	5.4 U	5.4 U	5.4 U
Vanadium	UG/L	0.7 U	0.7 U	0.7 U
Zinc	UG/L	13.9	16.8	15.4
Other				
Total Petroleum Hydrocarbons	MG/L	1 U	1 U	1 U
•				

SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL SEAD-121I

SEAD-121C and SEAD-121I RI REPORT

Seneca Army Debot Activity

			Seneca Arm	Seneca Army Depot Activity			
	Facility	SEAD-121I	SEAD-121I	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211
	Location ID	SB121I-2	SB121I-2	SB1211-2	SS121I-10	SS121I-10	SS1211-10
	Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sample ID	1211-1043	1211-1044	121I-1043/121I-1044	121I-1006	1211-1031	1211-1006/1211-1031
Sample Depth to Top of Sample	op of Sample	0	0	0	0	0	0
Sample Depth to Bottom of Sample	m of Sample	2	2	2	0.2	0.2	0.2
	Sample Date	10/24/2002	10/24/2002	10/24/2002	10/22/2002	10/22/2002	10/22/2002
	OC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Units	Value (O)	(O)	Value (O)	Value (O)	Value (O)	Value (Q)
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
1,1,2,2-Tetrachloroethane	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
1,1,2-Trichloroethane	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
1,1-Dichloroethane	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
1,1-Dichloroethene	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
1,2-Dichloroethane	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 UJ	2.2 U	2.4 UJ
1,2-Dichloropropane	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Acetone	UG/KG	110 U	33 UJ	72 UJ	4.5 J	1.1 U	2.8 J
Benzene	UG/KG	6.6 J	10 J	8 J	2.5 U	2.2 U	2.4 U
Bromodichloromethane	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Вготоботт	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Carbon disulfide	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Carbon tetrachloride	UG/KG	3.I U	2.8 UJ	3.0 UJ	2.5 UJ	2.2 U	2.4 UJ
Chlorobenzene	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Chlorodibromomethane	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Chloroethane	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Chloroform	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Cis-1,2-Dichloroethene	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Cis-1,3-Dichloropropene	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	
Ethyl benzene	UG/KG	2 J	3.5 J	2.8 J	2.5 U	2.2 U	2.4 U
Meta/Para Xylene	UG/KG	2.2 J	3.4 J	2.8 J	2.5 U	2.2 U	2.4 U
Methyl bromide	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 UJ	2.2 U	2.4 UJ
Methyl butyl ketone	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 UJ	2.2 U	
Methyl chloride	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Methyl ethyl ketone	UG/KG	55	27 J	41 J	2.5 U	2.2 U	2.4 U
Methyl isobutyl ketone	UG/KG	3.1 U	2.8 U	3.0 U	2.5 U	2.2 U	2.4 U
Methylene chloride	UG/KG	i vije	A 10 10 10 10 10 10 10 10 10 10 10 10 10	2.1 J	2.5 U	2.2 U	2.4 U
Ortho Xylene	UG/KG	1.1 J	2 J	2 J	2.5 U	2.2 U	2.4 U
Styrene	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Tetrachloroethene	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Toluene	UG/KG	6'9	11 J	9.0 J	2.5 U	2.2 U	2.4 U
Trans-1,2-Dichloroethene	UG/KG	3.1 U	2.8 UJ	3.0 UI	2.5 U	2.2 U	2.4 U
Trans-1,3-Dichloropropene	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
Trichloroethene	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U
VinyI chloride	UG/KG	3.1 U	2.8 UJ	3.0 UJ	2.5 U	2.2 U	2.4 U

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SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL SEAD-121I

			Seneca Arm	Seneca Army Depot Activity			
	Facility Location ID	SEAD-1211 SB1211-2	SEAD-1211 SR1711-2	SEAD-1211 SR1211.2	SEAD-1211 SS1211-10	SEAD-1211 SS121I-10	SEAD-1211 SS1211-10
	Matrix	NOS	SOIL	SOIL	TIOS	SOIL	SOIL
	Sample ID	1211-1043	121I-1044	1211-1043/1211-1044	1211-1006	1211-1031	1211-1006/1211-1031
Sample Depth to Top of Sample	Top of Sample	0 (	0 (	0 6	0 (	0 6	0 6
od indəci ərdiribe	Sammie Date	10/24/2002	2000/76/01	2	0.2	2.0	0.7
	OC Code	SA SA	10/24/2002 SA	10/24/2002 SA/DU	10/22/2002 SA	10/22/2002 SA	10/22/2002 SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	(Q)	Value (Q)
Semivolatile Organic Compounds							
1,2,4-1 nchlorobenzene	UG/KG	390 0	390 0	390 0	360 U	360 U	360 U
1,2-Dichlorobenzene	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
1,3-Dichlorobenzene	UG/KG	390 0	390 U	390 U	360 U	360 U	360 U
1,4-Dichlorobenzene	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
2,4,5-111cinotopiienoi	00/011	0.006	980 0	0 6/6	0.016	0.016	0.016
2,4,0-1 nemorophenol	00/86	390 0	390 U	390 0	380 U	360 U	360 U
2.4-Dictionophenol	06/86	390 0	390 U	390 U	380 0	360 0	360 U
2,4-Dimemyiphenoi	06/86	390 U	390 U	390 0	380 0	360 0	360 U
2.4-Duntrophenol	00/86	970 U	0 086	9/5 U	910 01	910 00	910 UJ
2,4-Dunidolouene	0.6/8.6	300 0	300 0	390 0	360 0	360 0	360 0
2-Chloronaphthalene	11G/KG	390 11	390 11	390 11	360 11	360 11	360 11
2-Chlorophenol	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
2-Methylnaphthalene	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
2-Methylphenol	UG/KG	390 U	390 U	390∙U	360 U	360 U	360 U
2-Nitroaniline	UG/KG	D 076	O 086	D 576	010 O	910 UI	910 UJ
2-Nitrophenol	UG/KG	390 U	390 U	390 U	360 U	109€	360 U
3 or 4-Methylphenol	UG/KG	390 U	390 U	390 U	360 U	360 ∪	360 U
3,3'-Dichlorobenzidine	UG/KG	390 UJ	390 U	390 UJ	360 U	360 U	360 U
3-Nitroaniline	UG/KG	0 0 O	086 U	975 U	010 N	910 U	010 U
4,6-Dinitro-2-methylphenol	UG/KG	970 U	980 UJ	975 UJ	910 UJ	910 UJ	910 UI
4-Bromophenyl phenyl ether	UG/KG	390 U	390 U	390 U	360 U	360 €	360 U
4-Chloro-3-methylphenol	UG/KG	390 U	390 0	390 U	360 U	360 U	360 U
4. Chloronhanyl nhanyl ather	116/86	300 11	300 11	300 11	360 03	0.006	360 11
4-Methylphenol	UG/KG	0.000		0 060	0 000	0 000	0
4-Nitroaniline	UG/KG	070 U	O 086	975 U	010 U	910 U	910 U
4-Nitrophenol	UG/KG	070 U	D 086	975 U	010 U	910 U	D 016
Acenaphthene	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Acenaphthylene	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Anthracene	UG/KG	89 J	74 J	82 J	360 U	360 U	360 U
Benzo(a)anthracene	UG/KG	350 J	350 J	350 J	48 J	47 J	48 J
Benzo(a)pyrene	UG/KG	390 J	450 J	420 J	66 J	60 J	63 J
Benzo(b)fluoranthene	UG/KG	f 009	620 J	610 J	53 J	51 J	52 J
Benzo(ghi)perylene	UG/KG	220 J	140 J	180 J	67 J	63 J	65 J
Benzo(k)fluoranthene	UG/KG	300 J	360 J	330 J	360 U	360 U	360 U

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Table C-10 SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL SEAD-1211

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

			THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE P	the property and the			
	Facility	SEAD-1211	SEAD-1211	SEAD-121I	SEAD-121I	SEAD-1211	SEAD-1211
	Location ID	SB1211-2	SB1211-2	SB1211-2	SS1211-10	SS121I-10	SS121I-10
	Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sample ID	121I-1043	1211-1044	1211-1043/1211-1044	121I-1006	1211-1031	121I-1006/121I-1031
Sample Depth to Top of	op of Sample	0	0	0	0	0	0
Sample Depth to Bottom of	om of Sample	2	2	2	0.2	0.2	0.2
•	Sample Date	10/24/2002	10/24/2002	10/24/2002	10/22/2002	10/22/2002	10/22/2002
	QC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Units	Value (Q)	Value (Q)	(O)	Value (Q)	Value (Q)	Value (Q)
Bis(2-Chloroethoxy)methane	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Bis(2-Chloroethyl)ether	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Bis(2-Chloroisopropyl)ether	UG/KG	390 U	390 U	390 U	. 360 U	360 U	360 U
Bis(2-Ethylhexyl)phthalate	UG/KG			137 J	360 UJ	360 U	360 UJ
Butylbenzyiphthalate	UG/KG	390 UI	390 U	390 UJ	360 U	360 U	360 U
Carbazole	UG/KG	56 J	f 29	62 J	360 U	360 U	360 U
Chrysene	UG/KG	380 J	400	390 J	62 J	63 J	63 J
Di-n-butylphthalate	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Di-n-octylphthalate	UG/KG	390 UI	390 U	390 UJ	360 U	360 U	360 U
Dibenz(a,h)anthracene	UG/KG	390 UJ	390 U	390 UJ	360 U	360 UJ	360 UJ
Dibenzofuran	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Diethyl phthalate	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Dimethylphthalate	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Fluoranthene	UG/KG	720	920	820	100 J	78 J	89 J
Fluorene	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Hexachlorobenzene	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Hexachlorobutadiene	UG/KG	390 UJ	390 UI	390 UJ	360 U	360 U	360 U
Hexachlorocyclopentadiene	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Hexachloroethane	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Indeno(1,2,3-cd)pyrene	UG/KG	63 J	79 J	71 J	83 J	74 J	79 J
Isophorone	UG/KG	390 UI	390 UJ	390 UJ	360 U	360 U	360 U
N-Nitrosodiphenylamine	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
N-Nitrosodipropylamine	UG/KG	390 U	390 U	390 U	360 U	360 UJ	360 UJ
Naphthalene	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Nitrobenzene	UG/KG	390 UJ	390 UJ	390 UJ	360 U	360 U	360 U
Pentachlorophenol	UG/KG	970 U	O 086	975 U	010 U	910 U	910 U
Phenanthrene	UG/KG	420	440	445	60 J	26 J	58 J
Phenol	UG/KG	390 U	390 U	390 U	360 U	360 U	360 U
Pyrene	UG/KG	1200 J	099	930 J	79 J	68 J	I 68
Pesticides/PCBs							
4,4'-DDD	UG/KG	2 UJ	2 UJ	2 UJ	I.9 U	1.8 UJ	U 6.1
4,4'-DDE	UG/KG	2 U	2 U	2 U	1.9 U	1.8 U	U 6.1
4,4'-DDT	UG/KG	2 U	2 U	2 U	1.9 UI	1.8 UJ	U9 UI
Aldrin	UG/KG	2 U	2 U	2 U	1.9 U	1.8 ∪	1.9 U
Alpha-BHC	UG/KG	2 UJ	2 U	2 UI	I.9 UI	1.8 UJ	U 6.1
Alpha-Chlordane	UG/KG	2 U	2 U	2 U	I.9 UI	1.8 U	1.9 UJ
Beta-BHC	UG/KG	2 U	2 U	2 U	1.9 U	1.8 U	1.9 U

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Table C-10 SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL SEAD-1211

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Endosulan I Endosulan I Endosulan II Endosulan sulate Endrin aldehyde Endrin aldehyde Gamma-Chlordane Heptachlor epoxide Methoxychlor Toxaphene Aroclor-121 Aroclor-1221 Aroclor-124 Aroclor-1254 Aroclor-1254 Aroclor-1254	Units  Units  Units  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG	10/24/2002 SA PID-RI  Value (Q) 20 U 2 UI 11 J 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U	SA PID-RI SA PID-RI SA PID-RI SA SA PID-RI SA SA SA SA SA SA SA SA SA SA SA SA SA	2 SADU PID-RI Value (Q) 20 U 2 UJ 2 UJ 2 UJ 2 U 2 U 2 U 2 U 2 U 2 U 2 U 2 U	10/22/2002 SA PID-RI  Value (Q) 19 U 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ 119 UJ	SA PID-RI SA PID-RI SA PID-RI 18 U 18 U 18 U 18 U 18 U 18 U 18 U 18 U	0 0.2 2A/DU PID-RI PID-RI 19 UJ 19 U
Arsenic Arsenic Barium Berylium Cadmium Calcium Chromium Cobatt Copper Cyanide, Amenable Cyanide, Total Iron Lead	MOKG MOKG MOKG MOKG MOKG MOKG MOKG MOKG	1.5 21.2 J 74.3 J 0.49 0.14 U 30900 25.9 J 25.9 J 37.5 R 0.59 U 0.592 U 27100 31.3	6.6 43 J 83.6 J 0.46 0.14 U 27800 50 J 40.6 J 66.1 R 0.6 U 0.595 U 31500 42.1	3.2 3.2 J 79.0 J 0.48 0.14 U 29350 38 J 32.3 J 0.6 U 0.594 U 29300 36.7	5.4 5.2 116 0.38 J 5 166000 14.3 8.4 24.5 J 0.56 UJ 0.556 UJ	5.2 5.2 119 0.43 J 4.1 14.7 14.7 8.9 22.6 J 0.55 UJ 17600 163	5.0 5.2 118 0.41 J 5 154500 14.5 8.7 8.7 23.6 J 0.56 UJ 0.554 UJ 17350

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SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL SEAD-1211 Table C-10

			Seneca Arm	Seneca Army Depot Activity			
	Facility	SEAD-1211	SEAD-121I	SEAD-1211	SEAD-121I	SEAD-1211	SEAD-1211
	Location ID	SB1211-2	SB1211-2	SB1211-2	SS1211-10	SS1211-10	SS1211-10
	Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sample ID	121I-1043	121I-1044	1211-1043/1211-1044	1211-1006	1211-1031	1211-1006/1211-1031
Sample Depth to Top of Sample	Cop of Sample	0	0	0	0	0	0
Sample Depth to Bottom of Sample	om of Sample	2	2	2	0.2	0.2	0.2
	Sample Date	10/24/2002	10/24/2002	10/24/2002	10/22/2002	10/22/2002	10/22/2002
	QC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Units	Value (O)	Value (O)	Value (O)	Value (O)	(O)	(O)
Magnesium	MG/KG	6110	4240	5175	13500	9040	11270
Manganese	MG/KG	33200 J	57800 J	45500 J	786	822	804
Mercury	MG/KG	0.04	0.05	0.05	0.03	0.03	0.03
Nickel	MG/KG	38.9 J	46.3 J	42.6 J	26.7	26.9	26.8
Potassium	MG/KG	859 J	929 J	894 J	286	1150	896
Selenium	MG/KG	5.1 J	I7.9 J	12 J	0.87	8.0	0.8
Silver	MG/KG	1.9 J	4.2 J	3.1 J	1.1 U	1.1 U	1.1 U
Sodium	MG/KG	118 U	115 U	117 U	210	188	199
Thallium	MG/KG	٣	14.4	6	1.1 U	1.1 U	1.1 U
Vanadium	MG/KG	22.6 J	31.6 J	27.1 J	11.6	13.2	12.4
Zinc	MG/KG	85.1 J	82 J	84 J	84 J	67.9 J	76 J
Other							
Total Organic Carbon	MG/KG	2600	0089	6200	2600	4500	5050
Total Petroleum Hydrocarbons	MG/KG	47 U	48 U	48 U	44 UJ	44 UJ	44 UJ

NOTES:
Shaded cells indicate a detect/non-detect pair.
Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection limit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

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SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL **SEAD-1211** 

			Seneca Army	Seneca Army Depot Activity			
	Facility	SEAD-1211	SEAD-1211	SEAD-121I	SEAD-121I	SEAD-121I	SEAD-1211
	Location ID	SS1211-29	SS1211-29	SS121I-29	SD1211-7	SD1211-7	SD1211-7
	Matrix	SOIL	SOIL	SOIL	DITCHSOIL	DITCHSOIL	DITCHSOIL
	Sample ID	1211-1025	1211-1030	1211-1025/1211-1030	1211-4005	1211-4007	1211-4007/1211-4005
Sample Depth to T	Top of Sample	0	0	0	0	0	0
Sample Depth to Bottom of Sample	ttom of Sample	0.2	0.2	0.2	2	2	2
	Sample Date	10/23/2002	10/23/2002	10/23/2002	10/26/2002	10/26/2002	10/26/2002
	OC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Tinite	(O) auto/	(C) onlow	(O) only)	1 1/2/12/00	1,451.5	1
Volatile Organic Compounds	Omits	v aine	value (V)	value (V)	value (Q)	value (Q)	value (V)
1.1.1-Trichlomethane	11G/KG	3.1 11	3.6 111	3 4 111 .	3 1 111	117 0 %	111 CE
1 1.2 2-Tetrachiomethane	TIGARG	2.1.0	3.6 111	2017	0.1.0		11.00
1.1.2-Trichlomethane	TIGARG	2.1.0	3.6 111	3.4 11		5.5	5.2 0.5
1.1-Dichlomethane	TIG/KG	2.1.0	2.6 0.5	3.4 111		5.2 OU	5.2 CJ
1.1-Dichlomethene	TIGARG	2.1.0	3.6 111				2.5
1.2-Dichloroethane	11G/KG		3,6 111	2.4			
1.2-Dichlompmane	TIG/KG		3.6 111		21.5		111 00
Acetone	TIGARG		3.6 111				10 4.C
Benzene	DA/DO		0.00				181
Denzene	0.000 L		-1/0	41 )	3.1 0.1	3.2 U)	3.2 UJ
biolitodicinologiemane	DG/NG		3.6 0	3.4 0]			3.2 UJ
Бгототот	UG/KG		3.6 UI	3.4 UI			3.2 UJ
Carbon disulfide	UG/KG	3.1 U	3.6 UI	3.4 UI			3.2 UI
Carbon tetrachloride	UG/KG		3.6 UI	3.4 UI		3.2 UJ	3.2 UJ
Chlorobenzene	UG/KG	3.1 U	3.6 UI	3.4 UI		3.2 UJ	3.2 UI
Chlorodibromomethane	UG/KG		3.6 UI	3.4 UI	3.1 UI	3.2 UJ	3.2 UJ
Chloroethane	UG/KG		3.6 UI	3.4 UI			3.2 UJ
Chloroform	UG/KG	3.1 U	3.6 UI	3.4 UJ	3.1 UJ	3.2 UJ	3.2 UJ
Cis-1,2-Dichloroethene	UG/KG		3.6 UI	3.4 UI		3.2 UJ	3.2 UJ
Cis-1,3-Dichloropropene	UG/KG	3.1 U	3.6 UI	3.4 UJ	3.1 UJ		3.2 UJ
Ethyl benzene	UG/KG	4.4	9.5 J	7.0 J	3.1 UI		3.2 UI
Meta/Para Xylene	UG/KG		8.7 J	6.3 J			3.2 UJ
Methyl bromide	UG/KG	3.1 CI	3.6 UJ	3.4 UI	3.1 UI		3.2 UJ
Methyl butyl ketone	UG/KG	3.1 CI	3.6 UI	3.4 UI	3.1 UJ		3.2 UJ
Methyl chlonde	UG/KG	3.1 U	3.6 UI	3.4 UJ	3.1 UI	3.2 UJ	3.2 UJ
Methyl ethyl ketone	UG/KG	5.55	Color Color	34 J			
Methyl isobutyl ketone	UG/KG	3.1 U	3.6 UI	3.4 UJ	3.1 UJ	3.2 UJ	3.2 UJ
Methylene chloride	UG/KG	3.1 U	3.6 UI	3.4 UJ	2.5 U	1.9 U	2.2 U
Ortho Xylene	UG/KG		5.1 J	3.6 J	3.1 UJ	3.2 UJ	3.2 UJ
Styrene	UG/KG		3.6 UI	3.4 UJ			3.2 UJ
Tetrachloroethene	UG/KG	3.1 UI	3.6 UI	3.4 UJ	3.1 UJ	3.2 UJ	3.2 UJ
Toluene	UG/KG	18	43 J	31 J	3.1 UJ	3.2 UJ	3.2 UJ
Trans-1,2-Dichloroethene	UG/KG		3.6 UJ	3.4 UJ	3.1 UJ	3.2 UJ	3.2 UJ
Trans-1,3-Dichloropropene	UG/KG	3.1 U	3.6 UJ	3.4 UJ	3.1 UJ	3.2 UJ	3.2 UJ
Trichloroethene	UG/KG	3.1 U	3.6 UJ	3.4 UI			3.2 UJ
Vinyl chloride	UG/KG	3.1 U	3.6 UJ	3.4 UI	3.1 UJ	3.2 UJ	3.2 UJ

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Table C-10
SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL
SEAD-121I

			Seneca Army	Seneca Army Depot Activity			
	Facility	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211 SD1211.7
	Matrix	SS12162	22112186 FOR	52-117166	DITCHSOIL	DITCHSOIL	DITCHSOIL
	Sample ID	1211-1025	1211-1030	1211-1025/1211-1030	1211-4005	1211-4007	1211-4007/1211-4005
Sample Depth	Sample Depth to Top of Sample	0	0	0	0	0	0
Sample Depth to 1	Sample Depth to Bottom of Sample	0.2	0.2	0.2		2	2
	Sample Date	10/23/2002	10/23/2002	10/23/2002	10/26/2002	10/26/2002	10/26/2002
	OC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
	-	100			1	1	
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
semivolatile Organic Compound	Spuno	11 0010	11 0000	11 0000	11 007	11 007	11 007
1,2,4-1 includiobenzene	DW/DO	2100 0	2300 0	0 0077	420 0	420 0	420 0
1,2-Dichlorobenzene	DG/KG	2100 0	2300 0	7500 0	0 074	420 0	420 U
1,3-Dichlorobenzene	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
1,4-Dichlorobenzene	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
2,4,5-Trichlorophenol	UG/KG	5200 U	S700 U	2450 U	1100 U	1100 U	1100 U
2,4,6-Trichlorophenol	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
2,4-Dichlorophenol	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
2,4-Dimethylphenol	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
2,4-Dinitrophenol	UG/KG	5200 R	5700 UJ	5700 UJ	1100 U	1100 U	1100 U
2,4-Dinitrotoluene	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
2,6-Dinitrotoluene	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
2-Chloronaphthalene	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
2-Chlorophenol	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
2-Methylnaphthalene	UG/KG	2100 U	2300 U	2200 U	70 012	130 1	170 J
2-Methylphenol	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
2-Nitroaniline	UG/KG	5200 UJ	5700 UJ	5450 UJ	1100 U	1100 U	1100 U
2-Nitrophenol	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
3 or 4-Methylphenol	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
3,3'-Dichlorobenzidine	UG/KG	2100 UJ	2300 R	2100 UJ	0.018	Rock	315 J
3-Nitroaniline	UG/KG	5200 U	5700 UJ	5450 UJ	1100 U	1100 U	1100 U
4,6-Dinitro-2-methylphenol	UG/KG	5200 R	5700 UJ	5700 UJ	1100 U	1100 U	1100 U
4-Bromophenyl phenyl ether	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
4-Chloro-3-methylphenol	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
4-Chloroaniline	UG/KG	2100 U	2300 U	2200 U	420 U	420 N	420 U
4-Chlorophenyl phenyl ether	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
4-Methylphenol	UG/KG						
4-Nitroaniline	UG/KG	5200 U	5700 UJ	5450 UJ	1100 U	1100 U	1100 U
4-Nitrophenol	UG/KG	5200 U	S700 U	2450 U	1100 U	1100 U	1100 U
Acenaphthene	UG/KG	2100 U	2300 U	2200 U	280 J	1200	740 J
Acenaphthylene	UG/KG	2100 U	2300 U	. 7200 D	NO.	202	140 J
Anthracene	UG/KG	404	TOTAL	740 J	420 J	1900	1160 J
Benzo(a)anthracene	UG/KG	700 J	260 J	480 J	2200 J	5000 J	3600 €
Benzo(a)pyrene	UG/KG	700 J	2300 R	700 J	2800 J	5900 J	4350 J
Benzo(b)fluoranthene	UG/KG	720 J	2300 R	720 J	3600 J	8100 J	5850 J
Benzo(ghi)perylene	UG/KG	430 J	2300 R	430 J	1400 J	3200 J	2300 J
Benzo(k)fluoranthene	UG/KG	720 J	2300 R	720 J	2500 J	4900 J	3700 J

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Table C-10
SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL SEAD-121I

			Seneca Army	Seneca Army Depot Activity			
	Facility	SEAD-1211	SEAD-1211	SEAD-121I	SEAD-1211	SEAD-1211	SEAD-1211
	Location ID	SS1211-29	SS121I-29	SS1211-29	SD121I-7	SD1211-7	SD1211-7
	Matrix	SOIL	SOIL	SOIL	DITCHSOIL	DITCHSOIL	DITCHSOIL
	Sample ID	1211-1025	1211-1030	121I-1025/121I-1030	1211-4005	1211-4007	1211-4007/1211-4005
Sample Depth to Top of Sample	Top of Sample	0	0	0	0	0	0
Sample Depth to Bottom of Sample	ttom of Sample	0.2	0.2	0.2	2	2	2
	Sample Date	10/23/2002	10/23/2002	10/23/2002	10/26/2002	10/26/2002	10/26/2002
	QC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
						1	1
Parameter	Units	Value (Q)	Value (Q)	(Q) Nalue	Value (Q)	(Q) Value (Q)	Value (Q)
Bis(2-Chloroethoxy)methane	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
Bis(2-Chloroethyl)ether	UG/KG	2100 U	2300 U	2200 U	420 UJ	420 U	420 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
Bis(2-Ethylhexyl)phthalate	UG/KG	1080	(f 09%)	655 J	75 J	110 J	93 J
Butylbenzylphthalate	UG/KG	2100 U	2300 R	2100 U	420 J	420 J	420 J
Carbazole	UG/KG	340	THE PARTY OF THE PARTY.	745 J	440	1700	1070
Chrysene	UG/KG	790 J	2300 R	790 J	2400 J	5400 ]	3900 J
Di-n-butylphthalate	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
Di-n-octylphthalate	UG/KG	2100 U	2300 R	2100 U	420 J	420 J	420 J
Dibenz(a,h)anthracene	UG/KG	2100 UJ	2300 R	2100 UJ	130 J	350 J	240 J
Dibenzofuran	UG/KG	2100 U	2300 U	2200 U	71 J	640	356 J
Diethyl phthalate	UG/KG	1.080-0	2300	640 J	420 U	420 U	420 U
Dimethylphthalate	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
Fluoranthene	UG/KG	2500	490 J	1495 J	4400	13000	8700
Fluorene	UG/KG	2100 U	2300 U	2200 U	190 J	1100	645 J
Hexachlorobenzene	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
Hexachlorobutadiene	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
Hexachlorocyclopentadiene	UG/KG	2100 UJ	2300 U	2200 UJ	420 U	420 U	420 U
Hexachloroethane	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
Indeno(1,2,3-cd)pyrene	UG/KG	2100 UJ	2300 R	2100 UJ	400 J	1300 J	850 J
Isophorone	UG/KG	2100 U	2300 U	2200 U	420 1	210.0	315 J
N-Nitrosodiphenylamine	UG/KG	2100 U	2300 U	2200 U	420 U	420 U	420 U
N-Nitrosodipropylamine	UG/KG	2100 U	2300 UJ	. 2200 UJ	420 U	420 U	420 U
Naphthalene	UG/KG	2100 U	2300 U	2200 U		00	350 J
Nitrobenzene	UG/KG	2100 U	2300 U	2200 U	が、できる。いかのでは、	The Part of the last	315 J
Pentachlorophenol	UG/KG	5200 UJ	2700 U	5450 UI	1100 U	1100 U	1100 U
Phenanthrene	UG/KG	2200	530 J	1365 J	2500	10000	6250
Phenol	UG/KG	2100 U	2300 U	2200 U		210 01	315 J
Pyrene	UG/KG	2300	1600 J	1950 J	6500 J	17000 J	11750 J
Pesticides/PCBs							
4,4'-DDD	UG/KG	2.2 UJ	2.3 UJ	2.3 UJ	2.2 U	2.2 U	2.2 U
4,4'-DDE	UG/KG	2.2 U	2.3 U	2.3 U			7.6 J
4,4'-DDT	UG/KG	2.2 UJ	2.3 UJ	2.3 UJ	2.2 UJ	2.2 UJ	2.2 UJ
Aldrin	UG/KG	2.2 U	2.3 U	2.3 U	2.2 U	2.2 U	2.2 U
Alpha-BHC	UG/KG	2.2 UJ	2.3 UI	2.3 UJ	2.2 U	2.2 U	2.2 U
Alpha-Chlordane	UG/KG	2.2 UJ	2.3 UJ	2.3 UJ	2.2 U	2.2 U	2.2 U
Beta-BHC	UG/KG	2.2 U	2.3 U	2.3 U	2.2.U	2.2 U	2.2 U

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Table C-10 SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL **SEAD-1211** 

			Seneca Army	Seneca Army Denot Activity			
			Senter of my	Depor received			
	Facility	SEAD-1211	SEAD-1211	SEAD-121I	SEAD-1211	SEAD-1211	SEAD-1211
	Location ID	SS1211-29	SS1211-29	SS1211-29	SD1211-7	SD1211-7	SD1211-7
	Matrix	TIOS	SOIL	TIOS	DITCHSOIL	DITCHSOIL	DITCHSOIL
	Sample 1D	1211-1023	0501-1121	0501-1121/0501-1121	1211-4005	1211-4001	1211-4007/1211-4005
Sample Depth to 1	to Top of Sample	0 0	0 6	0 %	0 0	0 6	0 6
Sample Depth to Bottom of Sample	Sottom of Sample	7.0	0.7	0.7	7	7	7
	Sample Date	10/23/2002	10/23/2002	10/23/2002	10/26/2002	10/26/2002	10/26/2002
	OC Code	SA	SA	SA/DU	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Tinife	Value (O)	Value (O)	Value (O)	(O) euley	Value (O)	Value (O)
Chlordane	TIG/KG	22 11	23 11	23 11	72 11	22 11	22 11
Delta-BHC	TIG/KG	22 0	23 111	23.111	111 66	111 66	111 66
Dieldrin	TIG/KG	2.2 03	2.3 03	2.3 03	2.2	2.2 0.3	2.2 03
Endosulfan I	TIG/KG		AR AR AR AR AR AR AR AR AR AR AR AR AR A	12 1	22.2	26 20	22.11
Endosnifan II	DW/DI	2211	23.11	73.11	2.2	22.11	2:2
Endosulfan sulfate	UG/KG	2.2 U	2.3 U	2.3 U	2.2 U	2.2 U	2.2 U
Endrin	UG/KG	2.2 U	2.3 U	2.3 U	2.2 UJ	2.2 UJ	2.2 UJ
Endrin aldebyde	UG/KG	2.2 U	2.3 U	2.3 U	2.2 UJ	2.2 UJ	2.2 UJ
Endrin ketone	UG/KG	2.2 U	2.3 U	2.3 U	2.2 U	2.2 U	2.2 U
Gamma-BHC/Lindane	UG/KG	2.2 U	2.3 U	2.3 U	2.2 U	2.2 U	2.2 U
Garrma-Chlordane	UG/KG	2.2 U	2.3 U	2.3 U	2.2 U	2.2 U	2.2 U
Heptachlor	UG/KG	2.2 U	2.3 U	2.3 U	2.2 U	2.2 U	2.2 U
Heptachlor epoxide	UG/KG	17 R	2.3 U	2.3 U	2.2 U	2.2 U	2.2 U
Methoxychlor	UG/KG	2.2 UJ	2.3 UJ	2.3 UJ	2.2 UJ	2.2 UJ	2.2 UJ
Toxaphene	UG/KG	22 U	23 U	23 U	22 U	22 U	22 U
Aroclor-1016	UG/KG	21 UJ	23 UJ	22 UJ	22 U	22 U	22 U
Aroclor-1221	UG/KG	21 UJ	23 UJ	22 UJ	22 U	22 U	22 U
Aroclor-1232	UG/KG	21 UJ	23 UJ	22 UJ .	22 U	22 U	22 U
Aroclor-1242	UG/KG	21 UJ	23 UJ	22 UJ ,	22 U	22 U	22 U
Aroclor-1248	UG/KG	21 UJ	23 UJ	22 UJ	22 U	22 U	22 U
Aroclor-1254	UG/KG	21 UJ	23 UJ	22 UJ	22 U	22 U	22 U
Aroclor-1260	UG/KG	21 UJ	23 UJ	22 UJ		17.01	14 J
Metals and Cyanide							
Aluminum	MG/KG	3730	2200	2965	0569	6170	0959
Antimony	MG/KG	1.1 U	1.2 U	1.2 U	1.1 U	O 66'0	1.0 U
Arsenic	MG/KG	349 R	239 R		7.8	6.9	7.4
Barium	MG/KG	87.4 J	84.9 J	86.2 J	72.2	58.9	9:59
Beryllium	MG/KG	0.16 U	0.18 U	0.17 U	0.48 J	0.43 J	0.46 J
Cadmium	MG/KG	0.15 U	0.16 U	0.16 U	0.83	0.77	0.80
Calcium	MG/KG	29900 J	46500 J	38200 J	145000	110000	127500
Chromium	MG/KG	516	362	439	14.5	13.5	14
Cobalt	MG/KG	237 J	174 J	206 J	11	10.5	11
Copper	MG/KG	243	175	500	33.8 J	34.7 J	34.3 J
Cyanide, Amenable	MG/KG	0.63 U	0.68 U	0.66 U	0.64 U	0.65 U	0.65 U
Cyanide, Total	MG/KG	1.26	2.73	2.00	0.644 U	0.648 U	0.646 U
Iron	MG/KG	69400	47400	58400	15200 J	13900 J	14550 J
Lead	MG/KG	47.8 J	45.9 J	46.9 ]	71.2 J	77.4 J	74.3 J

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SAMPLE-DUPLICATE MERGING RESULTS - SURFACE SOIL AND DITCH SOIL Table C-10 **SEAD-1211** 

				Seneca Army	Seneca Army Depot Activity			
		Facility	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-121I	SEAD-1211
	1	Location ID	SS1211-29	SS1211-29	SS1211-29	SD1211-7	SD1211-7	SD1211-7
		Matrix	SOIL	SOIL	SOIL	DITCHSOIL	DITCHSOIL	DITCHSOIL
		Sample ID	1211-1025	1211-1030	1211-1025/1211-1030	1211-4005	1211-4007	1211-4007/1211-4005
	Sample Depth to Top	Top of Sample	0	0	0	0	0	0
S	Sample Depth to Botton	ttom of Sample	0.2	0.2	0.2	7	2	2
		ample Date	10/23/2002	10/23/2002	10/23/2002	10/26/2002	10/26/2002	
		OC Code		SA	SA/DU	SA	SA	
	ū	Investigation	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	щ
						1	1	
Parameter		Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Magnesium		MG/KG	2770 J	f 0609	4430 J	11700 J	I 0686	10795 J
Manganese		MG/KG	349000	272000	310500	588 J	541 J	
Mercury		MG/KG	0.02	0.02	0.02	0.12 UJ	0.11 UJ	0.12 UJ
Nickel		MG/KG	394 J	289 J	342 J	27.9 J	26.9 J	27.4 J
Potassium		MG/KG	959	612	634	1340 J	1230 J	1285 J
Selenium		MG/KG	160 J	131 J	146 J	0.53 U	0.46 U	0.50 U
Silver		MG/KG	24.1 R	18.6 R		0.34 U	0.3 U	0.3 U
Sodium		MG/KG	126 U	135 U	131 U	288	211	250
Thallium		MG/KG	173 J	152 J	163 J		The Lot of the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest and the latest	0.44 J
Vanadium		MG/KG	217 J	147 J	182 J	20.2 J	18.4 J	19.3 J
Zinc		MG/KG	47.7 J	37.8 J	42.8 J	124 J	125 J	125 J
Other								
Total Organic Carbon	ic Carbon	MG/KG	7300	4900	6100	5300	4500	4900
Total Petrole	Total Petroleum Hydrocarbons	MG/KG	240	1600	920	1000 J	630 J	815 J

NOTES:
Shaded cells indicate a detect/non-detect pair.
Concentrations reported as not detected in the shaded pair, as indicated by "U" or "UJ" data qualifiers, are presented at 1/2 the value reported by the laboratory. The modified value (i.e., 1/2 the laboratory's reported detection lirnit) was used to compute the average result.

When a chemical was not detected in either the sample or the duplicate, as indicated by "U" or "UJ" data qualifiers, the average of the two reported detection limits at full value is reported as the final value.

	Someth	orang popoli	1001110	
	Facility	SEAD-121I	SEAD-121I	SEAD-121I
	Location ID	SW121I-7	SW121I-7	SW121I-7
	Matrix	SURFACE WATER	SURFACE WATER	SURFACE WATER
	Sample ID	1211-3007	1211-3005	121I-3007/121I-3005
Sample Depth to T		0	0	0
Sample Depth to Bott		N/A	N/A	N/A
Sample Deput to Bott	Sample Date		10/26/2002	10/26/2002
	QC Code	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
	mvestigation		1	1
December	TI:4	1	=	Value (Q)
Parameter	Units	Value (Q)	Value (Q)	value (Q)
Volatile Organic Compounds		6 II	<i>E</i> II	£ 11
1,1,1-Trichloroethane	UG/L	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	UG/L	5 U	5 U	5 U
1,1,2-Trichloroethane	UG/L	5 U	5 U	5 U
1,1-Dichloroethane	UG/L	5 U	5 U	5 U
1,1-Dichloroethene	UG/L	5 U	5 U	5 U
1,2-Dichloroethane	UG/L	5 U	5 U	5 U
1,2-Dichloropropane	UG/L	5 U	5 U	5 U
Acetone	UG/L	5 UJ	5 UJ	5 UJ
Benzene	UG/L	5 U	5 U	5 U
Bromodichloromethane	UG/L	5 U	5 U	5 U
Bromoform	UG/L	5 U	5 U	5 U
Carbon disulfide	UG/L	5 U	5 U	5 U
Carbon tetrachloride	UG/L	5 U	5 U	5 U
Chlorobenzene	UG/L	5 U	5 U	5 U
Chlorodibromomethane	UG/L	5 UJ	5 UJ	5 UJ
Chloroethane	UG/L	5 UJ	5 UJ	5 UJ
Chloroform	UG/L	5 U	5 U	5 U
Cis-1,2-Dichloroethene	UG/L	5 U	5 U	5 U
Cis-1,3-Dichloropropene	UG/L	5 U	5 U	5 U
Ethyl benzene	UG/L	5 U	5 U	5 U
Meta/Para Xylene	UG/L	5 U	5 U	5 U
		5 U	5 U	5 U
Methyl bromide	UG/L			
Methyl butyl ketone	UG/L	5 U	5 U	5 U
Methyl chloride	UG/L	5 U	5 U	5 U
Methyl ethyl ketone	UG/L	5 UJ	5 UJ	5 UJ
Methyl isobutyl ketone	UG/L	5 U	5 U	5 U
Methylene chloride	UG/L	5 U	5 U	5 U
Ortho Xylene	UG/L	5 U	5 U	5 U
Styrene	UG/L	5 U	5 U	5 U
Tetrachloroethene	UG/L	5 U	5 U	5 U
Toluene	UG/L	5 U	5 U	5 U
Trans-1,2-Dichloroethene	UG/L	5 U	5 U	5 U
Trans-1,3-Dichloropropene	UG/L	5 UJ	5 UJ	5 UJ
Trichloroethene	UG/L	5 U	5 U	5 U
Vinyl chloride	UG/L	5 UJ	5 UJ	5 UJ
Semivolatile Organic Compou				
1,2,4-Trichlorobenzene	UG/L	10 U	10 UJ	10 UJ
1,2-Dichlorobenzene	UG/L	10 U	10 U	10 U
1,3-Dichlorobenzene	UG/L	10 U	10 U	10 U
-,-	0 0.2	- 0 - 0		- 0

Sample Depth to Sample Depth to Bot	Location ID Matrix Sample ID Top of Sample	SURFACE WATER 121I-3007 0 N/A	SEAD-121I SW121I-7 SURFACE WATER 121I-3005 0 N/A 10/26/2002 SA PID-RI	SEAD-121I SW121I-7 SURFACE WATER 121I-3007/121I-3005 0 N/A 10/26/2002 SA/DU PID-RI
		1	1	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
1,4-Dichlorobenzene	UG/L	10 U	10 U	10 U
2,4,5-Trichlorophenol	UG/L	10 U	10 R	10 U
2,4,6-Trichlorophenol	UG/L	10 U	10 R	10 U
2,4-Dichlorophenol	UG/L	10 U	10 R	10 U
2,4-Dimethylphenol	UG/L	10 U	10 R	10 U
2,4-Dinitrophenol	UG/L	10 UJ	10 R	10 UJ
2,4-Dinitrotoluene	UG/L	10 U	10 U	. 10 U 10 U
2,6-Dinitrotoluene	UG/L	10 U 10 U	10 U	10 U
2-Chloronaphthalene	UG/L		10 U 10 R	10 U
2-Chlorophenol	UG/L	10 U	10 K	10 U
2-Methylnaphthalene	UG/L UG/L	10 U 10 U	10 U	10 U
2-Methylphenol 2-Nitroaniline	UG/L	10 UJ	10 U	10 U
	UG/L	10 U	10 G	10 U
2-Nitrophenol	UG/L	10 U	10 UJ	10 UJ
3 or 4-Methylphenol	UG/L	10 U	10 OJ 10 R	10 U
3,3'-Dichlorobenzidine 3-Nitroaniline	UG/L	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	UG/L	10 U	10 R	10 U
4-Bromophenyl phenyl ether	UG/L	10 U	10 U	10 U
4-Chloro-3-methylphenol	UG/L	10 U	10 R	10 U
4-Chloroaniline	UG/L	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	UG/L	10 U	10 U	10 U
4-Nitroaniline	UG/L	10 U	10 U	10 U
4-Nitrophenol	UG/L	10 U	10 R	10 U
Acenaphthene	UG/L	10 U	10 U	10 U
Acenaphthylene	UG/L	10 U	10 U	10 U
Anthracene	UG/L	10 U	10 U	10 U
Benzo(a)anthracene	UG/L	10 U	10 U	10 U
Benzo(a)pyrene	UG/L	10 U	10 U	10 U
Benzo(b)fluoranthene	UG/L	10 U	10 U	10 U
Benzo(ghi)perylene	UG/L	10 U	10 U	10 U
Benzo(k)fluoranthene	UG/L	10 U	10 U	10 U
Bis(2-Chloroethoxy)methane	UG/L	10 U	10 U	10 U
Bis(2-Chloroethyl)ether	UG/L	10 UJ	10 UJ	10 UJ
Bis(2-Chloroisopropyl)ether	UG/L	10 U	10 U	10 U
Bis(2-Ethylhexyl)phthalate	UG/L	10 U	10 U	10 U
Butylbenzylphthalate	UG/L	10 U	10 U	10 U
Carbazole	UG/L	10 U	10 U	10 U
Chrysene	UG/L	10 U	10 U	10 U
Di-n-butylphthalate	UG/L	10 U	10 U	10 U

	School			
	Facility	SEAD-121I	SEAD-1211	SEAD-1211
	Location ID	SW121I-7	SW121I-7	SW121I-7
	Matrix	SURFACE WATER	SURFACE WATER	SURFACE WATER
	Sample ID	121I-3007	121I-3005	121I-3007/121I-3005
Sample Depth to	-	0	. 0	0
Sample Depth to Bot		N/A	N/A	N/A
January III II II II II II II II II II II II I	Sample Date	10/26/2002	10/26/2002	10/26/2002
	QC Code	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
	U	1	1	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
Di-n-octylphthalate	UG/L	10 U	10 U	10 U
Dibenz(a,h)anthracene	UG/L	10 U	10 U	10 U
Dibenzofuran	UG/L	10 U	10 U	10 U
Diethyl phthalate	UG/L	10 U	10 U	10 U
Dimethylphthalate	UG/L	10 U	10 U	10 U
Fluoranthene	UG/L	10 U	10 U	10 U
Fluorene	UG/L	· 10 U	10 U	10 U
Hexachlorobenzene	UG/L	10 U	10 U	10 U
Hexachlorobutadiene	UG/L	10 UJ	10 UJ	10 UJ
Hexachlorocyclopentadiene	UG/L	10 UJ	10 UJ	10 UJ
Hexachloroethane	UG/L	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	UG/L	10 U	10 UJ	10 UJ
Isophorone	UG/L	10 UJ	10 U	10 UJ
N-Nitrosodiphenylamine	UG/L	10 UJ	10 UJ	10 UJ
N-Nitrosodipropylamine	UG/L	10 U	10 U	10 U
Naphthalene	UG/L	10 U	10 U	10 U
Nitrobenzene	UG/L	10 U	10 U	10 U
	UG/L	10 U	10 R	10 U
Pentachlorophenol	UG/L	10 U	10 K	10 U
Phenanthrene	UG/L	10 U	10 R	10 U
Phenol	UG/L	10 U	10 U	10 U
Pyrene	UG/L	10 0	10 0	10 0
Pesticides/PCBs	LIC/I	0.01 111	0.01 UJ	0.01 UJ
4,4'-DDD	UG/L	0.01 UJ		0.005 UJ
4,4'-DDE	UG/L	0.005 UJ	0.005 UJ	0.003 UJ
4,4'-DDT	UG/L	0.01 UJ	0.01 UJ	0.01 UJ
Aldrin	UG/L	0.02 UJ	0.02 UJ	
Alpha-BHC	UG/L	0.01 UJ	0.01 UJ	0.01 UJ
Alpha-Chlordane	UG/L	0.02 UJ	0.02 UJ	0.02 UJ
Beta-BHC	UG/L	0.01 UJ	0.01 UJ	0.01 UJ
Chlordane	UG/L	0.13 U	0.13 U	0.13 U
Delta-BHC	UG/L	0.004 UJ	0.004 UJ	0.004 UJ
Dieldrin	UG/L	0.009 UJ	0.009 UJ	0.009 UJ
Endosulfan I	UG/L	0.01 UJ	0.01 UJ	0.01 UJ
Endosulfan II	UG/L	0.01 U	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0.02 U	0.02 U	0.02 U
Endrin	UG/L	0.02 UJ	0.02 UJ	0.02 UJ
Endrin aldehyde	UG/L	0.02 U	0.02 U	0.02 U
Endrin ketone	UG/L	0.009 U	0.009 U	0.009 U
Gamma-BHC/Lindane	UG/L	0.009 UJ	0.009 UJ	0.009 UJ
Gamma-Chlordane	UG/L	0.01 UJ	0.01 UJ	0.01 UJ

	Facility	SEAD-121I	SEAD-121I	SEAD-121I
		SW121I-7	SW121I-7	SW121I-7
			SURFACE WATER	SURFACE WATER
	Sample ID		121I-3005	121I-3007/121I-3005
Sample Depth to	_	0	0	0
Sample Depth to Bott		N/A	N/A	N/A
	Sample Date		10/26/2002	10/26/2002
	QC Code	SA	SA	SA/DU
	Investigation	PID-RI	PID-RI	PID-RI
	Ü	1	1	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)
Heptachlor	UG/L	0.007 UJ	0.007 UJ	0.007 UJ
Heptachlor epoxide	UG/L	0.008 UJ	0.008 UJ	0.008 UJ
Methoxychlor	UG/L	0.008 U	0.008 U	0.008 U
Toxaphene	UG/L	0.12 U	0.12 U	0.12 U
Aroclor-1016	UG/L	0.5 UJ	0.5 UJ	0.5 UJ
Aroclor-1221	UG/L	0.5 U	0.5 U	0.5 U
Aroclor-1232	UG/L	0.5 UJ	· . 0.5 UJ	0.5 UJ
Aroclor-1242	UG/L	0.5 U	0.5 U	0.5 U
Aroclor-1248	UG/L	0.5 U	0.5 U	0.5 U
Aroclor-1254	UG/L	0.5 U	0.5 U	0.5 U
Aroclor-1260	UG/L	0.5 UJ	0.5 UJ	0.5 UJ
Metals and Cyanide				
Aluminum	UG/L	45.8	46.3	46.1
Antimony	UG/L	3.8 U	3.8 U	3.8 U
Arsenic	UG/L	4.5 U	4.5 U	4.5 U
Barium	UG/L	9.9 U	9.9 U	9.9 U
Beryllium	UG/L	0.1 U	0.1 U	0.1 U
Cadmium	UG/L	0.8 U	0.8 U	0.8 U
Calcium	UG/L	18300	17700	18000
Chromium	UG/L	1.4 U	1.4 U	1.4 U
Cobalt	UG/L	0.7 U	0.7 U	0.7 U
Copper	UG/L	3.6 U	3.6 U	3.6 U
Cyanide, Amenable	MG/L	0.01 U	0.01 U	0.01 U
Cyanide, Total	MG/L	0.01 U	0.01 U	0.01 U
Iron	UG/L	41.8 J	41.8 J	41.8 J
Lead	UG/L	3 U	3 U	3 U
Magnesium	UG/L	3660	3610	3635
Manganese	UG/L	5.3	3	4
Mercury	UG/L	0.2 U	0.2 U	0.2 U
Nickel	UG/L	2 U	2 U	2 U
Potassium	UG/L	630	660	645
Selenium	· UG/L	3.1 J	1.8 J	2.5 J
Silver	UG/L	3.7 U	3.7 U	3.7 U
Sodium	UG/L	2180	2300	2240
Thallium	UG/L	5.3 U	5.3 U	5.3 U
Vanadium	UG/L	1.4 UJ	1.4 UJ	1.4 U <b>J</b>
Zinc	UG/L	1.4 UJ 14.7 J	1.4 UJ 13.8 J	14.3 J
Other	OG/L	14./ J	13.0 J	14.3 J
Total Petroleum Hydrocarbons	MG/L	0.412 UJ	0.408 UJ	0.410 UJ
rotat renoteum riyurocarbons	MG/L	0.412 UJ	0.408 UJ	0.410 UJ

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Table C-2
SURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

	Facility Location ID Matrix Sample ID							SEAD-121C SB121C-2 SOIL EB226	SEAD-121C SB121C-1 SOIL EB231	SEAD-121C SB121C-1 SOIL EB014	SEAD-121C SB121C-3 SOIL EB233	SEAD-121C SB121C-4 SOIL EB020	SEAD-121C SB121C-4 SOIL EB229
Sample Depth to Top of Sample	op of Sample							0 0	0	0	0	0	0
	Sample Date							3/9/1998	3/9/1998	3/9/1998	3/9/1998	0.2 3/9/1998	0.2 3/9/1998
	OC Code Study ID		Frequency		Number	Number	Number	SA	SA	SA	SA	SA	SA
		Maximum	of	Criteria	of	of Times	Jo	29	r r	202	cpg	CPS	EBS
Parameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (O)
Volatile Organic Compounds	0400		, 00			,							
1.1.2.2-Tetrachloroethane	10/80	> 0	%0	800	o c	<b>&gt;</b>	8 6	12 03	12 U	12 U		5 :	11 U
1,1,2-Trichloroethane	UG/KG	0	%0		0	0	48 49			12 0			11 11
1,1-Dichloroethane	UG/KG	0	%0	200	0	0	48				11 0	11 (2)	11 UI
1,1-Dichloroethene	UG/KG	0	%0	400	0	0	48				11 U	11 UI	
1,2-Dichloroethane	UG/KG	0 0	%0	100	Q (	0 1	48						
1,2-Dichloropropape	719/KG	0 0	%%		<b>&gt;</b>	0 0	∞ <sup>2</sup>	12 01	12 U	12 U	ם ::		11 UJ
Acetone	UG/KG	13	28%	200	0	13	47					0 1 2	11 03
Benzene	UG/KG	4	2%	9	0	-	48						
Bromodichloromethane	UG/KG	0	%0		0	0	48					11 UJ	11 UJ
Carbon disulfide	5 (5)	o <sup>7</sup>	% ?	0000	0 0	0 6	8 4			12 U		5 ::	11 UJ
Carbon tetrachloride	04/50	÷ c	%0	2/00	<b>&gt;</b>	7 0	8 4 8	12 03					
Chlorobenzene	UG/KG	0	%	1700	. 0	00	4 48		12 0		0 = =	3 = =	11 0
Chlorodibromomethane	UG/KG	0	%0		0	0	48				: :: :: :		11 U
Chloroethane	UG/KG	0	%0	1900	0	0	48	12 UJ				10 E	11 UJ
Chloroform	UG/KG	4.8 3	4%	300	0	2	48	12 UJ	12 U	12 U	11 U	11 (1)	4 J
Cis-1,2-Dichloroethene	UG/KG	0	%0		0	0	40						
Cis-1,3-Dichloropropene	UG/KG	0	%	8	0	0	48	12 UJ	12 U	12 U	11 U		11 UJ
Meta/Para Xulone	5 4 5 C L	3300	%60	2200	0 0	7 ,	27 z				11 U	11 07	11 UJ
Methyl bromide	119/KG	2	%0		<b>-</b>	n c	04 6				:	;	
Methyl butyl ketone	UG/KG	0	%0		0 0	0 0	0 8	12 03	12 0	17.0		3 = =	11 00
Methyl chloride	UG/KG	0	%0		0	0	48	12 UJ					
Methyl ethyl ketone	UG/KG	0	%0	300	0	0	48	12 UJ				5 11	
Methyl isobutyl ketone	UG/KG	0 }	%	1000	0	0	48	12 UJ	12 U			11 UI	11 UJ
Methylene chlonde	0.0% 110% 110%	2.6	7%	100	0 (		84 9	12 UJ		12 U	11 U	11 UI	11 UJ
Styrene	UG/KG	2 0	% %		o ¢		48 40	117 CT	11 61		11		
Tetrachloroethene	UG/KG	0	%0	1400	0	0	. 8	12 UJ	12 U	12.0			11 11
Toluene	UG/KG	28	16%	1500	0	6	48		2 5			12 J	
Total Xylenes	UG/KG	0	%0	1200	0	0	00				11 0		11 11
Trans-1,2-Dichloroethene	UG/KG	0	%0	300	0	0	40						
I rans-1,3-Dichloropropene	UG/KG	0	%0		0	0	48				U 11	11 UI	11 UJ
Inchloroethene	UG/KG	0 0	%0	700	0	0	48	12 UJ	12 U	12 U	11 U	11 01	11 UJ
Vinyl chloride	UG/KG	0	%0	200	0	0	48				11 U		11 UJ
1.2.4-Trichlorobenzene	TIGARG	_	%0	3400	C	c	40					;	i
1.2-Dichlorobenzene	UG/KG	0 0	%0	7900	o ¢	o c	9 4	2.50	780		72 0	72 0	011
1,3-Dichlorobenzene	UG/KG	0	%0	1600	0	0	. 4 . 6	2 2 2	78 11		72 0	720	71.0
1,4-Dichlorobenzene	UG/KG	0	%0	8500	. 0	0	. 84	73 U	78 U	73 U	72 U	2 2 2	7.7
2,4,5-Trichlorophenol	UG/KG	0	%0	100	0	0	48	180 U	130 11		180 11	17 071	170 11
2,4,6-Trichlorophenol	UG/KG	0	%0		0	0	84	73 U	78 U		72 U	1,78 U	71 17
											1	1	:

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	1							SEAD 1310	SEAD 1310	1210	CE 4 D-121C	SEAD-131C	SEAD-121C
	Location ID							SB121C-2	SB121C-1	SB121C-1	SB121C-3	SB121C-4	SB121C-4 SOIL
	Sample ID							EB226	EB231	EB014	EB233	EB020	EB229
Sample Depth to Top of Sample Sample Depth to Bottom of Sample	op of Sample							0.2	0.2	0.20	0.2	0.2	0.2
cambre sobus so soon	Sample Date							3/9/1998	3/9/1998	3/9/1998	3/9/1998	3/9/1998	3/9/1998
	QC Code		Frequency		Number	Number	Number	EBS	EBS	EBS	EBS	EBS	SA EBS
	,	Maximum	of '	Criteria	of	of Times	of						
rameter	Units	Value	Detection	Value 1	Exceedances		Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1-Dichlorophenol	UG/KG	0	0%	400	0	0	48	73 U	78 U	73 U	72 U	72 U	71 U
4-Dimethylphenol	UG/KG	0	0%		0	0	48	73 U	78 U	73 U	72 U	72 U	71 U
1-Dinitrophenol	UG/KG	0	0%	200	0	0	47	180 U	190 U	180 U	U 081	170 U	170 U
1-Dinitrotoluene	UG/KG	45	2%		0	_	48	45 J	78 U	73 U	72 U	72 U	71 U
5-Dinitrotoluene	UG/KG	0	0%	1000	0	0	48	73 U	78 U	73 U	72 U	72 U	71 U
Chloronaphthalene	UG/KG	0	0%	8	0	0 0	48	73	78 0	73 (	72 0	3 2	71 1
Chiorophenol	UG/KG	60	10%	36400	0 0	0 0	4 6	8 N C	78 11	43 0	7.0	72 11	71 11
Methylphenol	UG/KG	0 8	0%	100	0 (	o v	48 6	73 U	78 U	73 U	72 U	72 U	71 U
Nitroaniline	UG/KG	0	0%	430	0	0	48	180 U		180 U	180 U	170 U	170 U
Nitrophenol	UG/KG	0	0%	330	0	0	48	73 U	78 U	73 U	72 U	72 U	71 U
or 4-Methylphenol	UG/KG	0	0%		0	0	40	!	} :	!	3	3	2
8'-Dichlorobenzidine	UG/KG	50	%%	500	00	0	48 48	18081	1901	180 U	180 U	170 17	170 U
5-Dinitro-2-methylphenol	UG/KG	0 (	0%		0	0	48	180 U	190 U	180 U	U 081	170 U	170 U
Bromophenyl phenyl ether	UG/KG	0	0%		0	0	48	73 U	78 U	73 U	72 U	72 U	71 U
Chloro-3-methylphenol	UG/KG	0	0%	240	0	0	48	73 U	78 U	73 U	72 U	72 U	71 U
Chloroaniline	UG/KG	0	0%	220	0	0	48	73 U	78 U	73 U	72 U	72 U	71 U
Chlorophenyl phenyl ether	UG/KG	0	2 %		0	0	48	73 U	78 U	73 0	72 U	72 U	7 0
Methylphenol	UG/KG	0 0	2%	900	o c	0 0	ò ∝	180 11	11 061	18011	180 11	170 11	170 11
Nitroaniline	UG/KG	o c	0%	100	0 0	> <	4 6	18000	11 061	1801	180 11	170 11	170 0
Nitrophenol	106/KG	360	73%	2000	<b>o</b> c	<u>;</u> c	48 8	32 1	78 11	189	70 0	72 []	71 11
ciiapituleile	I GOVE	2500	21%	41000	0 0	10:	48	73 []	78 U	73 U	72 U	72 U	71 U
nthracene	UG/KG	7100	42%	50000	0 0	20	400		78 U	15 J	72 U	72 U	71 U
enzo(a)anthracene	UG/KG	10000	55%	224	14	26	47	180	78 U	76	8.2 J	3.9 J	7 J
enzo(a)pyrene	UG/KG	8700	51%	61	21	24	47	150	78 U	57 J	8.1 J	72 U	71 U
enzo(b)fluoranthene	UG/KG	12000	64%	1100	s	30	47	200	78 U	95	13 J	13 J	
enzo(ghi)perylene	UG/KG	31503	53%	50000	0	25	47	98	78 U	42 J	11 J	72 U	71 U
enzo(k)fluoranthene	UG/KG	7500	47%	1100	4	22	47	150	78 U	67 J	7 J	72 U	71 U
s(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	4 6	73 U	78 U	73 U	72 U	72 U	7) U
s(2-Chloroethyi)ether	110/80	0 0	0%		<b>&gt;</b> C	o c	48 8	73 []	78 11	73 11	72 11	72 11	71 11
s(2-Ethylhexyl)phthalate	UG/KG	200	56%	50000	0 (	27	48	73 U	13 J	73 U	9.2 J	9.3 J	13 J
utylbenzylphthalate	UG/KG	120	13%	50000	0	6	48	73 U	78 U	73 U	72 U	72 U	71 U
arbazole	UG/KG	4200	35%		0	17	48	73 J	78 U	17 J	72 U	72 U	71 U
nrysene	UG/KG	9100	53%	400	10	25	47	210	78 U	90	11 J	8.8 J	12 J
i-n-butylphthalate	UG/KG	132 3	10%	8100	0	s	48	73 U	. 78 U	73 U	72 U	72 U	3.7 J
i-n-octylphthalate	UG/KG	23 3	4%	50000	0	2	48	73 U	9.9 J	73 U	72 U	72 U	71 U
ibenz(a,h)anthracene	UG/KG	4703	26%	14	=	12	47	43 J	78 U	21 J	72 U	72 U	71 U
ibenzofuran	UG/KG	1700	21%	6200	0	10	48	19 J	0.87	9.1 5	72.0	72 0	. · ·
iethyl phthalate	UG/KG	21 3	13%	7100	0	o 60	4 &	73 U	5.8 J	73 U	8.5 J	8.1 J	10 J 71 II
noranthene	UG/KG	27000	73%	50000	0 0	33 0	48 6	520	78 U	180	13 J	7.4 J	10 J

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Table C-2
SURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

	Facility Location ID Matrix Sample ID							SEAD-121C SB121C-2 SOIL EB226	SEAD-121C SB121C-1 SOIL EB231	SEAD-121C SB121C-1 SOIL EB014	SEAD-121C SB121C-3 SOIL EB233	SEAD-121C SB121C-4 SOIL EB020	SEAD-121C SB121C-4 SOIL EB229
Sample Depth to Top of Sample Sample Depth to Bottom of Sample	op of Sample m of Sample							0.2	0 0.2	0 0.2	0 0.2	0.02	0.2
	OC Code				:	;		SA SA	SA	SA	SA	SA	SA
	Study ID	Maximum	Frequency of	Criteria	Number	Number of Times	Number	EBS	EBS	EBS	EBS	EDS	CGS
Parameter	Units	Value	Detection	Value t	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)		Value (Q)
Fluorene	UG/KG	3500	27%	50000	0 0	13	8 4 8	32 J 8 5 I	78 U 78 U	8 J 73 U	72 U 72 U	72 U 72 U	71 U 71 U
Hexachlorobutadiene	UG/KG	} 0	%0	2	0	. 0	84	73 U					71 U
Hexachlorocyclopentadiene	UG/KG	0	%0		0	0	48	73 U	78 U	73 U	72 U	72 U	71 U
Hexachloroethane	UG/KG	0 0	%0		0 (	0 8	84 6	73 U	O 8 €	/3 U	0 7/	7.2 0	71 17
Indeno(1,2,3-cd)pyrene Isophorone	UG/KG	970	46% 0%	3200	0 0	77 0	8 4	73 U		41 J 73 U	6.6 J 72 U		71 U
N-Nitrosodiphenylamine	UG/KG	, <del>4</del> ,	2%		0		84	4.8 J	78 U	73 U	72 U		71 U
N-Nitrosodipropylamine	UG/KG	0	%0		0	0	48	73 U	78 U	73 U	72 U	72 U	71 U
Naphthalene	UG/KG	400	16%	13000	0	6	48	11 J	78 U	73 U	72 U	72 U	71 U
Nitrobenzene	UG/KG	0 0	%%	500	0 (	0 0	84 6	73 0	0 8/2	73 U	180 11	0 7/	170 11
Phenachierophenoi	110/80	29000	%C\$	20000	00	2,5	4 4	360	78 17	96	0 80 0 80 1 80	8.8	7.6 J
Phenol	UG/KG	0	%0	30	0	) o	5 4	73 U		73 U	72 U	72 U	
Рутепе	UG/KG	34000	%19	20000	0	32	84	380	78 U	170	13 J	8.3 J	14 J
Pesticides/PCBs										;	;	;	
4,4'-DDD	UG/KG	44	12%	2900	0	so!	843	3.7 U	3.9 U	3.7 U	3.6 U	3.6 U	3.5 U
4,4'-DDE	UG/KG	69	32%	2100	0 (	15	74 1	13	3.9 0	67	3.6 U	3.8	C.4. C
4,4 -DD1	54/50	3 7	0/97	7100	<b>o</b> (	5 (	4	07	D 6.0		0 6	1.6.1	1.0.1
Aldrin Alaka. BHC	11G/KG	4 0	%9 %9	110	o c	n c	8 8	0 % T	2 0 2	1.8 C	1.91	181	1.8 U
Alpha-Chlordane	UG/KG	633	%8		0	4	. 84	1.8 U		1.8 U	1.9 U	1.8 U	1.8 U
Beta-BHC	UG/KG	0	%0	200	0	0	48	1.8 U		1.8 UI	U 6.1	1.8 U	1.8 U
Chlordane	UG/KG	0	%0		0	0	40						
Delta-BHC	UG/KG	7	%9	300	0	3	48	1.8 U	2 U	0.95 J	1.9 U	1.8 U	1.8 U
Dieldrin	UG/KG	41 3	4%	44	0	2	48	3.7 U	3.9 U	3.7 UJ	3.6 U	3.6 U	3.5 U
Endosulfan I	UG/KG	1853	38%	900	0	81	48	1.8 U	2 U	1.8 UI	1.9 U	1.8 U	1.8 U
Endosulfan II	UG/KG	6	2%	006	0		47	3.7 U	3.9 U	3.7 UJ	3.6 U		
Endosultan sultate	06/KG	0 ;	% %	0001	0 0	0 -	8 £	3.7 0	3.9 0	3.7 01	3.0 0	3.0 0	3.5 U
Endrin aldehyde	UG/KG	0	%0	2	0	- 0	4 4	3.7 U	3.9 U	3.7 UI	3.6 U	3.6 U	3.5 U
Endrin ketone	UG/KG	7.53	%9		0	3	48	3.7 U	3.9 U	3.7 UJ	3.6 U	3.6 U	3.5 U
Garruna-BHC/Lindane	UG/KG	0	%0	09	0	0	48	1.8 U	2 U	1.8 UI	1.9 U	1.8 U	1.8 U
Gamma-Chlordane	UG/KG	1.2	2%	240	0		48	1.8 U	2 U	1.8 UI	U 6:1	1.8 U	1.8 U
Heptachlor	UG/KG	4 0	% %	00 5	0 0	71 17	47	0 8.1	2 0	1.8 0	0.6.1	) E	1.8 0
Methoxychlor	UG/KG		%	2	00	4 0	4 4	18 0	20 € 20 €		D 61	D 81	18 U
Toxaphene	UG/KG		%0		0	0	48	180 U	200 U	LN 081	190 U	180 U	180 U
Arocior-1016	UG/KG		%0		0 (	0 0	84 6		39 U	37 UJ	36 U	36 U	35 U
Aroclor-1221	06/KG	0 0	%0		0 0	<b>5</b>	44 4 20 0	74 O	79 0	74 0.0	74 0	13 0	
Aroclor-1242	10/KG		5%		0	o ~	0 8		39 U				
Aroclor-1248	UG/KG	0	%0		0	0	48		39 U	37 UJ		36 U	
Aroclor-1254	UG/KG	930	19%	10000	0	6	48		39 U	37 UJ			35 U

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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity Table C-2 SURFACE SOIL SAMPLE RESULTS **SEAD-121C**

								,					
	Facility							SEAD-121C	SEAD-121C	SEAD-121C		SEAD-121C	SEAD-121C
-	Location ID							SB121C-2	SB121C-1	~ (		CR1010-4	3E3E-121C
	Matrix							SOIL SDIZIC-Z	SOIL SDIZIC-1	C -		SOIL	SOIL
	Sample ID							EB226	EB231	-		EB020	EB229
Sample Depth to Top of Sample	of Sample							0				0	0
Sample Depth to Bottom of Sample Date	om of Sample							0.2 3/9/1998	0.2 3/9/1998	3/0/1008	3/9/1998	3/9/1998	3/9/1998
	OC Code							SA	SA			SA	SA
	Study ID		Frequency		Number	Number	Number	EBS	EBS			EBS	EBS
		Maximum	of	Criteria	of,	of Times	of						
rameter			Detection		Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
oclor-1260	UG/KG	85	10%	10000	0	5	48	37 U	39 U	30 J	36 U	36 U	35 U
etals and Cyanide													
uminum	MG/KG	17000	100%	19300	0	48	48	15100	12800	14500	1730	14400	
itimony	MG/KG	236	81%	5.9	11	39	48	17.3 J	1.1 J	19.3 J	0.93 J	1.7 J	
senic	MG/KG	11.6	100%	8.2	2	48	48	6.5	5.5	6.1	3.8	տ	
riun	MG/KG	2030	100%	300	7	48	48	1420	64.9	1600	18.1	86.6	
ryllium	MG/KG	1.2	100%	1.1	_	48	48	0.47	0.52	0.4	0.25	0.57	
dmium	MG/KG	29.1	60%	2.3	14	29	48	2.3	0.07 U	2.7	0.07 U	0.07 U	0.05 U
dcium	MG/KG	296000	100%	121000	0,	48	48	23400	2580	31300	283000	17200	
romium	MG/KG	74.8	100%	29.6	12	48	48	35.2	20.9	32.9	3.8	27.8	
balt	MG/KG	17	100%	30	0	35	35	15.7	12.8	16.5	3.5	17.6	
pper	MG/KG	9750	100%	33	35	48	48	9750	19.7 J	7690	8.8 J	39.1 J	
ranide	MG/KG	0	0%	0.35	0	0	00	0.56 U	0.63 U	0.59 U	0.58 U	0.56 U	
ranide, Amenable	MG/KG	0	0%		0	0	40						
anide, Total	MG/KG	0	0%		0	0	40						
on o	MG/KG	51700	100%	36500	S	48	48	41500	25700	41100	4230	32000	
ad	MG/KG	18900	100%	24.8	40	48	48	5080	11.8 J	5280	11.7 J	27.1	
agnesium	MG/KG	20700	100%	21500	0	48	400	6810	4590	6820	10200	6980	
anganese	MG/KG	858	100%	1060	0	48	48	525	598	612	213	413	359
ereury	MG/KG	0.47	92%	0.1	∞	44	48	0.07	0.06 U	0.05 U	0.04 U	0.04 U	
ckel	MG/KG	224	100%	49	9	48	48	58.5 J	40.5	54.2 J	11.6	61.8	
tassium	MG/KG	1990	100%	2380	0	48	48	1990	1600	1840	1150	1980	
lenium	MG/KG	1.3	21%	2	0	10	48	1 🗵	ח 1.1	0.92 UJ	1 U	1 U	
iver	MG/KG	21.8	38%	0.75	13	18	48	0.46 U	· 0.48 U	0.41 U	0.46 U	0.46 U	
dium	MG/KG	478	88%	172	26	42	48	392	, 139 U	606	132 U	132 U	
allium	MG/KG	1.1	21%	0.7	Lι	10	48	1.4 U	1.4 UJ	1.2 U	1.4 UJ	1.4 J	
madium	MG/KG	25.4	100%	150	0	48	48	20.9 Ј	20.8	19.5 J	5.1	21	
nc	MG/KG	3610	100%	110	28	48	48	1350	80.3	1280	29.8	153	
ther													
otal Organic Carbon	MG/KG	9000	100%		0	40	40						
otal Petroleum Hydrocarbons	MG/KG	/600	25%		c	10	40						

OTES:

The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046,
Revised January 24, 1994.

Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.

The maximum detected concentration was obtained from the average of the sample and its duplicate.

<sup>=</sup> compound was not detected

the reported value is an estimated concentration
the reported value is an estimated concentration
if the compound was not detected; the associated reporting limit is approximate
the data was rejected in the data validating process
compound was "tentatively identified" and the associated numerical value is approximate

Table C-2
SURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Dept Sample Dept Sample Date Ample		Maximum Value		Criteria	Number of	Number of Times	Number of	SEAD-121C SBDRMO-10 SOIL DRMO-1056 0 10/25/2002 SA PID-RI	SEAD-121C SEDRMO-11 SOIL DRMO-1059 0 10/26/2002 SA PID-RI	SEAD-121C SBDRMO-12 SOIL DRMO-1062 0 10/25/2002 SA PID-RI	SEAD-121C SBDRMO-13 SOIL DRMO-1065 0 10/26/202 SA PID-RI	SEAD-121C SBDRMO-14 SOIL DRMO-1068 0 10/25/2002 SA PID-RI	SEAD-121C SBDRMO-15 SOIL DRMO-1071 0 10/26/2002 SA PID-RJ
Colatile Organic Compounds	CIIIIS	v Mille	Detection	vaiue		. Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (C
1,1-Trichloroethane	UG/KG	0	%0	800	0	0	48	2.9 UJ	2.8 U	U 6.2	3.3 U	2.5 UJ	2.7 U
1,2,2-Tetrachloroethane	UG/KG	0	%0	009	0	0	48	2.9 UJ	2.8 U	2.9 U	3.3 U	2.5 UJ	2.7 U
,1,2-Trichloroethane	UG/KG	0 (	%		0 '	0	48	2.9 UJ	2.8 U	2.9 U		2.5 UJ	2.7 U
1-Dichloroethene	06/RG	> <	%0	700	0 0	0 0	80 0	2.9 UJ	2.8 U	2.9 U	3.3 U	2.5 UJ	2.7 U
2-Dichloroethane	UG/KG	0	%	100	<b>,</b> 0	0	0 4	2.9 UJ	2.8 U	2.9 U	0 5.5 D 5.5 D 5.5	2.5 UI	2.7 U
,2-Dichloroethene (total)	UG/KG	0	%0		0	0	∞					}	i
2-Dichloropropane	UG/KG	0 ;	%0	;	0	0	48	2.9 UJ		2.9 U	3.3 U	2.5 UJ	2.7 U
cetone	110/KG	13	7%	500 500	0 0	- 13	47	20 UJ	11 J	3.2 J		7.3 UJ	2.7 U
romodichloromethane	UG/KG	: 0	%	3	o c	- C	5 4	2.9 0.7	2.8 0	0 6.7 11 0 C	).5 C	2.5 U	
готобот	UG/KG	0	%		0	0	. 4	2.9 UJ	2.8 U	2.9 0	3.3.0	2.5 00	
arbon disulfide	UG/KG	4.7	4%	2700	0	7	48	2.9 UJ	2.8 U	2.9 U	3.3 U	2.5 UI	
arbon tetrachloride	UG/KG	0	%0	009	0	0	48	2.9 UJ	2.8 UJ	2.9 UJ	3.3 UJ	2.5 UI	2.7 U
hlorobenzene	UG/KG	0	%0	1700	0	0,	48	2.9 UJ	2.8 U	2.9 U	3.3 U	2.5 UJ	
hlorodibromomethane	UG/KG	0 0	%		0 (	0 .	8 1	2.9 UJ	2.8 U	2.9 U	3.3 U	2.5 UJ	2.7 U
nioroethane	OG/KG	ວ່	%0	1900	0	0	48	2.9 UI	2.8 U	2.9 U	3.3 U	2.5 UJ	
hlorotorm	UG/KG	4. 80. (	% 3	300	0 (	7	48	2.9 UJ	2.8 U	2.9 U	3.3 U	2.5 UJ	2.7 U
is-1,2-Diction octnerie	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	> <	% 6		0	0 0	9 9	2.9 UJ	2.8 U	2.9 U	3,3 U	2.5 UJ	2.7 U
thyl benzene	UG/KG	3300	4%	2500	<b>&gt;</b>	э r	84 8	2.9 UJ	2.88	2.9 U	3.3 U	2.5 UJ	2.7 U
leta/Para Xylene	UG/KG	4400	%		o 0	4 67	40	2.9 00	2 8 0	2.50 C	5.5 0	2.5 UJ	2.7 U
fethyl bromide	UG/KG	0	%0		0	0	48	2.9 UJ	2.8 UJ	2.9 U	3.3 UJ	2.5 UI	2.7.11
fethyl butyl ketone	UG/KG	0	%0		0	0	48	2.9 UJ	2.8 UJ	2.9 UJ	3.3 UJ	2.5 UJ	2.7 U.
ietnyl cnlonde	UG/KG	0 (	%0		0 (	0 •	8 :	2.9 UJ	2.8 U	Ø.	3.3 U	2.5 UJ	2.7 U.
fethyl isobutyl ketone	UG/KG	<b>&gt;</b> C	%%	0001	<b>&gt;</b> C	<b>&gt;</b> c	8 6	2.9 UJ	2.8 00	0, 0	3.3 UJ	2.5 UJ	2.7 U.
lethylene chloride	UG/KG	2.6	7%	100	0	> -	6 84	2.9 [1]	2.8 00	0.5.2	5.5 ()	2.5 UJ	2.7 U
ntho Xylene	UG/KG	91	3%		0	paten	40	2,9 UJ	2.8 U	0	3.3 U	2.5 UJ	
tyrene	UG/KG	0 1	%		0	0	48	2.9 UJ	2.8 U	2.9 U	3.3 U	2.5 UJ	
etrachioroethene	06/KG	၁ ို	%0.	1400	0 (	0 (	48	2.9 UJ	2.8 U	2.9 U	3.3 U	2.5 UJ	
otal Xvlenes	110/80	°, c	14%	1300	<b>&gt;</b> •	D C	8° °	2.9 UJ	2.8 U	2.9 U		2.5 UJ	
rans-1,2-Dichloroethene	UG/KG	0	%%	300	0 0	> <	۹ ۰	111 0 0	11 0 0				
rans-1,3-Dichloropropene	UG/KG	0	%0		0	0	84	2.9 UJ	000		3.3 0	2.5 UJ	
richloroethene	UG/KG	0	%0	700	0	0	48	2.9 UJ	2.8 ∪	2:9 U	3,3 U	2.5 UI	
inyl chloride	UG/KG	0	%0	200	0	0	48	2.9 UJ	2.8 U	2.9 U	3.3 U	2.5 UJ	2.7 U
emivolatile Organic Compounds	ds 715.77	c	ò	007	<	•	;	;					
2-Dichlorobenzene	DANG TIG/RG	<b>&gt;</b>	% %	2400	<b>•</b>	<b>&gt;</b>	80 6	390 U	420 U	380 U	430 U	360 U	360 U
3-Dichlorobenzene	110/80	> <	% %	0061	> <	0 0	4 4	390 U	420 O		430 U	360 U	360 U
4-Dichlorobenzene	UG/KG	0	%%	8500	0	0	6 X 8	390 11	420 U	380 U	430 U	360 U	360 U
,4,5-Trichlorophenol	UG/KG	0	%0	100	0		. 4	11 066	110011		11001	300 0	300 0
,4,6-Trichlorophenol	UG/KG	0	%0	i	. 0	, 0	. 84	390 U	420 U	380 U	430 U	360 11	360 11
									!		)		2

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								,	,				
Facility Location ID	Facility ation ID							SEAD-121C SBDRMO-10	SEAD-121C SBDRMO-11	SEAD-121C SBDRMO-12	SEAD-121C SBDRMO-13	SEAD-121C SBDRMO-14	SEAD-121C SBDRMO-15
Sarry	Matrix Sample ID							SOIL DRMO-1056	SOIL DRMO-1059	SOIL DRMO-1062	SOIL DRMO-1065	SOIL DRMO-1068	SOIL DRMO-1071
Sample Depth to Bottom of Sample	ample							2	20	20	NO	20	NC
Sample Date QC Code	umple Date QC Code							10/25/2002 SA	10/26/2002 · SA	10/25/2002 SA	10/26/2002 SA	10/25/2002 SA	10/26/2002 SA
nic nic	Study ID	Maximum	erequency of	Criteria	of	of Times	Number	PID-KI	7.U-K	PH-KI	PID-RI	PID-RI	PID-RI
uneter		Value	Detection	l	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Dimethylphenol III	UG/KG	0	%%	400	> 0	00	48		420 U	380 U	430 U	360 U	360 U
	UG/KG	0 0	%	200	0 0	0 0	47	60 OT	ID 0011	970 R	1100 U	910 UJ	890 UJ
	UG/KG	45	2%		0		48	390 U	420 U	380 U	430 U	360 U	360 U
	UG/KG	0	%	1000	0	0	48	390 U	420 U	380 U	430 U	360 U	360 U
ilorophenol UG	UG/KG	00	0%	800	<b>&gt;</b>	<b>&gt;</b> C	48.0	11 065	420 U	11 085	430 U	360 U	360 U
alene	UG/KG	610	19%	36400	0	9	48	390 U	420 U	380 U	430 U	360 U	360 U
	G/KG	0	%	100	0	0	48	390 U	420 U	380 U	430 U	360 U	360 U
trophenol UC	UG/KG	00	0%	330	0 0	0 0	48	390 U	420 U	380 U	430 U	360 U	360 U
	UG/KG	0	0%		0	0	40	390 U	420 U	380 U	430 U	360 U	360 U
troaniline U(	UG/KG	00	%%	500	0 0	0 0	48 8	0.066 0.065	1100 U	380 U	430 U	910 U	360 U
nethylphenol	UG/KG	0	0%		0	0	48	990 UJ	1100 UJ	970 UJ	D 0011	910 U	890 U
g	UG/KG	0	%	2	0	0	48	390 U	420 U	380 U	430 U	360 U	360 U
nloroaniline UC	UG/KG	00	%%	220	0 0	0 0	48 8	390 U	420 U	380 U	430 U	360 U	360 U
phenyl ether	UG/KG	0	0%		0	0	48	390 U	420 U	380 U	430 U	360 U	360 U
01	UG/KG	0	%	900	0	0	ò∞		1100 11	270 11			
trophenol	UG/KG	0 0	0%	100	00	0 0	48 6	D 066	1100 C	970 UJ	1100 C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	890 U
	UG/KG	2600	23%	50000	0	Ξ	48	390 U	420 U	380 U	430 U	360 U	360 U
lene	UG/KG	2500	21%	41000	0	10	6 6	390 U	420 U	380 U	430 U	360 U	360 U
zo(a)anthracene U(	UG/KG	10000	55%	224	14	26	47	390 U	86 J	380 U	430 U	45 J	140 1
		8700	51%	61	21	24	47	390 U	84 J	380 U	430 U	360 UJ	120 J
zo(b)fluoranthene Ut		12000	64%	1100	S	30	47	390 U	86 J	380 U	430 U	60 J	160 J
	UG/KG	3150 3 .	53%	50000	۰ ۰	22 8	47	390 U	72 J	380 UJ	430 UJ	67 J	I 011
2-Chloroethoxy)methane UG	UG/KG	0 8	0%		0 1	0	48	390 U	420 U	380 U	430 U	360 U	360 U
	UG/KG	0	0%		0	0	48	390 U	420 U	380 U	430 U	360 U	360 U
2-Ethylhexyl)phthalate U(	UG/KG	200	56%	50000	00	0 27	4 4	11 06£	420 U	380 U	130 U	360 U	360 U
ylphthalate	UG/KG	120	13%	50000	0	0	48	390 U	420, U	380 U	49 J	360 UJ	48 J
vsene UG	UG/KG	9100	35% 53%	400	5 0	25	47 8	390 U	420 U	380 U	430 U	360 U	49 J
lphthalate	UG/KG	132 3	10%	8100	0	رد ا	48	390 U	420 U	380 U	430 U	360 U	360 U
	UG/KG	23 3	4%	50000	0	2	48	390 U	420 U	380 U	430 U	360 UJ	360 UJ
thracene	UG/KG	4703	26%	4	· =	12	47	390 U	420 U		430 UJ	360 UJ	360 UJ
		1/00	21%	6200	, с	10	. 4	390 U	420 U	380 U	430 U	360 U	360 U
hyi phthaiate UG	UG/KG	0	0%	7100 2000	00	0 0	4 4	U 066	420 U	380 U	430 U	360 U	360 U
		27000	73%	50000	0	35	48	390 U	180 J	75 J	430 U	76 J	310 J

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SEAD-121C

Facility

	Location ID							SBDRMO-10	SBDRMO-11	SBDRMO-12	SBDRMO-13	SBDRMO-14	SBDRMO-15
	Matrix							SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
1	Sample ID							DRMO-1056	DRMO-1059	DRMO-1062	DRMO-1065	DRMO-1068	DRMO-1071
Sample Depth to Top of Sample	Top of Sample							0 (	0 (	0 (	0 (	0 (	0
Sample Depth to Bottom of Sample	Tom of Sample							2	2 20/2/201	2	2	2	2
	apo John							2002/02/01	2002/02/01	2002/22/01	2002/02/01	2002/C2/01	7007/07/01
	Study ID	Marimum	Frequency	Criteria	Number	Number of Times	Number	PID-RI	PID-RI	PID-RI	PD-RI	PID-RI	PID-RI
arameter	Units	Value	De	Value 1	Exceedances		Analyses 1	Value (O)	Value (Q)	Value (O)	Value (O)	Value (O)	Value (C
Tuorene	UG/KG	3500	27%	50000	0		48	390 U	420 U	380 U	430 U	360 U	360 U
fexachlorobenzene	UG/KG	8.5	2%	410	0		48	390 U	420 U	380 U	430 U	360 U	360 U
fexachlorobutadiene	UG/KG	0	%0		0	0	48	390 U	420 U	380 U	430 U	360 U	360 U
Texachlorocyclopentadiene	UG/KG	0	%0		0	0	48	390 UJ	420 UJ	380 UJ	430 U	360 UJ	360 U
fexachloroethane	UG/KG	0	%		0	0	48	390 U	420 U	380 U	430 U	360 U	360 U
ndeno(1,2,3-cd)pyrene	UG/KG	970 3	46%	3200	0	22	48	390 U	420 U	380 UJ	430 UJ	360 UJ	74 J
sophorone	UG/KG	o ;	%	4400	0	0	48	390 U	420 U	380 U	430 U	360 U	360 U
A-Nitrosodiphenylamine	UG/KG	4. 8. c	2%		0 0	<	8 4	390 U	420 U	380 U	430 U	360 U	360 U
Vaphthalene	116/86	400	10%	13000		0	0 0	390 11	0.024	380 U	430 03	360 0	360 U
Vitrobenzene	116/86	2	700	2002	o	n c	0 0	0.066	0 5	2000	1000	2000	360 0
entachlorophenol	UG/KG	0	%0	1000	0 0		6 4	0 066	110011	970 11	1100 11	300 0	360 U
henanthrene	UG/KG	29000	52%	20000	0	25	9 40	390 U	72 I	380 1	430 []	360 11	240 1
henol	UG/KG	0	%0	30	0		48	390 U	420 U	380 U	430 U	360 U	360 U
yrene	UG/KG	34000	%19	20000	0	32	48	390 U	120 J	67 J	430 UI	110 J	600 J
esticides/PCBs													
,4'-DDD	UG/KG	44	12%	2900	0	2	43	2 R	2.2 UJ	2 R	2.2 UJ	1.8 R	1.8 U
,4'-DDE	UG/KG	69	32%	2100	0	15	47	2 UJ	2.2 UJ	2 UJ	2.2 UJ	1.8 UJ	20 J
,4'-DDT	UG/KG	00 '	28%	2100	0	13	47	2 UJ	2.2 UJ	2 UJ	2.2 UJ	1.8 UJ	Z
Mdrin	UG/KG	14 3	%9	4	0	ы	48	2 UJ	2.2 UJ	2 UJ	2.2 UJ	1.8 UJ	1.8 U
Npha-BHC	UG/KG	0	%0	110	0	0	48	2 UJ	2.2 UJ	2 UJ	2.2 UJ	1.8 UJ	1.8 U
Alpha-Chlordane	UG/KG	63 3	8%		0	4	48	2 UJ	2.2 UJ	2 UJ	2.2 UJ	1.8 UJ	1.8 U
Seta-BHC	UG/KG	0	%0	200	0	0	48	2 U	2.2 UJ	2 U	2.2 UJ	1.8 U	1.8 U
Chlordane	UG/KG	0	%0		0	0	40	20 U	22 U	20 U	22 U	18 U	18 U
Selta-BHC	UG/KG	7	%9	300	0		48	2 UJ	2.2 UJ	2 UJ	2.2 UJ	1.8 UJ	1.8 U
)ieldrin	UG/KG	٠ 14	4%	44	0	7	48	2 UJ	2.2 UJ	2 UJ	2.2 UJ	1.8 UJ	1.8 U
indosulfan I	UG/KG	185	38%	006	0	82	48	2 U	2.2 U	=	2.2 U	8.7 J	17 J
indosultan 11	UG/KG	on (	5%	006	0 (	(	47	2 C	2.2 U	2 U	2.2 U	1.8 U	1,8 U
Endrin	119/80	21.5	% ~	901		> -	4 ¢	0.7.	2.2 U	0.7	0.2.2	0 8.1	0 8.1 0 8.1
indrin aldehyde	UG/KG	0	%	2	0	- 0	. 84	5 C C	2.2 U		2.2 C	1.8 0.5	1.8 U
Endrin ketone	UG/KG	7.53	%9		0	m	48	2 U	2.2 U	2 U	2.2 U	1.8 U	181
Jamma-BHC/Lindane	UG/KG	0	%	09	0	0	84	2 UJ	2.2 UI	2 UJ	2.2 UJ	1.8 UJ	1.8 U
Samma-Chlordane	UG/KG	1.2	2%	540	0	-	48	2 U	2.2 UJ	2 U	2.2 UJ	1.8 U	1.8 U
feptachlor	UG/KG	4	4%	100	0	2	47	2 U	2.2 UJ		2.2 UJ	1.8 U	1.8 U
Teptachlor epoxide	UG/KG	2.8	4%	70	0	7	46	2 U	2.2 UJ	2 U	2.2 UJ	1.8 U	1.8 U
Aethoxychlor	UG/KG	0	%0		0	0	48	2 UJ	2.2 U	2 UJ	2.2 U	1.8 UJ	1.8 U
oxaphene	UG/KG	0	%0		0	0	8	20 U	22 U	20 U	22 U	18 U	18 U
Viocior-1016	UG/KG	0 0	%0		0 (	0 1	84	20 UJ	22 U	20 UJ	22 U		18 U
kroclor-1221	06/KG	0 0	% &		0 0	0 0	4. 00.	20 U	22 U	20 U	22 U	D 61	18 U
Aroclor-1232 Aroclor-1242	UG/KG	⊃ %	% %		o (	0 -	8 0	20 CE	22 U	20 CI	22 U	IU 61	18 U
Vocior-1248	IIG/KG	° C	%0		0 0	→ <	4 4	20 02	0 77	7 00	77 0	10 61	18 U
Vroclor-1254	UG/KG	930	%61 %61	10000	o c	o 0*	0 84	20 02	22 0	20 02	22 U	0 61	0 81
	<b>)</b>	)		1	,	`	ř	>	1	3	7 17	0 61	0 01

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### SEAD-121C and SEAD-121I RI REPORT SURFACE SOIL SAMPLE RESULTS SEAD-121C Seneca Army Depot Activity Table C-2

	Facility							SEAD-121C		SEAD-121C		SEAD-121C	SEAD-121C
I	I ocation ID								SBDRMO-11	SBDRMO-12	SBDRMO-13	SBDRMO-14	SBDRMO-15
,	Matrix									TIOS		SOIL	TIOS
	Sample ID							DRMO-1056	DRMO-1059	DRMO-1062	DRMO-1065	DRMO-1068	DRMO-1071
Sample Depth to Top of Sample	of Sample							0	0	0	0	0	0
Sample Depth to Bottom of Sample	of Sample							2	2	2	2	10050000	10/06/0000
Sı	Sample Date							10/25/2002	10/26/2002	10/25/2002	10/26/2002	10/25/2002	10/26/2002
	QC Code							SA	SA	SA	SA	SA	SA
	Study ID		Frequency		Number	Number	Number	PID-KI	PID-KI	PID-KI	רוט-גע	בוט-גנו	מוס-גע
		Maximum	of	Criteria	of	of Times	of						
meter	Units	Value	Detection	Value 1	Exceedances Detected	Detected	Analyses '	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
lor-1260	UG/KG	85	10%	10000	0	ıs	48	20 UJ	22 U	20 UJ	22 U	I) 6I	18 U
als and Cyanide													
ninum	MG/KG	17000	100%	19300	0	48	48	11500	11200	10700	11500	8570	9170
попу	MG/KG	236	81%	5.9	=	39	48	1.1 U	1.2 U	3.6	1.2 U	Ξ	6.9
nic	MG/KG	11.6	100%	8.2	2	48	48	s	4.8	5.6	3.4	5.4	6
ım	MG/KG	2030	100%	300	7	48	48	83.5 J	84 J	49.2 J	71 )	39.1	2/5 J
iium	MG/KG	3.5	%001	2:	: -	8 6	0 0	0.70	0.7	0.01	0.16.11	1.2	163
mum	MG/KG	296000	100%	121000	Λ <u>1</u>	48	48	4850 I	28000 J	24800 J	8080 J	18600 J	107000 J
mim	MG/KG	74.8	100%	29.6	12	48	48	17.6	19.6	19	17.7	19.1	47.2
alt	MG/KG	17	100%	30	0	35	35	12.4	13.3	14.2	9.9	13.3	11.3
per	MG/KG	9750	100%	33	35	48	48	16.2 J	30.1 Ј	43.8 J	18.8 J	62.5 J	407 J
nide	MG/KG	0	0%	0.35	0	0	00						
nide, Amenable	MG/KG	0	0%		0	0	40	0.59 U	0.65 U	0.59 U	0.66 U	0.55 U	6.54 U
nide, Total	MG/KG	0	0%		0	0	40	0.595 U	0.653 U	0.589 U	0.656 U	0.548 U	0.543 U
	MG/KG	51700	100%	36500	5	48	48	22500	23200	22300	21100	21500 *	24400
	MG/KG	18900	100%	24.8	40	48	48	14.7	37.1	60.2	12.4	51.5	371
nesium	MG/KG	20700	100%	21500	0	48	48	3610	5410	5350	3700	4860 *	6870
ganese	MG/KG	858	100%	1060	0	48	48	668	349	484	526	289	403
cury	MG/KG	0.47	92%	0.1	00	44	48	0.05	0.03	0.04	0.04	0.04	0.08
:e1	MG/KG	224	100%	49	9	48	48	23.9 J	31.4 J	36.1 J	23.9 J	38.4 J	52.5 J
ssium	MG/KG	1990	100%	2380	0	48	48	911 J	982 J	1280 J	\$ 29 J	L 0001	1430 J
muia	MG/KG	1.3	21%	2	; c	I	48	9.5	0.55 0	0.49 0	0.35 (	0.40	0.44 0
H	MG/KG	21.8	38%	0.75	13	000	48	0.32 U	0.35	0.32 0	0.35 (	0.29 0	18.1
um	MG/KG	478	88%	172	26	42	48	132	130 U	242	199	143	439
lium	MG/KG	1.1	21%	0.7	Ų,	10	48	0.37 ∪	0.4 U	0.36 U	0.4 0	0.34	0.33 (
adium	MG/KG	25.4	100%	150	0	48	48	22.4	18.9	17.9	20.2	14.7	14.1
	MG/KG	3610	100%	110	28	48	48	67.1	133	636	53.9	225	3610
er Organic Carbon	MG/KG	9000	100%		0	40	40	6700	6800	5100	9000	3300	6200
l Petroleum Hydrocarbons	MG/KG	7600	25%		0	10	40	48 UJ	52 UJ	47 UJ	52 UJ	44 UJ	43 UJ

he criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, tevised January 24, 1994.

Revised January 24, 1994.

It is ample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. The maximum detected concentration was obtained from the average of the sample and its duplicate.

compound was not detected he reported value is an estimated concentration he reported value is an estimated concentration the reported value is an estimated the associated reporting limit is approximate the data was rejected in the data validating process the data was rejected in the data validating process.

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Facility Location ID Matrix Sample: ID Sample: Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Date QC Code Study ID		Maximum	Frequency	Criteria	Number of	Number of Times	Number of	SEAD-121C SBDRMO-16 SOIL DRMO-1074 0 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-16 SOIL DRMO-1080 0 2 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-17 SOIL DRMO-1077 0 10/28/2002 SA PID-RI	SEAD-121C SBDRMO-18 SOIL DRMO-1081 0 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-19 SOIL DRMO-1084 0 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-20 SOIL DRMO-1087 0 10/26/2002 SA PID-RI
arameter	Units	Value	De	Value 1	Exce		Analytes 2	Value (O)	Value (O)	Value (O)	(O) suite (O)	Value (O)	)) Julie (
olatile Organic Compounds						1		8		18	(2)	(A)	
,1,1-Trichloroethane	UG/KG	0	%0	800	0	0	48	2.6 U	2.8 U	3.1 UJ	2.6 UJ	3 U	2.6 U
, 1, 2, 2-Tetrachloroethane	UG/KG	0	%0	009	0	0	48	2.6 U	2.8 U		2.6 UJ	3 U	2.6 U
,1,2-Trichloroethane	UG/KG	0	%0		0	0	48	2.6 U	2.8 U	3.1 UJ	2.6 UJ	3 U	2.6 U
,1-Dichlorocthane	UG/KG	0 0	%0	200	0 (	0 (	00 (	2.6 U	2.8 U	3.1 UJ	2.6 UJ		2.6 U
2-Dichloroethane	110/RG	> <	%0	004	0 0	0 0	8 0	2.6 U	2.8 0	3.1 00	2.6 UJ	3.0	2.6 U
.2-Dichloroethene (total)	UG/KG	0	%%	2	0 0	o c	° ∝	7.0 0	0.8.7		7.0 0.7	O 5	7.0 0
,2-Dichloropropane	UG/KG	0	%0		0	0	. 84	2.6 U	2.8 U	3.1 UI	2.6 UJ	3 U	2.6 U
Acetone	UG/KG	13	28%	200	0	13	47	2.6 UJ	2.8 UJ	6 UI	2.6 UJ		2.6 U
Benzene	UG/KG	41	7%	09	0	-	48	2.6 U	2.8 U	3.1 UJ	2.6 UJ	3 U	2.6 U
Sromodichloromethane	UG/KG	0	%0		0	0	48	2.6 U	2.8 U		2.6 UJ	3 U	2.6 U
Sromotorm	UG/KG	0 ;	%0		0	0	48	2.6 UJ	2.8 UJ		2.6 UJ	3 UJ	2.6 U
Carbon disulnde	0.G/KG	7.0	%4%	2700	0 0	N (	00 0	2.6 U	2.8 U	3.1 UJ	2.6 UJ	3 U	2.6 U
Thlorobenzene	110/80	> <	%000	000	000	0 0	4 80 0	2.6 U	2.8 U		2.6 UJ		2.6 U
Chlorodibromethane	UG/KG	0	%	2	o c	o c	0 8	2.6 0	2.00	3.1 0.1	2.0 0.7	2 0	2.6 U
Chloroethane	UG/KG	0	%0	1900	0	0	9 4	2.0 C 2.6 U	2.8 U	3.1 U	2.6 111		2.6 U
Chloroform	11G/KG	483	4%	300		, (	. 4	11 7 6	1100		111 2 0	2 0	
7is-1,2-Dichloroethene	UG/KG	0	%	2	0	4 C	0 4	2.6 11	2.8 0	3.1 0	2.6 UJ	0 %	2.6 U
Sis-1,3-Dichloropropene	UG/KG	0	%0		0	0	. 4	2.6 U	2.8 1		2.6 111	5 6	2.6.0
3thyl benzene	UG/KG	3300	4%	5500	0	. 73	. 84	2.6 U	2.8 U		2.6 UJ	3 0	2.6 U
deta/Para Xylene	UG/KG	4400	%8		0	٣	40	2.6 U	2.8 U	3.1 UJ	2.6 UJ	3 0	2.6 U
Methyl bromide	UG/KG	0	%0		0	0	48	2.6 U	2.8 U		2.6 UJ	3 U	2.6 U
Acthyl butyl ketone	UG/KG	0 (	%0		0	0	48	2.6 U	2.8 U		2.6 UJ	3 U	2.6 U
Methyl chlorade	00/VC	> <	%	000	0 0	0 (	84 6	2.6 UJ	2.8 UJ		2.6 UJ		2.6 U
dethyl isobutyl ketone	UG/KG	0 0	%0	1000	0 0		4 4 0 %	0 0.7	2.8 U	3.1 0.1	2.6 UJ	) F	2.6 U
Methylene chloride	UG/KG	2.6	2%	100	0	· —	. 4	2.5 U 2.6 U	2.8 C	1.4 U U	2.6 UJ	3 0	2.6 U
Ortho Xylene	UG/KG	16	3%		0	-	40	2.6 U	2.8 U		2.6 UJ	3 U	2.6 U
tyrene	UG/KG	0	%0		0	0	48	2.6 UJ	2.8 UJ		2.6 UJ	3 OJ	2.6 U
etrachioroethene	UG/KG	0 ;	%0	1400	0	0	48	2.6 UJ	2.8 UJ	3.1 UJ	2.6 UJ	3 UJ	2.6 U
otal Xulene	54/50	% c	%61	200	0 0	on (	47 c	9	2.8 U	3.1 UJ	2.6 UJ	3 C	2.6 U
rans-1,2-Dichloroethene	110/80	o c	%%	300		> <	۶ ه	11 7 6	0	111	111 2 6		
rans-1,3-Dichloropropene	UG/KG	0	%0	3	» o	0	5 %	2.6 0	2.8 0	3.1 0	2.6 UJ		0.6.2
Trichloroethene	UG/KG	0	%0	200	0	0	. 84	2.6 U	2.8 🖰	3.1 UJ	2.6 111		2.6.0
/inyl chloride	UG/KG	0	%0	200	0	0	48	2.6 U	2.8 U	3.1 UJ	2.6 UJ	3 U	2.6 U
emivolatile Organic Compounds													
,2,4-Inchlorobenzene	UG/KG	0 (	%0	3400	0	0	48	360 U	360 U	1800 U	350 U	390 UJ	350 U
,z-Dichloropenzene	0,00	0 0	%0	006/	0	0	94	360 U	360 U	1800 U	350 U	390 U	350 U
,3-Dichlorobenzene	UG/KG	0 0	%0	1600	0 0	0 (	00 (	360 U	360 U	1800 U	350 U	390 U	350 U
,4-Dichlorophmol	110/80	> <	%0	3000	> <	> <	X 0	360 U	2000	1800 U	350 U	390 U	350 U
.,4,6-Trichlorophenol	UG/KG	0	%%	201	o c	00	4 4 8 8	900 U	360 U	4600 U	890 U	980 U	068 1086
	)	>	>		>	>	0	2 200	0 000	0 0001		0 066	0 000

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I oca	Facility							SEAD-121C	SEAD-121C		SEAD-121C	SEAD-121C	SEAD-121C
200	Matrix							SOIL	TIOS	SOIL	TIOS	TIOS	SOIL
Sample Depth to Top of Sample	of Sample								0		0	000	000
Sample Depth to Bottom of Sample Date	m or sample Sample Date							10/27/2002	10/27/2002	10/28/2002	10/27/2002	10/27/2002	10/26/2002
∞ €	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	SA PID-RI	SA PID-RI
		Maximum	of	Criteria	of	of Times	of						
	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses '	Value (Q)	Value (Q)	Value (Q)		Value (Q)	
Dimethylphenol (	UG/KG	00	0 %	400	0 0	0 0	4 6	360 U	360 U	1800 U	350 U	11 06£	350 U
	UG/KG	0	%	200	0	0	47	900 U	900 UJ	4600 U		980 UJ	fD 068
	UG/KG	45	2%		0		48	360 U	360 U	1800 U		390 U	350 U
	UG/KG	0	%	1000	0	0	48	360 U	360 U	1800 U	350 U	390 U	350 U
alene	UG/KG	0	0%		0	0	48	360 U	360 U	1800 U	350 U	390 U	350 U
ethylnaphthalene I	UG/KG	610	19%	36400	0 0	o c	48 48	200 I	210 I	1800 U	350 U	11 06£	350 U
	UG/KG	0	0%	100	0	0	48	360 U	360 U	1800 U		390 U	350 U
	UG/KG	0	0%	430	0	0	48	900 U	900 U	4600 U		980 U	890 U
	UG/KG	0	0%	330	0	0	48	360 U	360 U	1800 U	350 U	390 U	350 U
Dichlorobenzidine	UG/KG	0 0	0%		0 0	0 0	48 6	360 U	360 UJ	1800 UJ	350 U	390 U	350 UJ
	UG/KG	0	0%	500	0	0	48	900 U	900 U	4600 U	890 U	980 U	890 U
	UG/KG	0	%		0	0	4 48	360 U	360 U	4600 U	350 U	380 UJ	350 U
nloro-3-methylphenol	UG/KG	0 0	0%%	240	0 0	0 0	48 6	360 U	360 U	1800 U	350 U	390 U	350 U
	UG/KG	0	0%	220	0	0	48	360 U	. 360 U	1800 U	350 U	390 U	
nlorophenyl phenyl ether	UG/KG	0	0%	)	0	0	48	360 U	, 360 U	1800 U	350 U	390 U	350 U
	TG/KG	0 0	0%	900	<b>,</b> c	00	<b>4</b> ∝	11 000	900 11	4600 11	11 008	11 080	11 068
itrophenol	UG/KG	0 0	% %	100	0 0	0 0	48	000 U	000 U	4600 U	D 068	086 0.000	D 068
	UG/KG	2600	23%	50000	0	Ξ	48	160 J	170 J	1800 U	350 U	390 U	
lene	UG/KG	2500	21%	41000	0	10	48	1100	750	1800 U	350 U	390 U	95 J
	UG/KG	7100	42%	50000	. 0	20	\$ £	1100	950		380 J	390 U	. 76 J
ene	UG/KG	10000	51%	61	2 14	24	47	4800 J	2700 J	1800 0	380	390 U	170 J
zo(b)fluoranthene	UG/KG	12000	64%	1100	us ;	30	47	6600 J	3700 J	1800 R	410	390 U	310 J
	UG/KG	31503	53%	50000	0	25	47	1700 J	740 J	1800 R	160 Ј	390 UJ	460 J
	UG/KG	7500	47%	1100	4 0	22	47	3000 J	1700 J	1800 R	250 J	390 U	490 J
2-Chloroethyl)ether	UG/KG	0 0	0%		00	0 0	48 8	360 U	360 U	1800 U	350 U	390 U	350 U
ther	UG/KG	0	0%		0	0	48	360 U	360 U	1800 U	350 U	390 U	350 U
nalate	UG/KG	200	56%	50000	0	27	48	97 J	74 J	1800 UJ	160 J	390 U	98 J
ylbenzyiphthalate	TIG/KG	4200	15%	50000	<b>&gt;</b>	17	48	170 1	. 360 UJ	11 0081	1 95	11 06£	350 UJ
	UG/KG	9100	53%	400	10	25	47	5000 J	2700 J	1800 UJ	430	390 U	410 J
n-butylphthalate	UG/KG	132 3	10%	8100	0	S	48	360 U	360 U	1800 U		390 U	350 U
1-octy/phthalate	UG/KG	23 3	4%	50000	0	2	48	360 U	360 UJ	1800 UJ	350 U	390 UJ	350 UJ
thracene	UG/KG	470	26%	6200	> <b>:</b> :	12	47	250 J	100 J	1800 R	350 U	390 UJ	350 J
	IIG/KG	313	120%	7100	> 0	ν ;	40	11 091	360 11	1800 17	350 17	190 11	350 17
ethylphthalate	UG/KG	0 1	0%	2000	00	0 0	4 4	360 U	360 U	1800 U	350 U	390 U	350 U
	UG/KG	27000	73%	50000	0	35	48	8200 J	5100 J	1800 U	610	390 U	150 J
													ı

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Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Date QC Code Study ID	Facility Location ID Matrix Sample ID op of Sample om of Sample CC Code Study ID	· .	Frequency		Number	Number	Number	SEAD-121C SBDRMO-16 SOIL DRMO-1074 0 2 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-16 SOIL DRMO-1080 0 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-17 SOIL DRMO-1077 0 10/28/2002 SA PID-RI	SEAD-121C SBDRMO-18 SOIL DRMO-1081 0 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-19 SOIL DRMO-1084 0 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-20 SOIL DRMO-1087 0 10/26/2002 SA PID-RI
arameter	Unite	Maximum	Detection	Criteria Value	Of Fyceodences	Of Times	of Analyses 2	(O) wiley	(O) •uleA	Volue (O)	(O) enloy	(0) 4:10/2	O) william
Juorene	UG/KG	3500	27%	20000	0	13	48	650	069	1800 U	350 U	390 U	350 11
lexachlorobenzene	UG/KG	8.5	2%	410	0	·	48	360 U	360 U	1800 U	350 U	0 06E	350 U
lexachlorobutadiene	UG/KG	0	%0		0	0	48	360 U	360 U	1800 U	350 U	390 UJ	350 U
exachlorocyclopentadiene	UG/KG	0 (	%		0 (	0 1	84	360 U	360 U	1800 U	350 U	390 U	350 U
exachioroethane	UG/KG	0 0	%0		0 '	0	8	360 U	360 U	1800 U	350 U	390 U	350 U
denot 1,2,5-cd/pyrene	00/80	5 0	%%	3700	0	72 0	80 0	760	330 J	1800 UJ	160 J	390 UJ	390 J
(-Nitrosodiphenylamine	UG/KG	> 4	2%	004	00	> -	8 8	360 U	360 11	1800 1	350 U	390 01	350 U
I-Nitrosodipropylamine	UG/KG	0	%		0	. 0	84	360 U	360 U	1800 U	350 U	3 90 C	350 U
laphthalene	UG/KG	400	%61	13000	0	6	84	100 J	82 J	1800 U	350 U	390 UJ	350 U
litrobenzene	UG/KG	0 (	%0	200	0	0	48	360 U	360 U	1800 U	350 U	390 UI	350 U
hannihann	UG/KG	0 00	%0	1000	0 (	0 %	8 6	000 C	D 006	4600 U	D 068	D 086	D 068
hend	110,40	00067	32%	30000	<b>&gt;</b>	7 <	&	4400 J	4000 J	0 0081	340 J	390 U	120 J
yrene	UG/KG	34000	%29	20000	0	32	0 %	1 2000 1	5300 T	1800 0	) 055 0 066	390 0	330 0
'estícides/PCBs						!	!				8		
,4'-DDD	UG/KG	44	12%	2900	.0	2	43	1.8 UJ	6 J	0.22 U	44 J	2 UJ	1.8 U
,4'-DDE	UG/KG	69	32%	2100	0	15	47	1.8 UJ	41 R	0.22 UJ	83 R	2 UJ	11 J
,4-DDT	UG/KG	100	28%	2100	0	13	47	19 J	21 J	0.22 UJ	73 R	2 UJ	1.8 U
Udrin	UG/KG	14 3	%9	41	0	۳	48	9.9 J	IN 61	0.11 U	11 J	2 UJ	1.8 U
Upha-BHC	UG/KG	o '	%	110	0	0	48	1.8 UJ	1.8 UJ	1.3 U	1.8 UJ	2 UJ	1.8 U
sipha-Chlordane	UG/KG	63	%8	;	0	4	48	63 J	71 R	0.34 U	21 NJ	2 UJ	1.8 U
eta-BHC blordane	00/KG	<b>o</b> c	% %	200	0 0	0 0	80 6	1.8 UJ	1.8 UJ	0.11 U	1.8 UJ	2 UJ	1.8 U
Jelta-BHC	DW/SO	0 73	%%	300	0	o ~	5 4	0 81	18 0	0 1.7	0 8 1	20 07	18 0
Dieldrin	UG/KG	413	4%	44	0	7	48	41 3	32 R	0.11 UJ	39 J	2 111	1.8 U
indosulfan I	UG/KG	1853	38%	006	0	8	48	65	I 69	0.56 U	27	2 11	181
indosulfan II	UG/KG	6	2%	006	0	-	47	1.8 U	1.8 U	0.34 U	16 R	2 U	1.8 U
ndosulfan sulfate	UG/KG	0	%0	1000	0	0	48	1.8 U	1.8 U	U 29.0	1.8 U	2 U	1.8 U
indrin Sadzin oldebrodo	UG/KG	21.5	%3	001	0 (	- ‹	47	17 J	26 J	U) 6:0	26 R	2 UJ	1.8 U
	00/20	, c	0.20		o (	o (	20	) ; S	O 8:1	0.9	0 8.1	2 O	1.8 U
and in Kelone Samma-BHC/I indane	116/KG	Ú c	%6	9	> 0	ო (	8 6	[ 5.7	10 K	0.11.0	3.4 NJ	2 C	1.8 U
jamma-Chlordane	UG/KG	1 2	%2	540	0 0	> -	4 4	 	0 8 1	0.11 U	1.8 0	5 5	1.8 U
Ieptachlor	UG/KG	4	%	001	0	. 2	47	11.8 11.	11 8 1	11 11	141	2 5	1.0 0
leptachlor epoxide	UG/KG	2.8	4%	20	0	7	46	20 R	1.8 UJ	0.34 U	27 R	G G	1.8 U
fethoxychlor	UG/KG	0	%0		0	0	48	1.8 U	1.8 U	0.11 U	1.8 U	2 U	1.8 U
oxaphene	UG/KG	0 (	%		0	0	48	18 U	18 U	3.6 U	18 U	20 U	18 U
rocior-1016	00/KG	00	% %		0 0	0 0	80 0	18 UJ	18 UJ	5.8 UJ	18 UI	20 CI	18 U
roctor-1232	UG/KG	0	%%		0	0 0	4 40	0 81	0 81	0 5.1	18 0	70 02	
vroclor-1242	UG/KG	28	7%		0		. 84	18 UJ	18 UJ	2.5 U	18 UJ	20 C2	18 U
roclor-1248	UG/KG	0	%0		0	0	48	18 U	18 U	6.1 U	18 U	20 U	
roclor-1254	UG/KG	930	19%	10000	0	σ	48		18 UJ	12 UJ	930	20 U	130

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### SEAD-121C and SEAD-121I RI REPORT SURFACE SOIL SAMPLE RESULTS Seneca Army Depot Activity SEAD-121C Table C-2

						201	THE BAN	and proportional	4				
								OICI GVBS	254D 1310	SEAD-121C	SEAD-171C	SEAD-121C	SEAD-121C
	Касшіту							SEAD-121C	SEAD-121C	3EAU-121C	3570-1210	SEAL-1710	350001410
	Location ID							SBURMU-16	SBUKMU-16	SBUKMU-1/	SEDEMO-18	SBUKMU-19	SDINWO-20
	Sample ID							DRMO-1074	DRMO-1080	DRMO-1077	DRMO-1081	DRMO-1084	DRMO-1087
Sample Depth to Top of Sample	op of Sample							. 0	0	00	20	2 0	20
Sample Depth to Bottom of Sample	South Datable							10/27/2002	10/27/2002	10/28/2002	10/27/2002	10/27/2002	10/26/2002
	OC Code							SA	SA	SA	SA	SA	SA
	-		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
meter	Units	Value	Detection	Value 1	Exceedances		Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
lor-1260	UG/KG	85	10%		0		48		35 J	2.2 UJ	18 UJ	20 U	18 U
ils and Cyanide	MOVO	17000	1000	19300	>	40	48	3100	3760	1 00101	7610	12000	10100
DODY	MG/KG	236	81%	5.9	11	39	48	0.98 U	0.99	2.7 J	12.3	1.1 U	5.1
nic ,	MG/KG	11.6	100%	8.2	2	48	48	4.8	5.5	4.4 J	7.8	4.8	5.2
m	MG/KG	2030	100%	300	7	48	48	42	45.6	56 J	320	89	191 J
lium	MG/KG	1.2	100%	3.1	-	48	40	0.26 J	0.32 J	0.6 1	0.32 J	0.75	0.55
um	MG/KG	296000	100%	121000	o 1	48	48	199000	157000	84500 J	167000	3790	38300 J
mium	MG/KG	74.8	100%	29.6	12	48	48	13	13.8	33.1 J	74.8	19.7	47.4
Jt .	MG/KG	17	100%	30	0	35	35	5.9	6.1	11.5 J	13.3	10.6	13.5
er	MG/KG	9750	100%	33	35	48	48	28.8	34.3	33.8 J	456	14.8	301 J
ide	MG/KG	0	0%	0.35	0	0	5 00		200	200		200	25.
ide, Amenable	MG/KG	0	0%		0	0	40	0.54 U	0.55 0	0.56.0	0.54 U	0.61 0	0.54 0
ide, Total	MG/KG	51700	100%	36500	АС	4 C	48	8710	10500	17000 J	51700	24900	36400
	MG/KG	18900	100%	24.8	40	48	48	89.3	94.5	30.9 Ј	720	19.7	305
nesium	MG/KG	20700	100%	21500	0	48	48	17900	13000	8370 J	14800	3740	6400
ganese	MG/KG	858	100%	1060	0	48	48	425	390	487 J	567	529	424
Am	MG/KG	0.47	92%	0.1	00	44	48	0.07	0.07	0.04	0.47	0.07	0.13
. <u>e.</u>	MG/KG	224	100%	49	9 0	40	48	19.4 J	22.1 J	32.5 J	1300 1	25.9 1	1560 1
nium	MG/KG	1.3	21%	2	0 0	10	48	0.46 U	0.45 U	0.36 U	0.45 U	0.5 U	0.44 U
4	MG/KG	21.8	38%	0.75	13	18	48	0.29 U	0.29 U	0.41 U	2.9	0.32 U	5.2
mm	MG/KG	478	88%	172	26	42	48	276	232	152	273	121	268
ium	MG/KG	2.1	21%	0.7	, w	10	400	0.34 U	0.33 U	0.64 0	0.33	0.3/ 0	0.32 U
idium	MUKU	25.4	100%	130	3 0	40	40	120 1	126 1	03 7 1	1 000 1	2 1 1 2 3	1750
-	MUNKU	0105	100%	110	40	40	40	150 5	135 3	35.1 3	1000	0.1	
l Organic Carbon	MG/KG	9000	100%		0	40	40	5200	5300	4600	3900	3900	6900
l Petroleum Hydrocarbons	MG/KG	7600	25%		0	10	40	2800 J	6200 J	7600 J	710 J	48 UJ	43 UJ

ES:

Tecritoria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, evised January 24, 1994.

The administrative Guidance of the surrage of the surrage visits in the surrage statistic presented in this table, the maximum detected concentration was obtained from the average of the sample and its duplicate.

compound was not detected the reported value is an estimated concentration the reported value is an estimated concentration the compound was not detected; the associated reporting limit is approximate the data was rejected in the data validating process the data was rejected in the data validating process.

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Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Date Sample Date Ample D	Facility Location ID Matrix Sample ID op of Sample om of Sample Date QC Code Study ID	Maximum		Criteria	Number of	•	Number of	SEAD-121C SBDRMO-21 SOIL DRMO-1090 0 10/27/2002 SA PID-RJ	SEAD-121C SBDRMO-22 SOIL DRMO-1091 0 2 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-23 SOIL DRMO-1095 10/28/2002 SA PID-RI	SEAD-121C SBDRMO-24 SOIL DRMO-1098 0 10/28/2002 SA PID-RI	SEAD-121C SBDRMO-5 SOIL DRMO-1040 0 10/27/2002 SA PID-RU	SEAD-121C SBDRMO-6 SOIL DRMO-1043 0 10/25/2002 SA PID-RI
olatile Organic Compounds	OHIIS	ANIDE	Detection	value	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (C
1,1-Trichloroethane	UG/KG	0	%0	800	0	0	48	3.1 U	3 U	2.8 UJ	2.7 UI	2.7 U	2.6 U
1,2,2-1 etrachloroethane	UG/KG	0 0	%	909	0	0	48	3.1 U	3 U	2.8 UJ	2.7 UJ	2.7 U	2.6 U.
1.Dichloroethane	5 KG	0 0	%0	000	0 0	0 0	8 4	3.1 U	30	2.8 UJ	2.7 UJ	2.7 U	2.6 U
1-Dichloroethene	UG/KG	0	%%	004	0	0	6 4 8 4 8 4	3.1.0	2 0	2.8 UJ 2.8 III	2.7 00	2.7 U	2.6 U.
2-Dichloroethane	UG/KG	0	%0	100	0	0	8 4 8	3.1 U	3 0	2.8 UJ	2.7 UI	2.7 U	2.6 U
,2-Dichloroethene (total)	UG/KG	0 0	%%		0 0	0 (	œ :	;	;				
cetone	UG/KG	2	78%	200	<b>&gt;</b> C	> ≝	8 t	3.1 U	30	2.8 UJ	2.7 UJ	2.7 U	2.6 U.
enzene	UG/KG	: 14	2%	8	0	÷	, <del>4</del>	3.1 U	G E	2.8.111	5.4 UJ	8.8 J	2.6 U.
romodichloromethane	UG/KG	0	%0		0	0	84	3.1 U	3 €	2.8 UJ		2.7.1	2.0 0.7
romoform	UG/KG	0	%0		0	0	48	3.1 U	3 UJ	2.8 UJ	2.7 UJ	2.7 UI	2.6 U
arbon disulfide	UG/KG	4.7	4%	2700	0	2	48	3.1 U	3 U	2.8 UJ	2.7 UJ	2.7 U	2.6 U.
arbon tetrachionde hiorobenzene	09/KG	0 0	%0	009	0 0	0 0	48		3.0	2.8 UJ	2.7 UJ	2.7 U	2.6 U.
hlorodibromethane	UG/KG	0	%0	8	o c	> <	4 4 8 8	3.1.0	) C	2.8 0.1	2.7 U	2.7 U	2.6 U
hloroethane	UG/KG	0	%0	1900	0	0	8 4 8	3.1 U	3.0	2.8 UI	2.7 UI	2.7 0	2.6 U.
hloroform	UG/KG	4.8 3	4%	300	0	2	84	3.1 U	111	2.8 111	27 111	11.70	17.5.5
is-1,2-Dichloroethene	UG/KG	0	%0		0		04	3.1 U	3 0	2.8 OJ	2.7 UJ	2.7.0	2.6 U.
is-1,3-Dichloropropene	UG/KG	0	%0		0	0	48	3.1 U	3 U	2.8 UJ	2.7 UJ	2.7 U	2.6 U
thyl benzene	UG/KG	3300	4%	2200	0 (	7	48	3.1 U	3 U	2.8 UJ	2.7 UJ	2.7 U	0.66 J
ferbyl bromide	04/80 110/80	0044	% %		0 0	m	Q (	2 J	3 U	2.8 UJ	2.7 UI	2.7 U	4.1 J
fethyl butyl ketone	UG/KG	0	%%		<b>&gt;</b>	<b>&gt;</b> c	8 8	3.1 Cl	3 C	2.8 UJ	2.7 UJ	2.7 U	2.6 U.
fethyl chloride	UG/KG	0	%0		0	0	48	3.10	3 6	2.8 0.3	2.7 UJ	2.7 U	2.6 U.
fethyl ethyl ketone	UG/KG	0	%0	300	0	0	48	3.1 UJ	3 0	2.8 UJ	2.7 UJ	2.7 U	2.6 11
fethyl isobutyl ketone	UG/KG	0 }	%0	1000	0	0	48	3.1 UJ	3 U	2.8 UJ	2.7 UJ	2.7 U	2.6 U.
rethy Xylene	UG/KG	0.7	3%	90	0 0		8 0	2.9 UJ	3.0	3.9 UI	3.7 UJ	2.7 U	2.6 U.
tyrene	UG/KG	. 0	%		0	- c	2 4	3.1.0	3 0	2.8 0.1	2.7 00	2.7 U	2.6 U.
etrachloroethene	UG/KG	0	%0	1400	0	0	. 84	3.1 U	3 m	2.8 11		27 111	2.6 U. 2.6 II
oluene	UG/KG	28	%61	1500	0	6	48	3.1 U	3 €	2.8 UJ	2.7 UI	27 11	26.11
otal Xylenes	UG/KG	0	%0	1200	0	0	00					i	i
rans-1,2-Dichloroethene	UG/KG	0	%0	300	0	0	40	3.1 U		2.8 UJ	2.7 UJ	2.7 U	2.6 U.
rans-1,3-Dichloropropene	06/KG	0 (	%0	i	0	0	48	3.1 U		2.8 UJ	2.7 UJ	2.7 U	2.6 U.
includioenene	08/50 10/8/01	<b>&gt;</b> 0	%0	700	0 (	0 1	48	3.1 ℃	3 U	2.8 UJ	2.7 UJ	2.7 U	2.6 U.
emiyolatile Organic Compounds	DW.P.O.	>	%0	700	0	0	8	3.1 U		2.8 UJ	2.7 UJ	2.7 U	2.6 U.
2,4-Trichlorobenzene	UG/KG	0	%0	3400	C	c	48	410 11	11 00%				
2-Dichlorobenzene	UG/KG	0	%0	1900	0	0	84	410 U	400 11	390 11	350 11	360 11	340 0
3-Dichlorobenzene	UG/KG	0	%0	1600	0	0	48	410 U	400 U	390 U			340 0
4-Dichlorobenzene	UG/KG	0	%0	8500	0	0	48	410 U	400 U	390 U	350 U	360 U	340 U
4.3-1 nchlorophenol	UG/KG	0	%0	100	0	0	48	1000 U	1000 U	D 086	N 068		870 U
,4,5-1 ncniorophenoi	06/KG	5	%0		0	0	48	410 U	400 U	390 U	350 U		340 U

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	S		SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	SH	SBDRMO-21 SOIL	SBDRMO-22 SOIL	SBURMO-23 SOIL	SBDRMO-24 SOIL	SOIL SOIL	SBURMO-6
	ַם	DRMO-1090	DRMO-1091	DRMO-1095	DRMO-1098	DRMO-1040	DRMO-1043
		2	2	2	2	2	2
		10/27/2002	10/27/2002	10/28/2002	10/28/2002	10/27/2002	10/25/2002
Frequency Number Nu	Number Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Criteria of							
Exceedances	Detected Analyses'	Value (Q)		Value (Q)	Value (Q)		
400	0 48	410 U	400 U	390 U	350 U	360 U	340 U
200	0 47	1000 U	J 000 L	980 UJ	U 068	900 U	870 R
2% 0	1 48	410 U	400 U	_	350 U	360 U	340 U
1000		410 U		390 U	350 U	360 U	340 U
	4.8	410 0	400	390 U	350 0	360 0	340 0
19% 36400 0	9 48	410 U	406 C	J 066	69 J	360 U	340 U
		410 U	400 U		350 U	360 U	340 U
	0 48	1000 UJ	1000 U	980 U	890 U	900 U	870 UJ
550		410 U	406 U	390 U	350 U	360 U	340 U
		410 U	400 U		350 U	360 U	340 UJ
500		1000 U	1000 U		00 U	900 U	870 U
0%	0 48	410 U	400 C	390 U	350 U	360 U	340 U
240		410 U	400 U		350 U	360 U	340 U
220		410 U	400 U		350 U	360 U	340 U
900	× 4	120	400	0 00	0	000	4
``	0 48	1000 UJ	1000 U	980 U	890 U	900 U	870 U
100		1000 U	1000 U		U 068	900 U	870 UJ
50000 0		410 U	400 U		190 J	360 U	340 U
21% 41000 0	10 48	410 U	400	190E	1300	360 U	340 U
224 14		410 U	. 400 U			. 410	340 U
61 21		410 U	400 U	390 U	6800	320 J	340 UJ
Į100 5	30 47	410 U	400 U		8000	400	50 J
50000 0		410 UJ	400 UJ		2100 J	180 J	110 J
4 C	0 48	410 U	400 U	390 U	11 05E	360 U	340 U
0		410 U	400 UJ		350 U	360 U	340 U
0	0 48	410 U	400 U	390 U	350 U	360 U	340 ∪
		410 UJ	400 U	390 U	350 U	360 U	340 UJ
		410 U	400 U	390 U	88 J	360 U	340 U
	25 47	410 U	400 U	390 U		400	340 UJ
8100	5 48	410 U	400 U	390 U	350 U	360 U	340 U
4% 50000 0	2 48	410 U	400 U	390 U	350 U	360 U	340 UJ
26% 14 11 21% 6200 0	12 47 10 48	410 UJ	400 UJ	390 U	210 J 140 I	360 U	340 UJ
7100	6 48	410 U	400 U	390 U	350 U	360 U	340 U
	0 48	410 U	400 U		350 U	360 U	340 U
73% 50000 0	35 48	410 U	400 U	390 U	7700	670	53 J
		40	40 410 0		5	100 0	100 0

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Table C-2
SURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

Sample Depth to T ample Depth to Botto	Facility Location ID Matrix Sample ID op of Sample Dom of Sample Sample Date QC Code Study ID	Maximum	Frequency		Number	Number of Times	Number of	SEAD-121C SBDRMO-21 SOIL DRMO-1090 0 2 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-22 SOIL DRMO-1091 0 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-23 SOIL DRMO-1095 0 10/28/2002 SA PID-RI	SEAD-121C SBDRMO-24 SOIL DRMO-1098 0 10/28/2002 SA PID-RI	SEAD-121C SBDRMO-5 SOIL DRMO-1040 0 1027/2002 SA PID-RI	SEAD-121C SBDRMO-6 SOIL DRMO-1043 0 10725/2002 SA PID-RI
arameter	Units	Value	Detection		Exceedances	Detected	Analyses	value (ارز)	value (Q)	value (V)	value (Q)	value (Q)	7 aluc (5
Juorene	UG/KG	3500	27%	20000	0 0	13	8 6	410 U	400 U	390 0	350	360 11	340 U
lexachiorobutadiene	110/80	<u>}</u> c	%0	10	0 0	- 0	2 4	410 U	400 U	390 U	350 U	360 U	340 U
fexachlorocyclopentadiene	UG/KG	0	%0		0	0	8 4	410 U	400 U	390 U	350 UJ	360 U	340 U.
lexachloroethane	UG/KG	0	%0		0	0	48	410 U	400 U	390 U	350 U	360 U	340 U
ndeno(1,2,3-cd)pyrene	UG/KG	9703	46%	3200	0	22	48	410 UJ	400 UJ	390 U	740	170 J	f 09
sophorone	UG/KG	0	%0	4400	0	0	48	410 U	400 U	390 U	350 U	360 U	340 U
I-Nitrosodiphenylamine	UG/KG	8.4	2%		0		8 :	410 U	400 U	390 U	350 U	360 U	340 U
1-Nitrosodipropylamine	UG/KG	0 ;	%0		0 (	0 (	80 (	410 U	400 U	390 0	350 0	360 U	340 0
vaphthalene	0.6/KG	400	%67	13000	> 0	D (	20 0	0 014	0.004	390 0	12 025	360 11	340 11
Nitropenzene Jentachlorophenol	00/80	> <	%0	200	o	0 0	6 4 4	0.001	0 001	980 11	D 068	1 006	870 U
henanthrene	119/86	29000	52%	20000	0	25	84	410 U	400 U	390 U	4400	440	340 U
henol	UG/KG	0	%0	30	0	0	84	410 U	400 U	390 U	350 U	360 U	340 U
yrene	UG/KG	34000	%19	20000	0	32	48	410 UJ	400 U	390 U	16000	700	130 J
esticides/PCBs													
,4'-DDD	UG/KG	44	12%	2900	0	. 5	43	2.1 UJ	2 UJ	0.24 U	0.22 U	1.8 UJ	1.8 R
,4'-DDE	UG/KG	69	32%	2100	0	15	47	2.1 UJ	2 UJ	0.24 UJ	0.22 UJ	47 J	6.1 J
,4'-DDT	UG/KG	100	28%	2100	0	13	47	2.1 UJ	2 UJ	0.24 UJ	0.22 UJ	27 J	1.8 U
Aldrin	UG/KG	143	%9	41	0	3	48	2.1 UJ	2 UJ	0.12 U	0.11 U	1.8 UJ	1.8 U
Alpha-BHC	UG/KG	0	%0	110	0	0	48	2.1 UJ	2 UJ	1.4 U	1.3 U	1.8 UJ	1.8 U
Alpha-Chlordane	UG/KG	63 3	%8		0	4	. 48		2 UJ	0.35 U	0.32 U	. 1.8 UJ	6.1 J
3eta-BHC	UG/KG	0	%0	200	0	0	48		2 UJ	0.12 U	0.11 U	1.8 UJ	1.8 U
Chlordane	UG/KG	0	%0		0	0	40		20 U	2.2 U	2.1 U	D 81	18 U
Delta-BHC	UG/KG	7	%9	300	0	ω	8		2 UJ	0.24 UJ	0.22 UJ	1.8 U	1.8 U
Dieldrin	UG/KG	41 3	4%	44	0	2	48		2 UJ	0.12 UJ	0.11 UJ	1.8 UJ	1.8 U
Endosulfan I	UG/KG	=	38%	006	0	81	48		2 U	0.59 U	0.54 U	14 J	6.1
Endosulfan II	UG/KG		2%	006	0 (	- (	47		2 0	0.35 U	5	0 8:1	0 8:1
endosultan sulfate	0.6/KG	0 ;	%	0001	0 0	o -	4. ź	0 1.7	7 7	0.71 0	0.65 0	1:0	1.8
Sudmin aldebyde	119/89		%0	2	0	- 0	4 4	2.1 0	2 0	0.94 UJ	0.86 UJ	1.8 U	D 8:1
Endrin ketone	11G/KG	7	%9		0		84	2.1 U	2 U	0.12 U	0.11 U	1.8 U	1.8 U
Jamma-BHC/Lindane	11G/KG		%0	9	0	. 0	00	2.1 UJ	2 UJ	0.12 U	0.11 U	1.8 UJ	1.8 U
Gamma-Chlordane	UG/KG		2%	540	0	. –	48	2.1 UJ	2 UJ	0.35 U	0.32 U	1.8 UJ	1.8 U
Heptachlor	UG/KG		%4	100	0	7	47	2.1 UJ	2 UJ	1.2 U	1.1 U	1.8 UJ	1.8 U
Heptachlor epoxide	UG/KG	2.8	4%	20	0	7	46	2.1 UJ	2 UJ	0.35 U	0.32 U	18 R	1.8 U
Methoxychlor	UG/KG		%0		0	0	48	2.1 U	2 U	0.12 U	0.11 U	1.8 U	1.8 U
Foxaphene	UG/KG		%0		0	0	84		20 U	3.8 U	3.5 U	0 81	U 81
Aroclor-1016	UG/KG		%0		0	0	8		20 UJ	6.1 UJ	5.6 UJ	18 03	18 U
Aroclor-1221	UG/KG		%0		0 (	0 (	4 80	21 0	20 C	1.5 U	1.4 U	0 81	18
Aroclor-1232	UG/KG	0 %	% %		0 0	0 -	8 4 8	21 UJ	20 UJ	9.5 UJ	8.6 UJ	18 0	18 0
A 00101-1242	0 2 0 0 1	າ ເ	0.70		0 0	- <	9 9		50.00	2.3	1000	2 2	18.0
Aroclor-1248	110/80	030	%1	10000	0 0	0	4 4	21 0	20 UJ	13 UJ	11 01	570	18 U
	,	)	:	,	,	ı	,	ì					

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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity SURFACE SOIL SAMPLE RESULTS SEAD-121C Table C-2

							Con the saw	my welpositionary	,				
	Facility							SEAD-121C	SEAD-121C	SEAD-121C			SEAD-121C
1	Location ID							SBDRMO-21	SBDRMO-22				SBDRMO-6
	Matrix Sample ID							DRMO-1090	DRMO-1091	DRMO-1095			DRMO-1043
Sample Depth to Top of Sample	of Sample							2 0	2 0	p 0	20	20	ь 0
ordings to monog or indeed ardings	or sample							10/27/2002	10/27/2002	10/28/2002			10/25/2002
	QC Code							SA	SA				SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI			PID-RI
		Maximum	10	_	. 0	of Limes	01		:				
meter	Units	Value	Detection	Ι.	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	7 1 1 1 (V)	Value (V)	Value (V)
lor-1260	UG/KG	85	10%	10000	C	v	48	71 01	y J	2.4 UJ	2.1 03	10 0	10 0
als and Cyanide	MG/KG	17000	100%	19300	0	48	48	11800	11500	9940 J	8510 J	8650	8030
mony	MG/KG	236	81%	5.9	=	39	48	1.1 U	1.1 U	0.65 J	8.5 J	67.3	1.5
nic	MG/KG	11.6	100%	8.2	2	48	48	4.1	7.3	3.7 J	5 J	6.1	3.7
um	MG/KG	2030	100%	300	7	48	48	134 J	103	105 J	1680	273	37.9 J
llium	MG/KG	1.2	100%	Ξ	-	48	48	0.73	0.68	0.57 J	0.46 J	0.46 J	0.44 J
nium	MG/KG	29.1	60%	2.3	14	29	48	0.15 U	0.14 U	0.06 U	17.9 J	10.7	0.2 J
ium	MG/KG	296000	100%	121000	6	48	48	29400 J	37700	56300 J	114000 J	9/900	36500 J
mium	MG/KG	74.8	100%	29.6	12	48	48	16.3	19.3	10.4 J	3/./ J	20.4	00.8 00.8
alt	MG/KG	17	100%	30	20	5 5	5 5	9.5	. 12.3	21.7.1	1 5 6 5	160	24.6.1
per	MG/KG	9/50	100%	35	, t	48	4 °	18.9 J	. 20	21.7 3	34/ 5	901	34.0 1
ude	MG/KG	0	0%	0.30		0 0	; ox		200	0 60 11	0 54 11	0 % 11	0 63 11
nide, Amenable	MG/KG	0	0%		0	0	40	0.62 U	0.6 U	0.59 0	0.54 0	0.54	0.525 U
ude, Total	MG/KG	0	0%		0	; 0	6 6	0.62 U	0.603 U	0.594 (	0.344 0	0.542 0	0.525 0
	MG/KG	51700	100%	36500	à u	48	48	19300	2300	14900 J	1 66t C 001C7	2690	6 99
nesium	MG/KG	20700	100%	21500	0 ;	48	48	13100	8150	15600 J	9010 J	8170	5080
ganese	MG/KG	858	100%	1060	0	48	48	472	536	419 J	728 J	369	348
сшу	MG/KG	0.47	92%	0.1	00	44	48	0.05	0.07	0.04	0.06	. 0.08	0.04
(6)	MG/KG	224	100%	49	9	48	48	22.5 J	29.8 J	22 J	37 J	35.8 J	31.8 J
ssium	MG/KG	1990	100%	2380	0	48	48	1020 J	1030 J	1510 J	1530 J	1490 J	1220 J
nium	MG/KG	1.3	21%	2	0	10	48	0.52 U	0.51 U	0.39 U	0.36 U	0.44 U	0.44 U
4	MG/KG	21.8	38%	0.75	13	18	48	0.33 U	0.33 U	0.44 UJ	0.55 J	0.85 J	0.28 U
um	MG/KG	478	88%	172	26	42	48	137	120 U	157	241	240	223
lium	MG/KG	1.1	21%	0.7	w	10	48	0.38 U	0.37 U	0.68 U	1.1.	0.33 (	0.53 U
adium	MG/KG	25.4	100%	150	0	48	48	20	20.8 J	16.9 J	12.2 J	17.1 J	12.9
	MG/KG	3610	100%	110	28	48	48	63.9	89.6 J	55.3 J	786 J	541 J	123
er al Organic Carbon	MG/KG	9000	100%		0	40	40	6300	5800	2800	4900	4200	3300
il Petroleum Hydrocarbons	MG/KG	7600	25%		0	10	40	50 UJ	48 UJ	48 UJ	44 UJ	520 J	42 UJ

IES:

He criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, tevised January 24, 1994.

Levised January 24, 1994.

ample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. The maximum detected concentration was obtained from the average of the sample and its duplicate.

compound was not detected the reported value is an estimated concentration the reported value is an estimated concentration the reported value is an estimated the associated reporting limit is approximate the data was rejected in the data validating process the data was rejected in the data validating process.

	Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Date QC Code	Facility Location ID Marrix Sample ID op of Sample mon of Sample QC Code Study ID	Maximum	Frequency	Criteria	Number of	Number of Times	Number	SEAD-121C SBDRMO-6 SOIL DRMO-1050 0 10/25/2002 SA PID-RJ	SEAD-121C SBDRMO-7 SOIL DRMO-1046 0 2 10/27/2002 SA PID-RJ	SEAD-121C SBDRMO-8 SOIL DRMO-1049 0 10/25/2002 SA PID-RI	SEAD-121C SBDRMO-9 SOIL DRMO-1053 0 10/25/2002 SA PID-RI	SEAD-121C SS121C-1 SOIL EB235 0 0 3/9/1998 SA EBS	SEAD-121C SS121C-2 SOIL EB236 0 0 0 3/9/1998 SA EBS
re VORGE 0 0% 800 0 0 48 27 U 28 U 33 U 31 U 11 U 11 U 11 U 11 U 11 U 1	Parameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (O)	Value (O)	Value (O)	Value (O)	Value (O
COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   COUNTY   C	Volatile Organic Compounds	02011		è	0									
UCKKG	1,1,1-1nchlorocinane	0.0/KG	0 0	% &	008	<b>&gt;</b> 0	0 0	20 0	2.7 U	00 0	3.3 UJ		B :	11 :
UCKKG   0   0   0   0   0   0   0   0   0	1.1.2-Trichloroethane	110/80	0 0	%0	000	<b>&gt;</b>	<b>&gt;</b>	84 8 8 8	2.7 U	×0 0	3.3 U			
UCKG	1,1-Dichloroethane	UG/KG	0	2,00	200	0 0	o c	0 8	27.7	0 00	3.3 U			
OCKC  C  C  C  C  C  C  C  C  C  C  C  C  C	1,1-Dichloroethene	UG/KG	0	%0	400	0	0	84	2.7 U	00	3.3 U			
DOTACK   1	1,2-Dichloroethane	UG/KG	0	%0	100	0	0	48	Z.7 UJ	- 00	3.3 UJ			
UGNKG 11 20% 20% 20% 20% 20% 20% 20% 20% 20% 20%	1,2-Dichloroethene (total)	UG/KG	0 (	%0		0	0	00						
CONTROL   17   25%   20%   13   47   45%   25%   11   11   11   11   11   11   11	1,Z-Dichloropropane	UG/KG	0;	%0	0	0 (	0 :	84 1		00				
CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONTROL   CONT	Septement	00/KG	13	%87	96 6	<b>-</b>	€ -	7.4	4.6 U	8.5 J	11 5			
UGKG   C   C   C   C   C   C   C   C   C	Bromodichloromethane	UG/KG	, 0	%	3	o c	- 0	0 8	2.7 0	7.8 C	3.3 U	4.1		
UGKG   47   4%   200   6   4   4   5   200   6   4   4   271   281   331   47   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   11	Bromoform	UG/KG	0	%0		0	0	. 84	2.7 U	2.8 UI	3.3 U	3 11		
UGKG   0	Carbon disulfide	UG/KG	4.7	4%	2700	0	7	84	2.7 U	2.8 U	3.3 U	4.7		
UGKKG         0         48         27 U         28 U         33 U         31 U         11 UU	Carbon tetrachloride	UG/KG	0	%0	009	0	0	48	2.7 UJ	00	3.3 UJ	3 UI		
UGKG   0   0%   10   10   11   11   11   11	Chlorobenzene	UG/KG	0	%0	1700	0	0	48	2.7 U	00	3.3 U			
COKKG   S   S   S   S   S   S   S   S   S	Lhlorodibromethane	UG/KG	0 0	% ?		0 1	0	48	2.7 U	00	3.3 U	3 OI	11 UJ	
c         UGKG         48         4%         300         0         48         27 U         28 U         33 U         33 U         11 UJ	Lhloroethane	UG/KG	o <sup>°</sup>	%0	1900	0	0	48	2.7 U	00	3.3 U	3 OI	11 UJ	11 UJ
e         UGKG         0         0%         0         40         27 U         28 U         33 U         3 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U	Chloroform	UG/KG	4, 80, 0	%4	300	0	7	48	2.7 U	00	3.3 U			
DCKG   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign   Sign	Cis. 1.2 Dishlargernene	UG/KG	<b>&gt;</b> 0	%0		0 (	0 (	40	2.7 U	00	3.3 U			
UGKG   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color	Establishment	00/KG	3300	%	0033	0 (	0 6	84 4	2.7 U	00 0	3.3 U	3 UI		
UG/KG         0         9%         27 UG         28 UG         33 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG         11 UG<	Meta/Para Xvlene	11G/KG	4400	%	0000	) E	7 "	8 G	2.7 U	000	3.3 U	3300 J 4400 I		
UG/KG         0         0%         0         48         27 U         28 U         33 U         30 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U         11 U <td>Methyl bromide</td> <td>UG/KG</td> <td>0</td> <td>%</td> <td></td> <td>0</td> <td>n C</td> <td>0 4</td> <td>27.111</td> <td>0 00</td> <td>3.3 111</td> <td>111 2</td> <td></td> <td></td>	Methyl bromide	UG/KG	0	%		0	n C	0 4	27.111	0 00	3.3 111	111 2		
UGKG         0         0%         48         2.7 UJ         2.8 UJ         3.3 U         3.0 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ </td <td>Methyl butyl ketone</td> <td>UG/KG</td> <td>0</td> <td>%0</td> <td></td> <td>0</td> <td>0</td> <td>84</td> <td>2.7 UJ</td> <td>5 c</td> <td>3.3 UI</td> <td>3 6</td> <td></td> <td></td>	Methyl butyl ketone	UG/KG	0	%0		0	0	84	2.7 UJ	5 c	3.3 UI	3 6		
UG/KG         0         0%         48         27 UJ         28 U         33 U         3 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ         11 UJ	Methyl chloride	UG/KG	0	%0		0	0	48	2.7 UJ	2.8 UJ	3.3 U			
UGKG         0         0%         100         0         48         27 U         28 U         33 U         3 U         11 UJ         11 UJ <t< td=""><td>Methyl ethyl ketone</td><td>UG/KG</td><td>0</td><td>%0</td><td>300</td><td>0</td><td>0</td><td>48</td><td>2.7 UJ</td><td>2.8 U</td><td>3.3 U</td><td></td><td>11 UJ</td><td></td></t<>	Methyl ethyl ketone	UG/KG	0	%0	300	0	0	48	2.7 UJ	2.8 U	3.3 U		11 UJ	
OG/NG         1         48         270         280         330         11 III         11 III           OG/NG         1         48         270         280         330         16         11 III         11 III           UG/NG         0         6         48         270         28 U         33 U         30         11 III         11 III           UG/NG         0         6         48         27 U         28 U         33 U         49         9 J         28           UG/NG         0         0         48         27 U         28 U         33 U         30         11 UI         11 III         11 III           UG/NG         0         0         40         27 U         28 U         33 U         30 U         11 III         11 III           UG/NG         0         0         40         27 U         28 U         33 U         31 U         11 UI         11 III           UG/NG         0         0         48         27 U         28 U         33 U         31 UI         11 UI           UG/NG         0         48         27 U         28 U         33 U         30 U         72 U         69           UG/NG <td>Viciniyi isobutyi ketone Methylene obloqida</td> <td>0.6/KG</td> <td>0 %</td> <td>% &amp;</td> <td>1000</td> <td>0 0</td> <td>o -</td> <td>oo (</td> <td>2.7 U</td> <td>2.8 U</td> <td>3.3 U</td> <td></td> <td></td> <td></td>	Viciniyi isobutyi ketone Methylene obloqida	0.6/KG	0 %	% &	1000	0 0	o -	oo (	2.7 U	2.8 U	3.3 U			
UG/KG         0         0.00 (kg)         0.00 (kg)<	Ortho Xylene	UG/KG	16	3%	3	o c		6 4 6 6	2.7 U	. 17 8 C	3.3 0			
UG/KG         0         0%         1400         0         48         2.7 U         2.8 U         3.3 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U         3.0 U	Styrene	UG/KG	0	%0		0	. 0	000	2.7 U	2.8 11	33.11		111 111	
UG/KG         28         19%         1500         9         48         2.7 U         2.8 U         3.3 U         4.9         9 J         28           UG/KG         0         0%         100         0         40         2.7 U         2.8 U         3.3 U         3.1 U         11 UJ         11           UG/KG         0         0%         700         0         48         2.7 U         2.8 U         3.3 U         3 UJ         11 UJ         11           UG/KG         0         0%         700         0         48         2.7 U         2.8 U         3.3 U         3 UJ         11 UJ         11           UG/KG         0         0%         48         2.7 U         2.8 U         3.3 U         3 UJ         11 UJ         11           UG/KG         0         0%         48         2.7 U         2.8 U         3.3 U         11 UJ         11           UG/KG         0         0%         48         2.7 U         2.8 U         400 U         390 U         72 U         69           UG/KG         0         0%         1800         0         48         350 U         400 U         390 U         72 U         69 <tr< td=""><td>Fetrachloroethene</td><td>UG/KG</td><td>0</td><td>%0</td><td>1400</td><td>0</td><td>0</td><td>48</td><td>2.7 U</td><td>00</td><td>3.3 U</td><td></td><td>11 U</td><td></td></tr<>	Fetrachloroethene	UG/KG	0	%0	1400	0	0	48	2.7 U	00	3.3 U		11 U	
UG/KG         0         8         11 UJ         11 UJ </td <td>Foluene</td> <td>UG/KG</td> <td>28</td> <td>%61</td> <td>1500</td> <td>0</td> <td>σ</td> <td>48</td> <td>2.7 U</td> <td>00</td> <td></td> <td></td> <td>I 6</td> <td></td>	Foluene	UG/KG	28	%61	1500	0	σ	48	2.7 U	00			I 6	
UG/KG         0         0%         300         0         40         27 U         28 U         33 U         3 U         11 UJ         <	Fotal Xylenes	UG/KG	0	%0	1200	0	0	00						
UG/KG         0         48         2.7 U         2.8 U         3.3 U         3.0 U         11 UJ         12 UJ         22 UJ<	rans-1,2-Dichloroethene	UG/KG	0	%0	300	0	0	40	2.7 U		3.3 U			
UG/KG         0         0%         700         0         48         27 U         28 U         33 U         3 U         11 UJ         11           UG/KG         0         0%         3400         0         48         27 U         28 U         33 U         30 U         11 UJ         12 UJ         12 UJ         12 UJ         12 UJ         12 UJ         12 UJ	Frans-1,3-Dichloropropene	UG/KG	0	%0		0	0	48	2.7 U		3.3 U			
UG/KG         0         0%         200         0         48         27 U         28 U         33 U         30 U         72 U         69           UG/KG         0         0%         3400         0         0         48         350 U         370 U         400 U         390 U         72 U         69           UG/KG         0         0%         1600         0         48         350 U         370 U         400 U         390 U         72 U         69           UG/KG         0         0%         1600         0         48         350 U         370 U         400 U         390 U         72 U         69           UG/KG         0         0%         100         0         48         850 U         900 U         180         72 U         69           UG/KG         0         0%         100         0         48         850 U         900 U         180         170         69	Inchloroethene	UG/KG	0 (	%	700	0	0	8	2.7 U		3.3 U			
UG/KG         0         0%         3400         0         48         350 U         370 U         400 U         390 U         72 U         69           UG/KG         0         0%         7900         0         48         350 U         370 U         400 U         390 U         72 U         69           UG/KG         0         0%         1600         0         48         350 U         370 U         400 U         390 U         72 U         69           UG/KG         0         0%         100         0         48         880 U         920 U         100 U         390 U         172 U         69           UG/KG         0         0%         100         0         48         880 U         370 U         400 U         390 U         172 U         69           UG/KG         0         0%         100         0         48         350 U         400 U         390 U         120 U         69	vinyl chlonde		0	%0	200	0	0	8	2.7 U		3.3 U			
UGKG         0         750         4         550         570         570         40         720         69           UGKG         0         0%         1600         0         48         350 U         370 U         400 U         390 U         72 U         69           UGKG         0         0%         1600         0         48         350 U         400 U         390 U         72 U         69           1         UGKG         0         0%         100         0         48         850 U         100 U         12 U         69           1         UGKG         0         0%         100         0         48         350 U         100 U         390 U         12 U         69	1,2,4-Trichlorobenzene		c	%0	3400	c	c	48			11 00%			
UGKG 0 0% 1600 0 0 48 350 U 370 U 400 U 390 U 72 U 69 U UGKG 0 0% 8500 0 0 48 350 U 370 U 400 U 390 U 72 U 69 U 100 U 90 U 100 U 990 U 180 U 170 U 100 U 990 U 180 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170 U 170	1,2-Dichlorobenzene	UG/KG	0	%	7900	0	0	0 00			400 11		0 7/	
UGKG 0 0% 8500 0 0 48 350 U 370 U 400 U 390 U 72 U 69 UGKG 0 0% 100 0 0 48 880 U 920 U 1000 U 990 U 180 U 170 UGKG 0 0% 0 0 48 350 U 370 U 400 U 390 U 72 U 69	1,3-Dichlorobenzene	UG/KG	0	%0	1600	0	0	84	350 U		400 U		72 11	
UG/KG 0 0% 100 0 48 880 U 920 U 1000 U 990 U 180 U 170 UG/KG 0 0% 0 0 48 350 U 370 U 400 U 390 U 72 U 69	I,4-Dichlorobenzene	UG/KG	0	%0	8500	0	0	48	350 U		400 U		72 U	
UG/KG 0 0% 0 48 350 U 370 U 400 U 390 U 72 U 69	2,4,5-Trichlorophenol	UG/KG	0	%0	100	0	0	48	088 n		1000 U		180 U	
	2,4,6-Trichlorophenol	UG/KG	0	%0		0	0	48	350 U		400 U		72 U	

sts\SENECA\PID Arca\Report\Draft Final\Risk Assessment\data\S121C-Surface soil.xls\drmo\_ss B&S

Table C-2
SURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

						Delan	Car ran may	Depot Activity	4				
•	Hacility							SEAD-121C	SPAD-121C	SEAD-171C	SEAD-171C	SEAD-121C	SEAD-121C
	I ocation ID							SBDRMO-6	SBDRMO-7	SBDRMO-8	SBDRMO-9	SS121C-1	SS121C-2
	Matrix							SOIL	SOIL	SOIL	TIOS	SOIL	SOIL
Sample Denth to To	of Same							DIAMO-1000	0	0	O TOTO	0	0
Sample Depth to Bottom of Sample	m of Sample							<b>N</b>	N	N (	N	0.2	0.2
10	Sample Date							10/25/2002	10/27/2002	10/25/2002	10/25/2002	3/9/1998	3/9/1998
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	EBS	EBS
		Maximum	of	Criteria	of	of Times	of						
ameter	Unite	Value	Detection	Value .	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Dimethylphenol	10/80	0 0	2 %	004	0 0	0 0	48 6	350 0	370 11	400 11	390 0	72 11	11 69
Dinitrophenol	UG/KG	0	0%	200	0	0 (	47	880 UJ	920 U	1000 U	fD 066	180 U	
Dinitrotoluene	UG/KG	45	2%		0	_	48	350 U	370 U	400 U	390 U	72 U	
Dinitrotoluene	UG/KG	0	0%	1000	0	0	48	350 U	370 U	400 U	390 U	72 U	
hloronaphthalene	UG/KG	0	0%		0	0	48	350 U		400 U	390 U	72 U	69 U
hlorophenol	TIG/KG	610	10%	36400	0 0	o c	48	350 0	370 U	400 0	390 0	72 11	
(ethylphenol	UG/KG	0	0%	100	0	0	48	350 U		400 U	390 U	72 U	
itroaniline	UG/KG	0	0%	430	0	0	48	U 088	920 U		990 U	180 U	170 U
mrophenol	UG/KG	0 0	0%	330	0 0	<b>&gt; &lt;</b>	40 8	350 U	370 U	400 0	10 06	/2 0	09 0
-Dichlorobenzidine	UG/KG	0 0	0%		0 0	0 0	48	350 UJ		-	390 U	72 U	69 U
itroaniline	UG/KG	0	0%	500	0	0	48	880 U	920 U	J 000 U	990 U	180 U	170 U
Dinitro-2-methylphenol	UG/KG	. 0	0%		00	0	48	880 UJ	920 U	1000 U	990 U	180 U	170 U
hloro-3-methylphenol	UG/KG	0 0	0%	240	0 0	0 0	48	350 U	370 U	400 U	390 U	72 U	
hlorogniline	UG/KG	0	0%	220	0	0	48	350 U	370 U	400 U	390 U	72 U	69 U
hiorophenyi phenyl ether	UG/KG	0	0%		0	0	48	350 U	370 U	400 U	390 U	72 U	
cethylphenol	UG/KG	0 0	0%	900	00	00	00	11 088	930 11	_	11 000	120 II	170 11
itrophenol	UG/KG	0 0	0%	100	0 0	0 0	480	880 17	920 U	1000 U	990 U	180 U	170 U
naphthene	UG/KG	2600	23%	50000	0	= -	48	350 U			390 U	72 U	6.5 J
maphthylene	UG/KG	2500	21%	41000	0	10	48	350 U		_	390 U	72 U	69 U
hracene	UG/KG	7100	42%	50000	. 0	20	4 60	350 U	370 U		390 U	72 U	6.5 J
zo(a)anturacene	UG/KG	8700	51%	61	21	24	47	350 UJ	370 U	400 U	390 U	72 U	28 J
zo(b)fluoranthene	UG/KG	12000	64%	1100	S !	30	47	350 UJ	370 U	_	390 U	72 U	40 J
zo(ghi)perylene	UG/KG	3150 3	53%	50000	0	25	47	57 J		400 UJ	390 U	72 U	15 J
2-Chloroethoxy)methane	UG/KG	000	4/%	1100	4 C	0 22	48	350 0	370 0	400 0	390 []	72 0	69 11
2-Chloroethyl)ether	UG/KG	0	0%		0	0	48	350 U	370 U	_	390 U	72 U	69 U
2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	48	350 U	370 U		390 U	72 U	69 U
vibenzylohthalate	UG/KG	120	13%	50000	0 0	7	4 4	350 UJ	370 U	400 []]	390 []	72 11	7.8 ]
bazole	UG/KG	4200	35%		0	17	48	350 U	370 U	400 U	390 U	72 U	14 J
ysene	UG/KG	9100	53%	400	10	25	47	350 UJ	370 U	400 U		72 U	35 J
n-butylphthalate	UG/KG	132 3	10%	8100	0	5	48	350 U	370 U	400 U	390 U	8.2 J	69 U
n-octylphthalate	UG/KG	23 3	4%	50000	0	2	48	350 UJ	370 U	400 U		72 U	3.8 J
enz(a,h)anthracene	UG/KG	470	26%	14	=	1 12	47	350 UJ	370 U	400 UJ	390 U	72 U	7.6 J
thy phthalate	UG/KG	21 3	13%	7100	0 0	D 2	4 4	350 U	370 U	400 U	390 U	111	0 4 0
nethylphthalate	UG/KG	0	0%	2000	0	0	48	350 U		400 U		72 U	69 U
oranthene	UG/KG	27000	73%	50000	0	35	48	38 J	370 U	400 U		72 U	65 J

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Table C-2
SURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

Sample Depth to T ample Depth to Botte		Maximum		Criteria	Number of	Number of Times	Number of	SEAD-121C SBDRMO-6 SOIL DRMO-1050 0 10725/2002 SA PID-RJ	SEAD-121C SBDRMO-7 SOIL DRMO-1046 0 10/27/2002 SA PID-RI	SEAD-121C SBDRMO-8 SOIL DRMO-1049 0 10/25/2002 SA PID-RI	SEAD-121C SBDRMO-9 SOIL DRMO-1053 0 10/25/2002 SA PID-RI	SEAD-121C SS121C-1 SOff. BB235 0 0.2 3/9/1998 SA EBS	SEAD-121C SS121C-2 SOIL EB236 0 0.2 3/9/1998 SA EBS
arameter	Units	Value	Detection	Value '	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
luorene	UG/KG	3500	27%	20000	0 (	13	48	350 U	370 U	400 U	390 U		
texachioropenzene	00/KG	×.5	7%	410	0	<b>-</b> .	84	350 U	370 U	400 U	390 U	72 U	D 69
rexactionoputadiene	0.6/KG	<b>&gt;</b> •	%		0 (	0 (	8 9	350 U	370 U	400 U	390 U	72 U	D 69
texachiorocyclopentatione	110/86	> <	% 8		<b>&gt;</b> 0	0 0	8 6	350 UJ	370 U	400 U	390 UJ	72 U	n 69
ndeno(1,23.cd)mmen	00/01	520	0% 1£8,	0000	<b>&gt;</b> (	> {	4 xo .	350 U	3/0 0	400 U	390 0	72.0	0 69
sonborone	116/80	S <	46%	2700	<b>&gt;</b> •	77	80 0	350 03	3/0 0	400 00	350 0	72 U	17 J
I-Nitrosodiphenylamine	13/KG	. 4 	%	1	o c	o -	0 4 4	350 U	370 07	400 O	1900	72.0	0.69
I-Nitrosodipropylamine	UG/KG	0	%		0	• 0	8 4	350 11	370 11	400 111	190 0	7. 0	0 69
Vaphthalene	UG/KG	400	19%	13000	0	0	80 80	350 U	370 11	400 11	390 11	2, 7, 11	4 1
Vitrobenzene	UG/KG	0	%0	200	0	0	84	350 U	370 U	400 U	340 U	72.11	11 69
entachlorophenol	UG/KG	0	%0	1000	0	0	48	088	920 U	1000 U	O 066	180 U	170 UJ
henanthrene	UG/KG	29000	52%	20000	0	25	48	350 U	370 U	400 U	390 U	72 U	38 J
henol	UG/KG	0	%0	30	0	0	48	350 U	370 U	400 U	390 U	72 U	D 69
yrene	UG/KG	34000	%19	20000	0	32	48	78 J	370 U	400 UJ	390 U	72 U	53 J
esticides/PCBs		:											
,4 - UUU - 4,	UG/KG	4 (	12%	2900	0	vo !	843	1.8 UJ	U.9 UJ	2 R	2 R	3.6 U	3.5 U
######################################	06/KG	66	32%	2100	0 (	21	47	6.3 J	U 6.1	2 UI	2 UJ	3.6 U	3.5 U
,4-'DJ	UG/KG	00 5	28%	2100	0	13	47	1.8 UJ	U 6.1	2 UI	2 UJ	3.6 U	3.5 U
Ndrn Jee BHC	UG/KG	4 0	%9	14 :	0 1	en) (	8 .	1.8 UJ	I.9 U	2 UJ	2 UJ	1.9 U	1.8 U
Apra-bac	0.G/KG	o [	%0	110	0	0	8	1.8 UJ	1.9 UJ	2 UI	2 UI	1.9 U	1.8 U
Apha-Chlordane	UG/KG	63,	%8	;	0	4	48	4.7 J	U 6.1	2 UJ	2 UJ	U 6.1	1.8 U
hiordane	06/KG	0 0	% %	200	0 (	0 (	op 4 00 (	1.8 UJ	U 6.1	2 U	2 U	1.9 U	1.8 U
Selta-BHC	110/RG	، د	%0	300	0 0	0 -	0 40	18 0	D 61	20 U	20 C		
Dieldrin	116/86	1 1	49%	3 5	> 0	n (	o c	0. e. t	D 61	7 6	7 0		0.8.1
111111111111111111111111111111111111111	00/00	1.0.	¢ ;	1 1	ο (	7 ;	8	I.8 UJ	CO 6:1	2 01	2 OJ	3.6 U	3.5 U
indosulfan II	0 KG		38%	9 8	0 (	∞ .	24 ±	5.4	1.9 U	2 U	2 U	1.9 U	1.8 U
indosulfan sulfate	119/80	n c	% %	8 6	0 0	- <	/ 4 6	0 F	0.6.1	2 0	2 0	3.6 U	3.5 U
indrin	UG/KG	21.5	5%	901	0 0	· -	5 4	1.8 0	11.61	0 7 0	) r	3.0 0	3.5 0
indrin aldehyde	UG/KG	0	%		0	. 0	. 84	1.8 U	U 6.1	2 17		3.6 11	3.5 11
indrin ketone	UG/KG	7.53	%9		0	٣	48	1.8 U	11 611	2.13	2.11	3.6 11	3 5 11
samma-BHC/Lindane	UG/KG	0	%0	09	0	0	48	1.8 UJ	II 6 I	2 111	111 6	101	181
ramma-Chlordane	UG/KG	1.2	2%	540	0		48	1.8 UJ	I.9 UI	2 U		U 6.1	11.8.11
feptachlor	UG/KG	14	4%	100	0	7	47	1.8 UJ	U 6.1	2 U	2 U	U 6:1	1.8 U
Ieptachlor epoxide	UG/KG	2.8	4%	20	0	7	46	1.8 UJ	I.9 UI	2 U	2 U	U 6.1	1.8 U
dethoxychlor	UG/KG	0	%0		0	0	48	1.8 U	U 6.1	2 UI	2 UJ	19 U	18 U
oxaphene	UG/KG	0	%0		0	0	48	18 U	D 61	20 U	20 U	D 061	180 U
roclor-1016	UG/KG	0	%0		0	0	48	18 U	U 61	20 UJ	20 UJ	36 U	35 U
roclor-1223	UG/KG	0 (	%0		0	0	48	18 U	D 61	20 U	20 U	74 U	70 U
vrocior-1232	UG/KG	0 {	%0		0	0	8			20 UJ	20 UJ	36 U	35 U
10010r-1242	0.6/KG	8 0	2%		0 (	(	8 :	18 U	D 61	20 UJ	20 UJ	36 U	35 U
1001011248	0801	0 6	%0	0000	<b>&gt;</b> (	0 (	80 v			20 U	20 U	36 U	35 U
10000	5	200	0.251	1000	Þ	ν.	4 Σ	⊃ 8:	O 6I	Z0 U	20 U	36 U	35 U

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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity Table C-2 SURFACE SOIL SAMPLE RESULTS SEAD-121C

							,						
	Danilli.							SEAD-131C	SEAD-1310	SEAD-131C			SEAD-1210
	Facility							SEAU-121C	SEAD-121C	SEAU-121C			221217
	Location ID							SOT O-O	V-OWNUGC	SON SON SON SON SON SON SON SON SON SON			2011
	Sample ID							DRMO-1050	DRMO-1046	DRMO-1049	DRMO-1053		EB236
Sample Depth to Top of Sample	of Sample							0	0	0		0	0
Sample Depth to Bottom of Sample	of Sample							2	2	2			0.2
Sa	Sample Date		•					10/25/2002	10/27/2002	10/25/2002			3/9/1998
	QC Code							SA	SA	SA	SA		SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI			EBS
		Maximum	of	Criteria	of	of Times	of						
ameter	Units	Value	Detection	Value 1	Exceedances Detected	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
clor-1260	UG/KG	85	10%		0	5	48	18 U	19 U	20 UJ	20 UJ	36 U	35 U
als and Cyanide													
minum	MG/KG	17000	100%	19300	0	48	48	11100	12600	17000	11900	12800	12600
mony	MG/KG	236	81%	5.9	11	39	48	0.96 U	1.3	1.1 U	1.1 U	2.5 J	2.2 J
enic	MG/KG	11.6	100%	8.2	2	48	48	4.7	6.1	4.9	5.4	5.2	6.3
ium	MG/KG	2030	100%	300	7	48	48	66.7 J	101	75.1 J	82.6 J	57.7	252
yllium	MG/KG	1.2	100%	1.1	_	48	48	0.6	0.74	1.2	0.68	0.56	0.48
mium	MG/KG	29.1	60%	2.3	14	29	48	0.13 U	0.13 U	0.14 U	0.14 U	21.1	7.1
cium	MG/KG	296000	100%	121000	6	48	48	41400 J	19300	2100 J	41800 J	11800	53100
omium	MG/KG	74.8	100%	29.6	12	48	48	38.6	22.5	28.4	20.8	32.9	45.7
alt	MG/KG	17	100%	30	0	35	35	14.2	15.2	17	12.7	14	15.5
per	MG/KG	9750	100%	33	35	48	48	39.6 J	35	21.4 J	26.2 J	139 J	324 J
nide	MG/KG	0	0%	0.35	0	0	00					0.62 U	0.53 U
nide, Amenable	MG/KG	0	0%		0	0	40	0.53 U	0.56 U	0.6 U	0.61 U		
nide, Total	MG/KG	0	0%		0	0	40	0.535 U	0.558 U	0.602 U	0.606 U		
	MG/KG	51700	100%	36500	ıs	48	48	24200	27900	32700	22200	41300	43600
d	MG/KG	18900	100%	24.8	40	48	48	56.3	43.4	7.3	28.3	78.2 J	251
znesium	MG/KG	20700	100%	21500	0	48	48	6940	6510	5780	6590	6220	12800
nganese	MG/KG	858	100%	1060	0	48	48	376	620	444	424	364	403
cury	MG/KG	0.47	92%	0.1	00	44	48	0.03	0.06	0.03	0.03 ·	0.05 U	0.1
kel	MG/KG	224	100%	49	9	48	48	44.4 J	43.8 J	45.9 J	34.2 J	58.6	224
assium	MG/KG	1990	100%	2380	0	48	48	1770 J	1080 J	972 J	1650 J	1480	1890
nium	MG/KG	1.3	21%	2	0	10	48	0.45 U	0.47 U	0.5 U	0.5 U	D 1	0.99 U
ct.	MG/KG	21.8	38%	0.75	13	18	48	0.29 U	0.3 U	0.32 U	0.32 U	21.8	1.3
ium	MG/KG	478	88%	172	26	42	48	277	146	154	191	223	196
llium	MG/KG	1.1	21%	0.7	w	10	48	0.33 U	0.34 U	0.37 U	0.37 U	1.4 UJ	1.3 UJ
ıadium	MG/KG	25.4	100%	150	0	48	48	17.9	22.5 J	25.4	20.4	18.6	20.1
· ·	MG/KG	3610	100%	110	28	48	48	196	91.7 J	67.6	106	585	431
al Organic Carbon	MG/KG	9000	100%		0	40	40	8500	3200	4200	3800		
al Petroleum Hydrocarbons	MG/KG	7600	25%		0	10	40	43 UJ	45 UJ	48 UJ	600 UJ		
,													

TES:

The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.

Revised January 24, 1994.

Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. The maximum detected concentration was obtained from the average of the sample and its duplicate.

compound was not detected
the reported value is an estimated concentration
the reported value is an estimated concentration
the the compound was not detected; the associated reporting limit is approximate
the data was rejected in the data validating process
compound was "tentatively identified" and the associated numerical value is approximate

Table C-2
SURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Date QC Code Study ID		Махітит	Frequency	Criteria	Number of	Number of Times	Number of	SEAD-121C SS1.21C-3 SOIL EB337 0 0.2 3/9/1998 SA EBS	SEAD-121C SS121C-4 SOIL BB241 0 0 0.2 3/10/1998 SA EBS	SEAD-121C SSDRMO-10 SOIL DRMO-1006 0 0.2 10/23/2002 SA PID-RI	SEAD-121C SSDRMO-11 SOIL DRMO-1007 0 0.2 10/23/2002 SA PID-RJ	SEAD-121C SSDRMO-12 SOIL DRMO-1008 0 0.2 10/23/2002 SA PID-RI	SEAD-121C SSDRMO-13 SOIL DRMO-1009 0 0.2 10/23/2002 SA PID-RI
arameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 1	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
otatule Organic Compounds	110,000	c	è	0	c	c	ş	:	:				
1.2.2-Tetrachloroethane	11G/RG	0 0	%0	000	<b>&gt;</b> C	> <	8 6	0 = =		2.9 0.0	2.7 0	2.7 UJ	2.9 UJ
1,2-Trichloroethane	UG/KG	0	%%		) C	0 0	4 4		0 =	2.9 0.0	2.7 01	2.7 UJ	2.9 UJ
1-Dichloroethane	UG/KG	0	%0	200	0	. 0	0 4		0 = =	2.9 01	2.7 111	2.7 111	2.9 0.1
,1-Dichloroethene	UG/KG	0	%0	400	0	0	48			2.9 UI	2.7 UJ	2.7 UJ	2.9 CJ
2-Dichloroethane	UG/KG	0	%0	100	0	0	48	U II	11 U	2.9 UJ	2.7 UJ	2.7 UJ	2.9 UJ
2-Dichloroethene (total)	UG/KG	0 (	%0		0	0	∞		11 U				
z-Dictioropropare	0.6/RG	o <u>"</u>	%0	ć	0 0	0:	& t ∞ t			2.9 UJ	2.7 UJ	2.7 UJ	2.9 UI
enzene	UG/KG	C 14	2%	09	o c	<u> </u>	/4 4 84			2.9 UJ	10 J	2.7 UI	2.9 UJ
romodichloromethane	UG/KG	0	%		0	. 0	84	o n		0	2.7 111	2.7 111	2.9 0.1
готобот	UG/KG	0	%0		0	0	84			2.9 UI	2.7 UJ	2.7 UJ	2.9 UJ
arbon disulfide	UG/KG	4.7	%4	2700	0	7	48			2.9 UJ	2.2 J	2.7 UJ	LO 6.2
arbon tetrachloride	UG/KG	0	%0	009	0	0	48		11 U	2.9 UJ	2.7 UJ	2.7 UJ	2.9 UJ
hlorobenzene	UG/KG	0 (	%	1700	0	0	8			2.9 UJ	2.7 UJ	2.7 UJ	2.9 UJ
horoethane	110/KG	0 0	% &	000	0 0	0 0	8 4	D :		2.9 UJ	2.7 UJ	2.7 UJ	2.9 UI
		> 5	0	0061	o (	0 1	80 ·	o :	0 ::	2.9 UJ	2.7 UJ	2.7 UI	2.9 UI
is-1 2-Dichloroethere	00/KG	8, c	% %	300	0 0	74 6	8 4	11 0	4 J	2.9 UJ	2.7 UJ	2.7 UJ	2.9 UJ
is-1,3-Dichloropropene	119/86	o c	%0		o c	0 0	04.6			2.9 UJ	2.7 UJ	2.7 UJ	2.9 UI
thyl benzene	UG/KG	3300	% %	5500	0	0 6	6 4			2.9 0.0	2.7 UJ	2.7 UJ	2.9 UJ
feta/Para Xylene	UG/KG	4400	%8			ı m	40			2.9 CJ	2.7 UJ	2.7 UJ	2.9 UI
fethyl bromide	UG/KG	0	%0		0	0	48	11 U	11 U	2.9 UJ	2.7 UJ	2.7 UJ	2.9 U
lethyl butyl ketone	UG/KG	0 0	% ?		0 (	0	48	11 U		2.9 UJ	2.7 UI	2.7 UJ	2.9 UJ
tetnyi emonae fethyl ethyl ketona	110/KG	<b>&gt;</b> c	% &	000	0 0	0 0	8 4		D ::	2.9 UJ	2.7 UJ	2.7 UJ	LO 6.2
lethyl isobutyl ketone	UG/KG	0	%%	1000	0 0	0 0	6 4			2.9 UJ	2.7 UJ	2.7 UI	2.9 UJ
fethylene chloride	UG/KG	5.6	2%	100	0		84	11 U		2.9 UJ	2.7 UI	2.7 111	2.9 (1)
rtho Xylene	UG/KG	16	3%		0	_	40			2.9 UJ	2.7 UJ	2.7 UJ	2.9 U
lyrene	UG/KG	0 (	%		0	0	48	11 0	11 U	2.9 UJ	2.7 UJ	2.7 UJ	LO 2.9 UI
cuachiorocthene	06/KG	> ;	%0	1400	0 (	0	8			2.9 UJ		2.7 UJ	2.9 UJ
otal Xvlenes	10/80	87 0	%6	0051	0 0	on (	88 6			2.9 UI	2.7 UJ	2.7 UJ	2.9 UJ
rans-1.2-Dichloroethene	TIG/RG	o c	%0	300	0 0	<b>&gt;</b>	× 5	0 11	0 ==				
rans-1,3-Dichloropropene	UG/KG	0	%	8	0 0	0 0	48	11 11	11 11	2.9 UJ	2.7 00	2.7 UJ	2.9 UJ
nchloroethene	UG/KG	0	%	700	0 0	o c	5 4			2.9 UJ	2.7 00	2.7 0.5	2.9 UJ
inyl chloride	UG/KG	0	%	200	, 0	0	2 %	===		2.9 0.1	2.7 0.1	2.7 UJ	2.9 UJ
emivolatile Organic Compounds							!			3	3	7.3	LO 4.3
2,4-Trichlorobenzene	UG/KG	0	%0	3400	0	0	48		170 U	380 U	370 U	350 U	360 U
2-Dichlorobenzene	UG/KG	0	%0	7900	0	0	48		170 U	380 U	370 U	350 U	360 U
3-Dichlorobenzene	UG/KG	0	%0	1600	0	0	48		170 U	380 U	370 U	350 U	360 U
4-Dichloropenzene	UG/KG	0 0	% %	8500	0 (	0 (	48	180 U	170 U	380 U	370 U	350 U	360 U
4.5-1 Heliotophenol	0.00 P	> <	% &	001	0 (	0 (	8 4		420 U	D 096	920 U	D 068	D 068
	5	>	0/ >		>	>	84		0 0/1	380 U	370 U	350 U	360 U

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,						į	,	•	•				
	Facility Location ID							SEAD-121C SS121C-3	SEAD-121C SS121C-4	SEAD-121C SSDRMO-10	SEAD-121C SSDRMO-11	SEAD-121C SSDRMO-12	SEAD-121C SSDRMO-13
	Matrix Sample ID							SOIL EB237	SOIL EB241	SOIL DRMO-1006	SOIL DRMO-1007	SOIL DRMO-1008	SOIL DRMO-1009
Sample Depth to Bottom of Sample	on of Sample							0.2	0.2	0.2	0.2	0.2	0.2
	QC Code							SA	SA	SA	SA	SA	SA
	Study LD	Maximum	of	Criteria	of	of Times	of	EBS	EBS	710-22	10-21	Ë	70-2
rameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
4-Dichlorophenol	UG/KG	0	0%	400	0	0	6 68	180 U	170 U	380 U	370 U	350 U	360 U
4-Dimethylphenol	UG/KG	<b>&gt; c</b>	0%	200	<b>&gt;</b> c	<b>&gt;</b> c	47	440 []	420 11	1 096	970 [11	11 068	200 0
4-Dinitrotoluene	UG/KG	45	2%	!	0		48	180 U	170 U	_	370 U	350 U	360 U
6-Dinitrotoluene	UG/KG	0	0%	1000	0	0	48	180 U	170 U		370 U	350 U	360 U
Chloronaphthalene	UG/KG	0	0%	2	0	0	48	180 U	170 U		370 U	350 U	360 U
Methylnaphthalene	UG/KG	610	19%	36400	0 0	φς	48 8	18 J	, 1,0 O	380 U	370 U	610	360 U
Methylphenol	UG/KG	0	0%	100	0	0	48		170 U		370 U	350 U	360 U
Nitroaniline	UG/KG	. 0	0%	430	0	0	4 8	440 U	420 U	11 086 O 096	920 U	350 U	360 U
or 4-Methylphenol	UG/KG	0 (	0%	,	0 (	0 (	40				370 U	350 U	360 U
3'-Dichlorobenzidine	UG/KG	0	0%	200	0	0	48	180 U	170 U	380 U	370 U	350 UJ	360 U
6-Dinitro-2-methylphenol	UG/KG	0 0	%	Č	0 (	0 0	48 6	440 U	420 U	960 U	920 U	n 068	N 068
Bromophenyl phenyl ether	UG/KG	0	0%		0	0	48	U 081	170 U		370 U	350 U	360 U
Chloro-3-methylphenol	UG/KG	0	8%	240	0	0	48	180 U	170 U		370 U	350 U	360 U
Chlorophenyl phenyl ether	UG/KG	0 (	%	į	0 (	0 (	48	180 U	170 U	380 U	370 U	350 U	360 U
Methylphenol	UG/KG	0	%	900	0	0	; ∞	180 U	170 U				
Nitroaniline	UG/KG	0	%	100	0	0	48	440 U	420 U		920 U	00 U	890 U
cenaphthene	UG/KG	2600	23%	50000	0 0	= <	400	50 J	52 J	380 U	370 U	2600	360 U
cenaphthylene	UG/KG	2500	21%	41000	0	10	48	180 U	170 U		370 U	61 J	360 U
nthracene	UG/KG	7100	42%	50000	0	20	48	96 J	70 J		370 U	7100	360 U
enzo(a)anthracene	UG/KG	10000	51%	224	214	26 24	47	370	320 260	18 08E	370 U	10000 J	360 U
enzo(b)fluoranthene	UG/KG	12000	64%	1100	<b>ر</b> د	30	47	530	310		40 J	12000 J	360 U
enzo(ghi)perylene	UG/KG	31503	53%	50000	0	25	47	380	190		370 UJ	2800 J	360 UJ
s(2-Chloroethoxy)methane	TIG/KG	000	0%	1100	4 C	0 22	48 /	340 180 II	170 11	380 []	370 UJ	350 11	360 UJ
is(2-Chloroethyl)ether	UG/KG	0	0%		0	0	48	180 U	170 U		370 UJ	350 U	360 UJ
is(2-Chloroisopropyl)ether	UG/KG	0	%		0	0	48	180 U	170 U		370 U	350 U	360 U
utvibenzviphthalate	UG/KG	120	13%	50000	0 0	0 /	48	24 J	10 3	380 UJ	370 U	350 UI	360 U
arbazole	UG/KG	4200	35%		0	17	48	130 J	100 J		370 U	4200	360 U
hrysene	UG/KG	9100	53%	400	10	25	47	510	360	380 U	370 U	9100 J	360 U
i-n-butylphthalate	UG/KG	132 3	10%	8100	0	S	48	50 Ј	20 J	380 U	370 U	350 U	360 U
i-n-octylphthalate	UG/KG	23 3	4%	50000	0	2	48	180 U	170 U	380 U	370 U	350 UJ	360 U
ibenz(a,h)anthracene	UG/KG	470 3	26%	6200	> 11	12	47	150 J	79 J	380 U	370 U	370 J	360 U
iethyl phthalate	UG/KG	213	13%	7100	> <	ν 5	48	111	170 11	380 11	370 []	350 11	360 11
imethylphthalate	UG/KG	0	0%	2000	0	0	48	180 U	170 U		370 U	350 U	360 U
uoranthene	UG/KG	2/000	/3%	50000	c	y	48	820	/60	8.5 J	00 5	2/000	43 J

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Table C-2
SURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Date QC Code		Maximum	Frequency	Criteria	Number of	Number of Times	Number of	SEAD-121C SS121C-3 SOIL EB237 0 0 0.2 3/9/1998 SA EBS	SEAD-121C SS121C-4 SOIL EB241 0 0.2 3/10/1998 SA EBS	SEAD-121C SSDRMO-10 SOIL DRMO-1006 0 0.2 10/23/2002 SA PID-RJ	SEAD-121C SSDRMO-11 SOIL DRMO-1007 0 0.2 10/23/2002 SA PID-RI	SEAD-121C SSDRMO-12 SOIL DRMO-1008 0 0.2 10/23/2002 SA PID-RI	SEAD-121C SSDRMO-13 SOIL DRMO-1009 0 0.2 10/23/2002 SA PID-RJ
arameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (O)	Value (O)	Value (O)	· Value (O)	Value (O)	Value (O)
uorene	UG/KG	3500	27%	20000	0	13	48	41 J	43 J	380 U	370 U	3500	360 U
exachlorobenzene	UG/KG	8.5	2%	410	0	-	48	180 U	170 U	380 U	370 U	350 U	360 U
exachlorobutadiene	UG/KG	0	%0		0	0	48	180 U	170 U	380 UJ	370 UJ	350 UJ	360 UJ
exachlorocyclopentadiene	UG/KG	0 -	%		0	0	48	180 U	170 U	380 U	370 U	350 U	360 U
exachloroethane	UG/KG	0	%		0	0	48	180 U	170 U	380 U	370 U	350 U	360 U
ideno(1,2,3-cd)pyrene	UG/KG	970 ,	46%	3200	0 (	22	48	350	180	380 UJ	370 UJ	740 J	360 UJ
opnorone -Nitrosodinhenvlamine	08/80 110/80	0 %	% %	4400	0 0	o -	20 0	180 n	170 0	380 UJ	370 UJ	350 UJ	360 UI
-Nitrosodipropylamine	UG/KG	? 0	%		0	- 0	0 20	180 1	170 1	380 11	370 11	350 11	360 11
aphthalene	UG/KG	400	19%	13000	0	6	. 84	14 J	12 J	380 U	370 U	9 9 9 9	360 11
itrobenzene	UG/KG	0	%0	200	0	0	48	180 U	170 U	380 UJ	370 UI	350 UJ	360 UJ
entachlorophenol	UG/KG	0	%	1000	0	0	48	440 U	420 U	O 096	920 U	N 068	U 068
henanthrene	UG/KG	29000	52%	20000	0	25	48	520	440	380 U	370 U	29000	360 U
henol	UG/KG	0	%	30	0	0	48	180 U	170 U		370 U	350 U	360 U
yrene postoidos/BCBs	UG/KG	34000	%29	20000	0	32	48	820	280	61 J	42 J	34000 J	360 U
4"DDD	110/80	*	1 70%	0000	c	U	ç	ř			,		
4.DDE	11G/KG	; %	37%	2100	0 0	٥ ۽	5 t	4.7	5.5 O 65	7 6	1.6.1	1 5.5	U.8.1
4'-DDT	116/86	5 5	780%	2100	0 0	C :	4 £	60.	200	7 CO	1.1.	13 N	5 8.1
1	04/01	2 1	68,6	3 ;	> 0	2 ,	j. ;	[ 00]	15	TO 7	3.5	[ 6]	L.8 UJ
Jaha-BHC	110/80	<u> </u>	%60	4 :	0 0	n (	20 0	0 6:1	⊃ ×: ·	2 0	0 6.1	4.5	1.8 U
John Ohlorden	0400	2 5	0%	110	o (	o •	80 ¢	0 6.1	D 8.1	TO 7	1.9 0.1	1.8 0.1	1.8 UJ
phiarchicality	DG/RG	2 0	%00	000	0 0	4 (	4, 4 x0 0	0.6.1	7	5 CO	ID 6:1	D 8:1	1.8 U
hlordane	UG/KG	0	%	007	0	0 0	6 4	0 v.1	O &.∔	2 07	1.9 [	1.80	1.8 UJ
elta-BHC	UG/KG	2	%9	300	0		. 84	1.2 J	2 J	2 CI	D 6:1	U.8 UJ	1.8 UJ
ieldrin	UG/KG	41 3	4%	44	0	2	48	3.6 ℧	3.5 U	2 UJ	IJ9 UJ	1.8 UJ	1.8 UJ
ndosulfan I	UG/KG	185 3	38%	006	0	18	48	U 6.1	1.8 U	2 UJ	9.6 J	25 J	1.8 UJ
ndosulfan II	UG/KG	6 (	2%	006	. 0	_	47	3.6 U	3.5 U	2 U	U 6.1	1.8 U	1.8 U
ndosunan sunate ndrin	00/KG	0 -	%6	1000	0 0	0 -	24 £	3.6 U	3.5 U	2 Q	U 6:1	D 8.1	1.8 U
ndrin aldehyde	UG/KG	0 0	%0	3	00	- 0	4 4	3.6 1	3.5 U	2 01	[] 6:1 [] 6:1	5 E 8 E	1.8 UJ
ndrin ketone	UG/KG	7.5 3	%9		0		48	3.8.1	3.511	11 6	10 11		1.0 0.1
amma-BHC/Lindane	UG/KG	0	%0	09	0	0	000	11 6 1	2.5.	111 6	1191	11.8.1	1.00
amma-Chlordane	UG/KG	1.2	2%	540	0	-	84	D 6:1	1.2 J	2 U	D 6:1	18.1	11.8 1
eptachlor	UG/KG	14	4%	001	0	2	47	2.1 J	1.8 U	2 U	1.9 U	1.8 U	1.8 U
eptachlor epoxide	UG/KG	2.8	4%	20	0	2	46	2.8 J	1.4 J	2 UJ	IJ9 UJ	1.8 UJ	1.8 UJ
tethoxychior	UG/KG	0 (	%0		0	0	48	U 61	18 U	2 UJ	ID 6.1	1.8 UJ	
oxaphene moleculos	0.6/KG	> 0	%6		0 (	0 (	84	190 U	D 081	20 U	19 U		
10001-1019 100101-1019	DA/PO TIG/RG	> <	%0		0	0 0	80 0	39 0	35 U	20 C	D 61	18 U	18 U
rocior-1232	UG/KG	0	%0		> c	0 0	8 8	2 / F	71 0	20 02	19 C	180	
roclor-1242	UG/KG	> 85	2%		> 0	>	6 6	36 U	38 I	70 O	19 0	18 0	18 0
roclor-1248	UG/KG	0	%0		0	. 0	60	36 11	35 11	20 11	19 11		
roclor-1254	UG/KG	930	19%	10000	0	6	48	72	79	20 UJ	ID 61	230 J	U 81

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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity SURFACE SOIL SAMPLE RESULTS SEAD-121C Table C-2

							•	,					
	Facility							SEAD-121C	SEAD-121C			SEAD-121C	SEAD-121C
	Laction In							SS121C-3	SS121C-4	SSDRMO-10		SSDRMO-12	SSDRMO-13
ţ	Matrix							TIOS	SOIL			TIOS	TIOS
	Sample ID							EB237	EB241	DRMO-1006		DRMO-1008	DRMO-1009
Sample Depth to Top of Sample	of Sample							0	0		0	0	. 0
Sample Depth to Bottom of Sample	of Sample							0.2	0.2			0.2	0.2
Sa	Sample Date							3/9/1998	3/10/1998	10/23/2002		10/23/2002	10/23/2002
	OC Code		5					TBC OA	EB SA			Id Clid	ום חום
	Juny ID	Maximum	of Trieducity	Criteria	of	of Times	of	2000	i de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l				ì
meter	Units	Value	Detection	Value 1	Exceedances Detected	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
lor-1260	UG/KG	85	10%	10000	0	5	48	85 J	36 J	20 UJ	19 UJ	18 UJ	18 UJ
ils and Cyanide													
bnum	MG/KG	17000	100%	19300	0	48	48	7650	2700	11300	9400	9050	8530
попу	MG/KG	236	81%	5.9	11 .	39	48	3.4 J	2.9 J	2.7 J	1.6 J	3.2 J	1.2 J
nic	MG/KG	11.6	100%	8.2	1 12	48	48	6.4	0.4	2.9	0.9	5.0	306
liim	MG/KG	1 2	%001 %001	1 1		48	48	0.3	0.21	0.63	0.51	0.47	0.42
nium	MG/KG	29.1	60%	2.3	14	29	48	18.5	12.6	_	1.7	4.3	0.47
m	MG/KG	296000	100%	121000	6	48	48	129000	296000	30700 J	35600 Ј	38800 J	38800 J
mium	MG/KG	74.8	100%	29.6	12	48	48	49.2	9.2	20 Ј	17.7 J	26 J	16.9 J
ılt	MG/KG	17	100%	30	0	35	35	11.3	9.6	11.5 R	15.5 R	12.3 R	12.6 R
per	MG/KG	9750	100%	33	35	48	48	383 J	532 J	33.6 J	34.3 J	77.2 J	38.5 J
ide	MG/KG	0	0%	0.35	0	0	00	0.59 U	0.54 U				
ide, Amenable	MG/KG	0	0%		0	0	40			0.58 U	0.56 U	0.54 U	0.54 U
ide, Total	MG/KG	0	0%		0	0	40			0.582 U	0.556 U	0.54 U	0.542 U
	MG/KG	51700	100%	36500	<b>S</b> 55	48	48	35000	8050	25100	24200	26000	21600
	MG/NG	20200	100%	24.0	> 5	4 6	40	0770	15/00	5370	550	6070	6010
Panese	MG/KG	858	100%	1060	0 0	48 6	48	494	407	534	858	376	314
wy	MG/KG	0.47	92%	0.1	00	4	48	0.15	0.13	0.04	0.04	0.06	0.03
c1	MG/KG	224	100%	49	9	48	48	62.5	19.5	31.7 J	40.9 J	42.3 J	38.7 J
ssium	MG/KG	1990	100%	2380	0	48	48	1600	1290	980 J	891 J	958 J	820 J
nium	MG/KG	1.3	21%	2	0	10	48	1 U	U	0.5 J	0.93		1.2
4	MG/KG	21.8	38%	0.75	13	18	400	4.7	2.1	0.31 U	0.29 U	0.56	0.29 U
mm	MG/KG	478	88%	172	26	42	48	255	147	205	191	195	0 60 U
lium	MG/KG	Ξ	21%	0.7	w	10	48	1.4 UJ	1.3 UJ	0.36 U	0.55	0.55 J	0.58 J
adium	MG/KG	25.4	100%	150	0	48	48	21.5	8.5	19.4 J	. 17 J	15.2 J	13.2 J
	MG/KG	3610	100%	110	28	48	48	525	250	82.6 J	309 Ј	247 J	134 J
I Organic Carbon	MG/KG	9000	100%		0	40	40			5100	5500	7600	4600
l Petroleum Hydrocarbons	MG/KG	7600	25%		0	10	40			47 U	44 U	43 U	43 U

to criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, evised January 24, 1994.

ample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. 
The maximum detected concentration was obtained from the average of the sample and its duplicate.

compound was not detected the reported value is an estimated concentration the reported value is an estimated concentration rithe compound was not detected; the associated reporting limit is approximate the data was rejected in the data validating process the data was rejected in the data validating process.

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,	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
7	Location ID							SSDRMO-14 SOII	SSDRMO-15	SSDRMO-16	SSDRMO-17	SSDRMO-18	SSDRMO-19 SOII
	Sample ID							DRMO-1010	DRMO-1011	DRMO-1012	DRMO-1013	DRMO-1014	DRMO-1015
Sample Depth to Top of Sample	of Sample							0	0	0	0	0	0
Sample Depth to Bottom of Sample	of Sample							0.2	0.2	0.2	0.2	0.2	0.2
Ö	Sample Date							10/23/2002	10/30/2002	10/30/2002	10/30/2002	10/30/2002	10/30/2002
	Study ID		Frequency		Number	Number	Number	PID-RI	SA PID-RI	SA PID-81	PID-RI	SA PID-RI	SA PID-81
		Maximum	Jo	Criteria	Jo	of Times	Jo	1	1	1	1		
arameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	(Q)	Value (Q)	Value (Q)	Value (Q
olatile Organic Compounds		•	ě	6								;	
1,1-1 nonioroethane	0.6/RG	<b>&gt;</b> <	%	208	0 0	0 (	8 0	3.1 U	3.1 U	2.9 U	3.3 U	3.2 U	3.2 UJ
1,2,2-1 ettachloroethane	00000	0	%0	000	0 (	<b>o</b> (	87 ·	3.1 01		2.9 U		3.2 U	3.2 UJ
1,2-1 nonoroemane	0.0/VC	0 0	%%	ć	0	0 (	8 6	3.1 00		2.9 U		3.2 U	3.2 U)
1 Dichlocosthane	00/80	0 0	%0	007	0 0	<b>&gt;</b> (	x 4 x 4	3.1 01		2.9 U		3.2 U	3.2 UJ
2-Dichloroethane	11G/KG	o c	% %	004	0	<b>&gt;</b>	84 8	3.1 0	3.10	0.6.2	3.3 U	3.2 U	3.2 UJ
2-Dichloroethene (total)	UG/KG	. 0	%0	2	0	o c	ç ∝					5.5	3.4
2-Dichloropropane	UG/KG	0	%0		0	0	48	3.1 UI	3.1 U	2.9 U	3.3 U	3.2 U	
cetone	UG/KG	13	28%	200	0	13	47	3.1 UJ	21 U	11 U	5.2 U		
enzene	UG/KG	41	2%	9	0	-	48						N
romodichloromethane	UG/KG	0	%0		0	0	48		3.1 U		3.3 U		
romoform	UG/KG	0	%0		0	0	48						
arbon disulfide	UG/KG	4.7	4%	2700	0	2	48		3.1 U		3.3 U		
arbon tetrachloride	UG/KG	0	%0	009	0	0	48	3.1 UJ	3.1 U	2.9 U	3.3 U	3.2 U	3.2 UJ
hlorobenzene	UG/KG	0 (	%	1700	0	0	89		3.1 U		3.3 U		
hlorodibromomethane	UG/KG	0 0	%		0 (	0	89				3.3 U		
niorocthane	OG/KG	ວ້	%	1900	0	0	4 00				3.3 U		3.2 UJ
hloroform	UG/KG	4. 8.	4%	300	0	7	48			2.9 U			3.2 UI
Is-1,2-Dichloroethene	UG/KG	0 (	%0		0	0	40			2.9 U			3.2 UI
is-1,3-Dichloropropene	05/KG	0 00	%	0011	0 (	0 (				2.9 U			3.2 UJ
inyi penzene (eta/Para Xvdene	110/KG	3300	%%	2200	<b>&gt;</b> 0	7 .	84 ¢	3.1	3.1 U	2.9 U	3.3 U	3.2 U	3.2 U
ethyl bromide	110/KG	2	0 00		> <	nc	5 6			2.9 0			3.2 U.
ethyl butyl ketone	TIG/KG	o c	%0		o	0 0	9 8			0.5.0			3.2 U.
ethyl chloride	UG/KG	0	%%		o c	0 0	2 4		3.1.0	2.9 0			3.2 0.
fethyl ethyl ketone	UG/KG	0	%	300	0	0	. 4			29 11			3.4 0.
ethyl isobutyl ketone	UG/KG	0	%0	1000	0	0	48			2.9 U			3.2 U
ethylene chloride	UG/KG	5.6	2%	100	0	-	48			3.9 U			3.2 UJ
rtho Xylene	UG/KG	16	3%		0	-	40		3.1 U	2.9 U			3.2 UJ
yrene	UG/KG	0	%		0	0	8			2.9 U			3.2 UJ
etrachioroethene	UG/KG	၁	%0	1400	0 •	0 1	89 :			2.9 U	3.3 U		3.2 UJ
oluene	0.07/KG	87	%61	1500	0	20	8						3.2 UJ
otal Aylenes	00/201	> 0	%0	0071	0 (	0 (	» ;						
rais-1,2-Dichlorogenene	0000	> 0	%0	200	> 0	> 0	04 ,	3.1 01	3.1 U	2.9 U		3.2 U	3.2 U.
inti-ti-ti-ti-ti-ti-ti-ti-ti-ti-ti-ti-ti-t	0801	> <	0,00	e e	0 (	> 0	0 ;						
indicated and a second	00/001	0 0	8 8	900	<b>&gt;</b> 0	<b>&gt;</b> (	80 (	3.1 01	3.1 U	2.9 U	3.3 U		
myr cinoriae emivoletile Organia Compounds		>	860	700	>	>	20	3.1					
2.4-Trichlorobenzene	IIG/KG	C	%0	3400	c	c	97	11 032	11 00%	11 086	11 000		
2-Dichlorobenzene	TIG/KG	0 0	%0	7000	o	o c	0 8				380 0	410 0	410 U
3-Dichlorobenzene	IIG/KG	0 0	%	1,500	o c	o c	0 0	360 0	0 004			410 0	410 U
4-Dichlorobenzene	11G/KG	0	% %	8500	o c		7 T	360 11	400 0	380 0	380 0	410 0	410 U
4,5-Trichlorophenol	UG/KG	0	%	100	· C	· c	84	11 016	10001		0 090	1000	10001
4,6-Trichlorophenol	UG/KG	0	%	2	0	0	5 4	360 11	400 11	380 11	380 1	410 11	410 11
	i i		) )		,	,	?	)	>		)	2	

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Loca	Facility Location ID							SEAD-121C SSDRMO-14	SEAD-121C SSDRMO-15	SEAD-121C SSDRMO-16	SEAD-121C SSDRMO-17	SEAD-121C SSDRMO-18	SEAD-121C SSDRMO-19
Matrix Sample ID Sample Depth to Top of Sample	Matrix Sample ID of Sample							SOIL DRMO-1010 0	SOIL DRMO-1011 0	SOIL DRMO-1012 0	SOIL DRMO-1013 0	SOIL DRMO-1014 0	SOIL DRMO-1015 0
Sample Depth to Bottom of Sample Date	m of Sample Sample Date							0.2 10/23/2002	0.2 10/30/2002	0.2 10/30/2002	0.2 10/30/2002	0.2 10/30/2002	0.2 10/30/2002
<i>w c</i>	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
ımeter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)
ophenol	UG/KG	0	0%	400	0	0	48	360 U	400 U	380 U	380 U	410 U	410 U
_	UG/KG	0	%	!	0	0	48	360 U	400 U	380 U	380 U	410 U	410 U
Dinitrotoluene	UG/KG	A C	2%	200	<b>&gt;</b> C	<b>-</b> C	47	11 09t	400 U	11 08t	11 V82	1000 LJ	410 UJ
	UG/KG	0 ;	0 %	1000	0 0	0 -	48	360 U	400 U	380 U	380 U	410 U	410 U
alene	UG/KG	0	0%		0	0	48	360 U	400 U	380 U	380 U	410 U	410 U
ethylnanhthalene	UG/KG	610	10% %	36400	<b>&gt;</b> •	00	4 8	360 U	400 U	380 U	380 U	410 U	410 U
	UG/KG	0	0%	00	0 (	o v	48	360 U	400 U	380 U	380 U	410 U	
	UG/KG	0	0%	430	0	0	48	910 UJ	1000 U	960 U	960 U	1000 U	
4-Methylphenol	TOWKG	<b>&gt;</b> c	8 %	330	> 0	0	4 4 8	360 U	400 U	380 U	380 U	410 U	410 U
ie .	UG/KG	0	%		0	0	48	360 U	400 U	380 U	380 U	410 U	
	UG/KG	0	%	500	0	0	4 6	910 U	. 1000 U	960 U	960 U	1000 U	1000 U
omophenyl phenyl ether	UG/KG	00	0%		0 0	0 0	48 6	360 U	400 U	380 U	380 U	410 U	410 U
	UG/KG	0	0%	240	0	0	48	360 U	400 U	380 U	380 U	410 U	410 U
	UG/KG	0	0%	220	0	0	4 %	360 U	400 U		380 U	410 U	410 U
ethylphenol	UG/KG	0 0	0 %	900	0 0	0 0	∞ 5	000	60	180	380 0	100	420
	UG/KG	0	0%		0	0	48	910 U	1000 U	960 U	960 U	1000 U	1000 U
	UG/KG	0	%	100	0	0	48	910 U	1000 U	960 U	960 U	1000 U	1000 U
naphthene	UG/KG	2600	23%	50000	> 0	5 <b>=</b>	48	360 U	400 U	380 U	380 U	410 U	410 U
	UG/KG	7100	42%	50000	0 0	20	48	F 98	400 U	380 U	380 U	410 U	410 U
zo(a)anthracene	UG/KG	10000	55%	224	14	26	47	320 J	78 J	380 U	380 U	55 J	410 U
zo(a)pyrene zo(b)fluoranthene	UG/KG	8700 12000	51% 64%	1100	<u>2</u> 1	24 30	47	360 J 540	74 J 98 J	380 U	380 U	410 U 77 I	410 U
	UG/KG	31503	53%	50000	0	25	47	120 J	400 U	380 U	380 U	410 U	410 U
	UG/KG	7500	47%	1100	4 0	22	47	230 J	400 UJ	380 UJ	380 U	410 UJ	410 UJ
2-Chloroethyl)ether	UG/KG	0 0	0%		0 0	0 0	48 8	360 U	400 UJ	380 UJ	380 U	410 U	410 U
4	UG/KG	0	0%		0	0	48	360 U	400 U	380 U	380 U	410 U	410 U
/-Ethylhexyl)phthalate	UG/KG	120	13%	50000	<b>o</b> o	6	4 4	120 I	400 U	380 U	380 U	410 U	410 U
	UG/KG	4200	35%		0	17	48	56 J		380 U	380 U	410 U	410 U
	UG/KG	9100	53%	400	10	25	47	340 J	94 J		380 U	410 U	410 U
	UG/KG	132	10%	8100	0		48	360 U	400 U		380 U	410 U	410 U
	UG/KG	23	4%	50000	. 0	; 2	. 4 8	360 U	400 U		380 U	410 U	410 U
nzofuran	UG/KG	1700	21%	6200	0 [	10	48	360 U	400 U	380 U	380 U	410 U	410 U
	UG/KG	21 3	13%	7100	0	6	48	360 U	400 U	380 U	380 U	410 U	
ranthene	UG/KG	27000	0% 73%	50000	00	35 0	4 4	360 U	. 170 J	380 U	380 U	410 U	410 U
	1	;	į		,	1	i	į		;	1	;	
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Facility Location ID Matrix Matrix Sarmple Depth to Top of Sarmple Sarmple Depth to Bottom of Sarmple Sarmple Date Sarmple Date Sarmple Date Sarmple Date Sarmple Date Sarmple Date Sarmple Date Sarmple Date Sarmple Date Sarmple Date	Facility Location ID Matrix Sample ID Top of Sample om of Sample Sample Date QC Code Study ID		Frequency		Number	Number	Number	SEAD-121C SSDRMO-14 SOIL DRMO-1010 0 0.2 10/23/2002 SA PID-RI	SEAD-121C SSDRMO-15 SOIL DRMO-1011 0 0.2 10/30/2002 SA PID-RI	SEAD-121C SSDRMO-16 SOIL DRMO-1012 0 10/30/2002 SA PID-RI	SEAD-121C SSDRMO-17 SOIL DRMO-1013 0 0.2 10/30/2002 S.A. PID-RJ	SEAD-121C SSDRMO-18 SOIL DRMO-1014 0 0.2 10/30/2002 S.S.A PID-RI	SEAD-121C SSDRMO-19 SOIL DRMO-1015 0 0.2 10/30/2002 SA PID-RI
		Maximum	of	Criteria	Jo	of Times	of	;	;	:		;	;
Parameter	Units	Value	Detection	Value	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (
Fluorene Hexachlorobenzene	UG/KG	3500	27%	50000	00	13	8 4 8	360 U	400 U	380 U	380 U	410 U	410 U
Hexachlorobutadiene	UG/KG		%0	2	0	. 0	8 40	360 UJ	400 U	380 U	380 U	410 C	410 C
Hexachlorocyclopentadiene	UG/KG		%0		0	0	48	360 U	400 U	380 U	380 UJ	410 U	410 C
Hexachloroethane	UG/KG		%0		0	0	48	360 U	400 U	380 UI	380 U	410 UJ	410 L
Indeno(1,2,3-cd)pyrene	UG/KG	6	46%	3200	0 (	22	48	67 J	400 U	380 U	380 U	410 U	410 L
Sopnorone N. Nitrosodinhenvlamine	0.05/KG	0 8	%6	4400	0 0	<b>&gt;</b> -	X 0	360 UJ	400 U	380 U	380 0	410 U	410 U
N-Nitrosodipropylamine	UG/KG	e o	%0		0	- 0	t 4 0 00	360 U	400 U	380 U	380 U	410 U	410 C
Vaphthalene	UG/KG	4	19%	13000	0	6	48	360 U	400 U	380 U	380 U	410 U	410 L
Vitrobenzene	UG/KG	0	%0	200	0	0	48	360 UJ	400 UJ	380 UJ	380 U	410 UJ	410 L
Pentachlorophenol	UG/KG		%0	1000	0	0	48	010 U	1000 U	Ω 096	Ω 096	1000 U	1000 f
Phenanthrene	UG/KG		52%	20000	0 (	25	. 48	370	110 J	380 U	380 U	410 U	410 L
Phenol	00/KG	34000	%0	30	0 0	0 ;	44 4 00 0	360 U	400 U	380 U	380 U	410 U	410 U
Pesticides/PCBs	5450		0//0	20000	0	75	4 10	050	f 0c1	380 0	380 0	6 / 8	410 C
1,4'-DDD	UG/KG		12%	2900	0	8	43	LJ 6.1	0.25 U	0.23 U	0.23 U	0.25 U	0.25 1
4,4'-DDE	UG/KG	69	32%	2100	0	15	47	6.6 J	0.25 UJ	0.23 UJ	0.23 UJ	0.25 UJ	0.25 U
4,4'-DDT	UG/KG		28%	2100	0	13	47	IU 6.1	0.25 UJ	0.23 UJ	0.23 UJ	0.25 UJ	0.25 U
A Idrin	UG/KG	14 3	%9	41	0	М	48	U 6.1	0.12 U	0.11 U	0.12 U	0.12 U	0.13 U
Alpha-BHC	UG/KG		%0	110	0	0	48	U 6.1	1.5 U	1.4 U	1.4 UJ	1.5 UJ	1.5 t
Aipha-Chlordane	UG/KG	vo	%8		0	4	48	tU 6.1	0.37 U	0.34 U	0.35 U	0.37 U	0.38 U
Beta-BHC	UG/KG		%0	200	0 "	0 0	8 4	U 6:1	0.12 U	0.11 U	0.12 U	0.12 U	0.13 U
Delta-BHC	UG/KG	o 14	%%	300	0	⊃ ლ	48	U 61	2.3 U 0.25 III	2.2 U 0.23 UI	2.2 U 0.23 U	2.3 U 0.25 III	2.4 U
Dieldrin	UG/KG	413	4%	44	0	2	48	U 6.1	0.12 UJ	0.11 UJ	0.12 UJ	0.12 UJ	0.13 U
Endosulfan I	UG/KG	1853	38%	006	0	82	48	13 J	0.62 U	0.57 U	0.59 U	0.61 U	0.63 U
Endosulfan II	UG/KG	6	2%	006		_	47	U 6.1	0.37 U	0.34 U	0.35 U	0.37 U	0.38 U
endosultan sultate Gradin	UG/KG	,	%	1000	0 (	0 -	8 (	D 6:1	0.74 U	0.69 U	0.7 UJ	0.74 UJ	0.75 บ
Endrin aldehyde	UG/KG		%%	3	0	- 0	4 4 8	11 61	0.98 0	0.92 0.0	0.94 UJ	U 86.0	) <u> </u>
Endrin ketone	UG/KG		%9		0	· M	- 84	11 6 11	0.12.17	0 11 11	0.12.11	0.12.11	1.10
Garrma-BHC/Lindane	UG/KG	0	%0	09	0	0	84	1.9 U	0.12 U	0.11 U	0.12.111	0.12.111	0.13
Garruna-Chlordane	UG/KG		2%	240	0	_	48	IJ 6.1	0.37 U	0.34 U	0.35 U	0,37 U	0.38
Heptachlor	UG/KG		%4	100	0	7	47	1.9 U	1.2 U	1.1 U	1.2 UJ	1.2 UJ	1.3 L
Heptachlor epoxide	UG/KG	. 4	4%	20	0	7	46	IJ 6.1	0.37 U	0.34 U	0.35 U	0.37 U	0.38 L
Methoxychlor	UG/KG	0 0	%		0 (	0 (	8 9	U 6.1	0.12 U	0.11 U	0.12 U	0.12 U	0.13 L
loxaphene	UG/KG		%%		0 0	<b>o</b> (	8 6	U 6I	3.9 U	3.7 U	3.8 U	3.9 U	4 L
Aroclor-1221	11G/KG		%0		o c	<b>&gt;</b>	6 8	19 0	0.4 0.0	5 5 5	0.1 0	6.3 UJ	0.5 5
Aroclor-1232	UG/KG		%		0	0	5 4	D 61	0 8:4 U 8:6	9.3 UI	9.3 111	0 0:1 111 2:0	1.01
Aroclor-1242	UG/KG		2%		0	_	48	U 61	2.7 U	2.5 U	2.6 UI	2.7 UJ	2.8 U
Aroclor-1248	UG/KG		%0		0	0	48	U 61	0.7 U	6.4 U	6.4 U	0.7 U	J 6.9
Arocior-1254	UG/KG	930	%61	10000	0	o,	48	120 J	13 UJ	12 UJ	12 U	13 U	13 U

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SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity Table C-2
SURFACE SOIL SAMPLE RESULTS SEAD-121C

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	Facility							SEAD-121C	SEAD-121C			SEAD-121C	SEAD-121C
-	Location ID							SSDRMO-14	SSDRMO-15	SSDRMO-16		SSDRMO-18	SSDRMO-19
	Matrix							TIOS	TIOS	SOIL		TIOS	TIOS
Sample Depth to Top of Sample	of Sample							0 0.0101-01010	0 DYAM-1011		0	0	0 DYCKO-1010
Sample Depth to Bottom of Sample	of Sample							0.2	0.2			0.2	0.2
S	Sample Date							10/23/2002	10/30/2002	10/30/2002		10/30/2002	10/30/2002
	QC Code							SA	SA			SA	SA
	Study ID	Maximum	krequency of	Criteria	Number	Number of Times	Number	PID-RI	PID-KI			PIU-KI	אַרייני
meter	Units	Value	Detection	Value 1	Exceedances		Analyses 2	Value (Q)	. Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
lor-1260	UG/KG	85	10%	10000	0		48	IJ 6I	. 2.4 UJ	2.3 UJ	2.3 UJ	2.4 UJ	2.5 UJ
als and Cyanide													
mum	MG/KG	17000	100%	19300	0	48	48	7860	14300 J	14900 J	I 00811	12300 J	10600 J
nony	MG/KG	236	81%	5.9	=	39	48	16.2	28.5 J	0.72 J	0.32 J	15.5 J	1.6 J
3 6	MG/KG	2030	100%	300	J 1	48 6	4 6	686	1 611	50.8 1	76.6.1	763 [	990
llium	MG/KG	1.2	100%	Ξ		48	48	0.37	0.83 J	0.78 J	0.7 J	0.73 J	0.64 J
nium	MG/KG	29.1	60%	2.3	14	29	48	29.1	0.7 J	0. <b>56</b> J	0.06 U	0.06 U	0.06 U
ium	MG/KG	296000	100%	121000	σ	48	48	101000 J	4670 J	14900 Ј	22800 J	7720 J	20000 J
mium	MG/KG	74.8	100%	29.6	12	48	48	46.8 J	29.9 J	24.8 J	18.2 J	26.5 J	16 J
ult	MG/KG	17	100%	30	0	35	35	12.4 R	11.3 J	12.7 J	11.9 J	12.7 J	9.1 J
Der	MG/KG	9750	100%	33	35	48	48	1450 J	195 J	33.5 J	21.2 J	64.9 J	40.2 J
iide	MG/KG	0	0%	0.35	0	0	00						
ide, Amenable	MG/KG	0	0%		0	0	40	0.56 U	0.62 U	0.58 U	0.59 ป	0.62 U	0.63 U
ide, Total	MG/KG	0	%		0	0	40	0.556 U	0.619 U	0.583 U	0.589 U	0.615 U	0.633 U
	MG/KG	51700	100%	36500	Us	48	48	50000	23600 J	23300 Ј	19500 Ј	23300 J	16900 J
	MG/KG	18900	100%	24.8	40	48	48	653	. 250 J	31.7 J	13.1 J	170 J	51.1 J
nesium	MG/KG	20700	100%	21500	0	48	48	7610	4480 J	6110 J	6940 J	5570 J	12000 J
ganese	MG/KG	858	100%	1060	0	48	48	579	474 J	503 J	537 J	415 J	250 J
ury	MG/KG	0.47	92%	0.1	00	44	48	0.3	0.09	0.04	0.04	0.05	0.29
. <u>cl</u>	MG/KG	224	100%	49	ovo	\$ <del>4</del> 8	4 6	54 J	32.6 J	39.4 J	29.6 J	39.7 J	24.4 J
SSALLI	NO.KG	1 3	21%	200	<b>&gt;</b> 0	5 6	4 6	1 2 5	0.41	0.38.11	11 65 0	041 11	0.41 11
н	MG/KG	21.8	38%	0.75	13	18	48	5.5	2.2 J	0.43 U	0.44 U	0.46 J	0.46 U
m	MG/KG	478	88%	172	26	42	48	478	162 J	88 J	94.1	58.2	63.9
lium	MG/KG	1.1	21%	0.7	w	10	48	0.59 J	0.7 U	0.87 J	0.68 U	0.72 U	0.73 U
dium	MG/KG	25.4	100%	150	0	48	48	14.7 J	21.4 J	19.1 J	16.7 J	18.5 J	15.2 J
	MG/KG	3610	100%	110	28	48	48	2910 J	1120 Ј	213 J	57.8 J	124 J	103 J
l Organic Carbon	MO/KG	9000	100%		>	40	40	6400	5600	4200	7200	8700	5800
l Petroleum Hydrocarbons	MG/KG	7600	25%		0	10	40	370	50 UJ	47 UJ	47 UJ	49 UJ	51 UJ
			;							;	:	;	;

'ES:

It criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, evised January 24, 1994.

It is a supply a supply of the supply of the supply of the summary statistic presented in this table, the maximum detected concentration was obtained from the average of the sample and its duplicate.

compound was not detected the reported value is an estimated concentration the reported value is an estimated concentration the compound was not detected; the associated reporting limit is approximate the data was rejected in the data validating process compound was "tentatively identified" and the associated numerical value is approximate.

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Sample Depth to T. ample Depth to Botte	Facility Location ID Matrix Sample ID po of Sample Sample Date QC Code Study ID	Maximum	Frequency of	Criteria	Number of		Number of	SEAD-121C SSDRA/G-20 SOIL DRA/G-1016 0 0.2 10/24/2002 SA PID-RI	SEAD-121C SSDRMO-21 DRMO-1017 0 0.2 10/24/2002 SA PID-RI	SEAD-121C SSDRM0-22 SOIL DRM0-1018 0 0.2 10/24/2002 SA PID-RI	SEAD-121C SSDRMO-23 SOIL DRMO-1019 0 0.2 10/30/2002 SA PID-RI	SEAD-121C SSDRMO-24 SOIL DRMO-1020 0 0.2 10/23/2002 SA PID-RI	SEAD-121C SSDRMO-5 SOIL DRMO-1000 0.2 10/23/2002 SA PID-RI
arameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (C
'olatife Organic Compounds	UG/KG	O	%0	800	c		48	7 8 111	3 1 111	113 8 C	11.6	111 2 0	
,1,2,2-Tetrachloroethane	UG/KG	0	%	009	0	0	5 65	2.8 UJ	3.1 13	2.8 05	6 E	27 111	
,1,2-Trichloroethane	UG/KG	0	%		0	0	8 4	2.8 UJ	3.1 UJ	2.8 CJ	35	2.7 UJ	3.1 U
, 1-Dichloroethane	UG/KG	0	%0	200	0	0	48	2.8 UJ	3.1 UJ	2.8 UJ	3 UJ	2.7 UJ	
,1-Dichloroethene	UG/KG	0	%0	400	0	0	48	2.8 UJ	3.1 UJ	2.8 UJ	3 UJ	2.7 UJ	3.1 U
,2-Dichloroethane	UG/KG	0 0	% %	100	0 0	0 0	48	2.8 UJ	3.1 UJ	2.8 UJ	3 UI	2.7 UJ	
2-Dichloropropane	00000	> <	%0 .		0 0	<b>&gt;</b>	×	0.00					
Cotone	119/KG	> =	28%	200	0 0	o <u>f</u>	† <del>†</del>	2.8 UJ	3.1 0.1	2.8 (1)	3 C	2.7 00	3.1 0
lenzene	UG/KG	. 14	2%	9	0	:	. 92	2.8 UJ		2.8 UI			
romodichloromethane	UG/KG	0	%0		0	. 0	84	2.8 UJ	3.1 UJ	2.8 UJ	3 CD		
sromoform	UG/KG	0	%0		0	0	48	2.8 UJ	3.1 UJ	2.8 UJ	3 UJ		
arbon disulfide	UG/KG	4.7	4%	2700	0	7	48	2.8 UJ	3.1 UJ	2.8 UJ	3 UJ		
arbon tetrachlonde	UG/KG	0 (	%0	009	0	0	48	2.8 UJ	3.1 UJ	2.8 UJ	3 UJ	2.7 UJ	
hlorodihomomether	08/KG	0 0	%6	1700	0 (	0 (	8 4	2.8 UJ	3.1 UJ	2.8 UJ	3 Cl		
bloroethane	110/80	> <	%0	1000	0 0	<b>&gt;</b> C	8 °	2.8 UI	3.1 0.1	2.8 UJ	3 O	2.7 UJ	3.1 U
	0200	) (	200	0061	> '	<b>&gt;</b> '	6	7.8 0	3.1 0.1	7.8 UJ	TO 9	2.7 UJ	
niorotorm	08/8G	8.8	%4	300	0 (	C1 (	8 4	2.8 UJ	3.1 UI	2.8 UJ	3 UJ	2.7 UJ	
is-1.3-Dichloropropene	110/80	> <	%0		<b>&gt;</b>	<b>&gt;</b> 0	04.0	2.8 UJ	3.1 UJ	2.8 UJ	300	2.7 UJ	
thyl benzene	UG/KG	3300	% 4 %	5500	0	> 6	6 4 8	2.8 0.1	3.1 02	2.8 U)	3 03	2.7 UJ	3.1 0.
deta/Para Xylene	UG/KG	4400	%8		0	ım	40	2.8 UJ	3.1 UJ	2.8 UJ	3 E	27 111	
1ethyl bromide	UG/KG	0	%0		0	0	48	2.8 UJ	3.1 UJ	2.8 UJ	3 CI	2.7 UJ	
dethyl butyl ketone	UG/KG	0 (	%0		0	0	48	2.8 UI	3.1 UI	2.8 UJ	3 UJ	2.7 UJ	3.1 U
denyi enlonde	54/50 10/4/51	<b>&gt;</b>	%0	000	0 0	0 0	8 4	2.8 UI	3.1 01	2.8 UJ	3 (1)	2.7 UJ	
dethyl isobutyl ketone	11G/KG	0 0	%0	1000	<b>&gt;</b> C	<b>&gt;</b>	8 4 8	2.8 UJ	3.1 0.1	2.8 U)	300	2.7 UJ	
dethylene chloride	UG/KG	2.6	2%	100	0	·	8 4	2.8 UI	2.6.3	2.8 03	5 E	27 111	3.1 0.
Jrtho Xylene	UG/KG	91	3%		0		40	2.8 UJ	3.1 UI	2.8 UJ	3 03	2.7 UJ	
tyrene	UG/KG	0	%0		0	0	48	2.8 UJ	3.1 UJ	2.8 UJ	3 UJ	2.7 UJ	3.1 U
etrachloroethene	UG/KG	0	%0	1400	0	0	48	2.8 UJ	3.1 UJ	2.8 UJ	3 UJ	2.7 UJ	3.1 U
outene Ottol Xvdenes	0 5 7 5 T	×2, <	19% 96.	1500	0 (	σ (	48	2.8 UJ	3.1 UI	00	3 UJ		
rans-1.2-Dichloroethene	119/89	o c	%000	300	o ċ	> 0	o \$	111 0 0		000		t	
rans-1,3-Dichloropropene	UG/KG	0	%0	2	o c	o c	4 4	2.8 03	3.1.03	2.8 (1)	2 03	2.7 0.1	3.1 0.
nchloroethene	UG/KG	0	%0	700	0	0	8 4 8	2.8 UI	3.1.5	2.8 03		27.10	
'inyl chloride	UG/KG	0	%0	200	0	0	48	2.8 UJ	3.1 UJ	2.8 UI	3 111	2.7 111	
emivolatile Organic Compounds												; ;	
,2,4-Trichlorobenzene	UG/KG	0 (	%0	3400	0	0	48	380 U	430 U	390 U	400 U	360 UJ	
2 Dichlorobenzene	06/KG	<b>&gt;</b> 0	%0	006/	0 (	0 (	8 (	380 U	430 U	390 U	400 U	360 UJ	
,3-Dichlorobenzene	53/50 110/KG	0 0	%0	1600	0 0	0 0	8 0	380 U	430 U	390 U	400 U	360 UJ	360 U
4.5-Trichlorophenol	119/89	> <	%0	2000	> <	<b>&gt;</b> C	48	380 0	450 0	J 080	400 U	360 UJ	
4.6-Trichlorophenol	11G/RG	o c	%%	001	o c	> <	4 4 8 8	380 0	1100 U	980 0	1000 0	10 006 11 076	
	; ;	,	,		>	٥	ř	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2000	0 065	400 0	ro noc	360 U

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													_
	Facility Location ID							SEAD-121C SSDRMO-20	SEAD-121C SSDRMO-21	SEAD-121C SSDRMO-22	SEAD-121C SSDRMO-23	SEAD-121C SSDRMO-24	SEAD-121C SSDRMO-5
2	Matrix Sample ID							SOIL DRMO-1016	SOIL DRMO-1017	SOIL DRMO-1018	SOIL DRMO-1019	SOIL DRMO-1020	SOIL DRMO-1000
Sample Depth to Bottom of Sample Sample Date	m of Sample Sample Date							0.2 10/24/2002	0.2 10/24/2002	0.2 10/24/2002	0.2 10/30/2002	0.2 10/23/2002	0.2 10/23/2002
	QC Code Study ID		Frequency	) :	Number	Number	Number	SA PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	SA PID-RI
meter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses <sup>2</sup>	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Dichlorophenol Dimethylphenol	UG/KG	00	0%	400	<b>&gt;</b> 0	<b>)</b> 0	4.8	380 U	430 U 430 U	390 U	400 U	360 UJ 360 UJ	360 U
Dinitropheno!	UG/KG	0	0%	200	0	0	47	940 UJ	1100 U	980 U	1000 UJ	900 UJ	910 UJ
Dinitrotoluene	UG/KG	45	2%		0	-	48	380 U	430 U		400 U	360 UJ	360 U
Oronachthalene	UG/KG	00	%	1000	00	0	4 8	380 U	430 U	11 UGE	400 U	360 UJ	360 U
lorophenol	UG/KG	0 (	0%	800	0 (	0 (	48	380 U	430 U		400 U	360 UJ	360 U
thyinaphthalene	UG/KG	610	19%	36400	0	9	48	380 U	430 U		400 U	360 UJ	360 U
roaniline	UG/KG	00	0%	430	0 0	0 0	4 t	940 U	1100 U	980 U	1000 U	500 CJ	910 U
rophenol	UG/KG	0	0%	330	0		48	380 U	430 U	390 U	400 U	360 UJ	360 U
4-Methylphenol	UG/KG	00	8 %		0	0	40	380 U	430 U	390 U	400 U	360 UJ	360 U
troaniline	UG/KG	0	0%	500	0 (	0	48	940 UJ	1100 U		1000 U	900 UJ	910 UJ
Dinitro-2-methylphenol	UG/KG	0	%		0	0	48	940 U	1100 U	980 U	1000 U	900 UJ	910 U
loro-3-methylphenol	UG/KG	0 0	0%	240	0 0	0 0	4 8	380 U	430 U	390 U	400 U	360 UJ	360 U
loroaniline	UG/KG	0	0%	220	0	0	48	380 U	430 U		400 U	360 UJ	360 U
lorophenyl phenyl ether	UG/KG	0	2 %	8	0	0	48	380 U	430 U	390 U	400 U	360 UJ	360 U
roaniline	UG/KG	00	0%	900	00	00	48 0	940 U	U 0011	980 U	1000 U	900 UJ	910 U
trophenol	UG/KG	0	0%	100	0	0	48	940 U	1100 U	980 U	1000 U	900 UJ	910 U
aphthene	UG/KG	2600	23%	50000	0	5 =	4 8	85 J	430 U	390 U	400 U	360 UJ	360 U
racene	UG/KG	7100	42%	50000	0 0	20	4 6	250 J	430 U	230 J	400 U	110 J	51 3
to(a)anthracene	UG/KG	10000	55%	224	14	26	47	950	430 U	610 J	400 U	380 J	320 J
to(b)fluoranthene	UG/KG	12000	64%	1100	5 21	30	47	1800 J	430 U	1 100 J	400 U	420 J	730 J
o(ghi)perylene	UG/KG	3150 <sup>3</sup>	53%	50000	0	25	47	620 J	430 U	660 J	400 U	130 J	270 J
2-Chioroethoxy)methane	UG/KG	0 0	0%%	1100	4 0	0 22	48 /	380 UJ	430 UJ	390 U	400 U	360 UJ	340 J 360 HI
2-Chloroethyl)ether	UG/KG	0	0%		0	0	48	380 U	430 U	390 U	400 U	360 UJ	360 U
2-Chlorousopropyi)ether	TIG/KG	200	\$6%	50000	<b>o</b> c	27 0	48	36 U	430 U	1 89 U 068	400 U	360 UJ	360 U
benzylphthalate	UG/KG	120	13%	50000	0	6	48	380 U	430 UJ	390 UJ	400 U	360 UJ	360 UJ
sene	UG/KG	4200 9100	35% 53%	400	0	17 25	47	140 J	430 U	76 J 620 J	400 U	44 J 360 J	360 U
-butylphthalate	UG/KG	132 3	10%	8100	0	S	48	380 U	430 U	390 U	400 U	360 UJ	360 U
-octylphthalate	UG/KG	23 3	4%	50000	0	2	48	380 U	430 U	390 UJ	400 U	360 UJ	360 UJ
nz(a,h)anthracene	UG/KG	470 <sup>3</sup>	26% 21%	6200	o II	12	47	I 05 I 65	430 U 430 U	390 UJ	400 U	360 UJ	11 09t I 85
hyl phthalate	UG/KG	21 3	13%	7100	0	6	48	380 U	430 U		400 U	360 UJ	360 U
ethylphthalate	UG/KG	<b>7</b> 7000	73%	2000	00	3, 0	48	380 U	430 U	390 U	400 U	360 UJ	360 U
aimeir	00/20	1,000	70.76	0000	c	į	6	1500	,	870	,	0,0	330

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Table C-2
SURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

201	Facility Location ID							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Matrix							SOIL	SOIL	SOIL	TIOS	TIOS	SOIL
Sa	Sample ID							DRMO-1016	DRMO-1017	DRMO-1018	DRMO-1019	DRMO-1020	DRMO-1000
Sample Depth to Top of Sample	Sample							0	0	0	0	0	0
Sample Depth to Bottom of Sample	Sample							0.2	0.2	0.2	0.2	0.2	0.2
Sam	Sample Date							10/24/2002	10/24/2002	10/24/2002	10/30/2002	10/23/2002	10/23/2002
	QC Code		Programme		Manhor	N. P. P. P. P. P. P. P. P. P. P. P. P. P.	Marie	SA	SA Old	SA PITO BY	SA	SA	SA
		Maximum	of	Criteria	Jo	of Times	of	N-OIL	rio-N	N-OIL	2	710-K	rip-ri
arameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q
luorene	UG/KG	3500	27%	20000	0	13	48	110 J	430 U	87 J	400 U	360 UJ	360 U
exachlorobenzene	UG/KG	8.5	2%	410	0	-	84	380 U	430 U	390 U	400 U	360 UJ	360 U
exachlorobutadiene	UG/KG	0	%		0	0	48	380 UJ	430 UJ	390 UJ	400 U.	360 UJ	360 UI
exachlorocyclopentadiene	UG/KG	0	%0		0	0	48	380 U	430 U	390 U	400 U	360 UJ	360 U
exachioroethane	UG/KG	0	%		0	0	48	380 U	430 U	390 U	400 UJ	360 UJ	360 U
ideno(1,2,3-cd)pyrene	UG/KG	970 3	46%	3200	0	. 22	48	160 J	430 UJ	160 J	400 U	84 J	62 J
ophorone	UG/KG	0 !	%	4400	0	0	48	380 UJ	430 UI	390 UI	400 U	360 UJ	360 UI
-Introsodiponalization	06/KG	4. xi c	%2		0 (	- 0	4 ·	380 U	430 U	390 U	400 U	360 UJ	360 U
anhthalene	110/80	400	10%	13000	0 0	o 0	4 ¢	380 0	430 0	390 O	400 0	360 00	360 U
itrobenzene	UG/KG	g c	%	2000	0 0	n C	0 8	380 111	430 111	390 111	400 0	360 01	360 U
entachlorophenol	UG/KG	0	%	1000	0	· c	2 4	940 11	1100 11	980 11	1000	000	910 11
henanthrene	UG/KG	29000	52%	20000	0	25	0 00	1200	430 11	700	400 11		1 09%
henol	UG/KG	0	%0	30	0	0	84	380 U	430 U	390 U	400 U		360 11
утепе	UG/KG	34000	%19	20000	0	32	48	86 J	430 U	1900 J	44 J	600 1	1000 J
esticides/PCBs													
,4'-DDD	UG/KG	44	12%	2900	0	8	43	IU 6.1	2.2 UJ	2 UI	0.24 UJ	1.8 UJ	
4'-DDE	UG/KG	69	32%	2100	0	15	47	IU 6.1	2.2 UJ	2 UJ	0.24 UJ	1.8 UJ	ID 6:1
,4'-DDT	UG/KG	100	28%	2100	0	13	47	9.5 NJ	2.2 UJ	2 UJ	0.24 U	1.8 UJ	IJ 6.1
ldrin	UG/KG	14 3	%9	4	0	60	48	U 6.1	2.2 U	2 U	0.12 U	1.8 U	U 6.1
lpha-BHC	UG/KG	0	%0	110	0	0	48	IJ 6.1	2.2 UJ	2 UJ	1.4 UJ	1.8 UJ	I.9 U.
Ipha-Chlordane	UG/KG	63 3	%8		0	4	48	TU 6.1	2.2 UJ	2 UI	0.36 U	1.8 UJ	I.9 U.
eta-BHC	UG/KG	0	%0	200	0	0	48	I.9 UJ	2.2 UJ	2 UI	0.12 U	1.8 UJ	I.9 U.
hlordane	UG/KG	0	%0		0	0	40	D 61	22 U	20 U	2.3 U	18 U	Ω 61
elta-BHC	UG/KG	7 '	%9	300	0	60	48	U 6.1	2.2 UJ	2 UI	0.24 UJ	1.8 UJ	IJ 6.1
ieldrin	UG/KG	٠ 14	4%	44	0	71	48	IU 6.1	2.2 UJ	2 UI	0.12 UJ	1.8 UJ	I.9 UI
ndosulfan I	UG/KG	185 3	38%	006	0	18	48	37 J	2.2 UJ	21 J	0.6 U	1.8 UJ	8.3 J
ndosulfan II	UG/KG	6	2%	006	0	-	47	1.9 U	2.2 U	2 U	0.36 U	1.8 U	1.9 U
ndosultan sultate	UG/KG	o ;	% 0	1000	0 (	0	00	U 6:1	2.2 U	2 U	0.72 UJ	1.8 U	U 6.1
notin oldsbuds	08/01 10/201	C.12	%7	001	0 (	<b>-</b> (	47	LO 6.1	2.2 UJ	5 2	0.96 UJ	1.8 UJ	
יייין מותכוולתכ	0 10 10 10 10 10 10 10 10 10 10 10 10 10	) i	%5		0 '	0	10	LO 6:1	7.7	7 00	0.96 UJ	1.8 01	
num Retone	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.0	% 6	Ş	0 0	m (	48	0.6.1	2.2 O	2 U	0.12 U	1.8 U	
arma-Chordan	110/80		%6	8 5	> <	> ←	0 0	0.6.1	0.2.2	0.7	0.12 UJ	0 8.1	
eptachlor	11G/KG	14	%4	100	· c	• (	5 4	5 5 5	25.4.5	5 1	0.30	5 2	1.9 0.1
eptachlor epoxide	UG/KG	. 00	4%	200	o c	1 6	46	11 01	111 66	0.7	17.2 0	0 6.1	
fethoxychlor	UG/KG	0	%0	<b>i</b>	0		. 4	11 61	2.2 03	2 2	0.30	11.0	
oxaphene	UG/KG	0	%0		0	0	48	11 61	22 11	5 1 2	10.5	5 2 2	
roclor-1016	UG/KG	0	%0		0	0	48	D 61		20 1	6.3 111	1 81	19 11
roclor-1221	UG/KG	0	%0		0	0	48			20 U	1.6 U	18 U	
roclor-1232	UG/KG	0	%0		0	0	48	U 61	22 U	20 U	10 9.6 UI	18 U	
roclor-1242	UG/KG	28	2%		0	-	48	U 61	22 U	20 U	2.6 UJ	18 U	U 61
.roclor-1248	UG/KG	0	%0		0	0	48	D 61		20 U	0.6 U	18 U	
.roclor-1254	UG/KG	930	%61	10000	0	6	48	44 J	22 UJ	20 UI	13 U	18 UJ	U 61

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### SEAD-121C and SEAD-121I RI REPORT SURFACE SOIL SAMPLE RESULTS SEAD-121C Seneca Army Depot Activity Table C-2

								1	•				
	Facility							SEAD-121C	SEAD-121C	SEAD-121C			SEAD-121C
_	Location ID							SSDRMO-20	SSDRMO-21	,-			SSDRMO-5
	Matrix							SOIL	SOIL	•			SOIL
	Sample ID							DRMO-1016	DRMO-1017	DRMO-1018			DRMO-1000
Sample Depth to Top of Sample	of Sample							000	000	000	000	000	0 0
Sample Depth to Bottom of Sample	n or Sample							2.0	10/24/2002	10/24/2002			10/23/2002
	OC Code							SA SA	SA SA				SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI			PID-RI
		Maximum	of	Criteria	Jo	of Times	of						
meter	Units	Value	Detection	Value 1	Exceedances Detected	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
lor-1260	UG/KG	85	10%	10000	0	s	48	ID 61	22 UJ	20 UJ	2.4 UJ	18 UJ	19 UJ
als and Cyanide	MOVO	17000	100%	10300	>	48	48	3540	11200	10.500	11100 1	8110	\$\$20
ролу	MG/KG	236	81%	5.9	11	39	48	1 U	1.6 J	.00	1.4 J	236	4.4 J
nic	MG/KG	11.6	100%	8.2	2	48	48	4.1	7	6.7	4.1 J	11.6	3.9
urr	MG/KG	2030	100%	300	7	48	48	35.2 J	105 J	113 J	99.3 J	2030 J	46.5 J
llium	MG/KG	1.2	100%	Ξ	_	48	48	0.24	0.75	0.65	0.65 J	0.43	0.31
nium	MG/KG	29.1	60%	2.3	. 14	29	48	1.1	0.16 U	0.14 U	0.06 U	4.3	0.55
· m	MG/KG	296000	100%	121000	5 0	\$ 6	4 6	L 000/61	C 00171	20400 J	1777	1 0 26	12.3 1
ol Hariy	MG/NG	17	100%	20.0	- F	3 4	3 4	A	04.8	115 R	86.	175 R	67 R
OCT .	MG/KG	9750	100%	33	35	48	48	40.5 J	25.1 J	55.4 J	43.8 J	5050 J	44.2 J
nide	MG/KG	0	0%	0.35	0	0	00						
nide, Amenable	MG/KG	0	0%		0	0	40	0.57 U	0.66 U	0.59 U	0.61 U	0.54 U	0.55 U
nide, Total	MG/KG	0	0%		0	0	40	0.571 U	0.661 U	0.588 U	0.612 U	0.545 U	0.548 U
	MG/KG	51700	100%	36500	ıs	48	48	10200	22700	23700	17300 J	28800	13900
	MG/KG	18900	100%	24.8	40	48	48	62.3	29.5	344	59.2 J	18900	195
nesium	MG/KG	20700	100%	21500	0	\$ 68	6 6	10500	4660	5130	4/00 J	533	20/00
ganese	MG/KG	808	%001	1000	۰ ۵	44 6	48	0.03	50.0	0 14	0 08	0.31	0.07
el e	MG/KG	224	100%	49	9 0	48	4 6	16.2 J	27.1 J	29.4 J	25 J	45.7 J	20.8 J
ssium	MG/KG	1990	100%	2380	0	48	48	841 J	909 J	949 J	1430 J	910 J	891 J
nium	MG/KG	1.3	21%	2	0	10	48	0.48 U	1.1	0.53 J	0.39 U	_	0.46 U
Ť	MG/KG	21.8	38%	0.75	13	18	48	0.34	2.9	0.31 U	0.44 U	0.76	0.29 U
um	MG/KG	478	88%	172	26	42	48	289	197	116 U	65.2	108 U	240
lium	MG/KG	3 =	21%	0.7	نا د	10	48	0.55 U	30.4	18.7	0.09.0	1 2 5 T	10.34
adium	MG/KG	25.4	100%	150	; c	48	40	7.8 5	20.7 3	16./ 5	10.1	10.1 J	10.7
	MG/KG	3610	100%	110	28	48	48	104 J	85.2 J	r 501	[11]	990 J	157 J
er d Organic Carbon	MG/KG	9000	100%		0	40	40	4100	6200	7400	7500	4000	3600
il Petroleum Hydrocarbons	MG/KG	7600	25%		0	10	40	46 U	53 U	59	49 UJ	44 U	830

TES:

he criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, tevised January 24, 1994.

tevised January 24, 1994.

ample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. The maximum detected concentration was obtained from the average of the sample and its duplicate.

compound was not detected he reported value is an estimated concentration he reported value is an estimated concentration rethe compound was not detected; the associated reporting limit is approximate the data was rejected in the data validating process the data was rejected in the data validating process.

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### Table C-2 SURFACE SOIL SAMPLE RESULTS SEAD-121C SEAD-121C and SEAD-121I RI REPORT

SEAD-121C	SSDRMO-8
SEAD-121C	SSDRMO-7
SEAD-121C	SSDRMO-7
SEAD-121C	SSDRMO-6
Facility	Location ID
	Facility SEAD-121C SEAD-121C SEAD-121C SEAD-121C

SEAD-121C SSDRMO-9 SOIL DRMO-1005	0	0.2	SA		Value (Q)		2.7 UJ	27 111	2.7 111	2.7 UJ	2.7 UJ		2.7 0.1	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ			2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	360 U	360 U	360 U	360 U	360 U
SEAD-121C SSDRMO-8 SOIL DRMO-1004	0	0.2 10/23/2002	SA PID-BI		Value (Q)		2.5 UJ	2.5 0.1	2.5 111	2.5 UJ	2.5 UJ	111 3 0	2.5 00	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 0.1	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 0.1	2.5 UJ	2.5 UJ		2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	350 U	350 U	350 U	350 U	350 U
SEAD-121C SSDRMO-7 SOIL DRMO-1003	0	0.2 10/24/2002	SA		Value (Q)		2.9 U	2.9.0	2.9 1	2.9 U	2.9 U	0		2.9 U	2.9 U	2.9 U	2.9 U	2.9.0	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 0	2.9 U	2.9 UJ	2.9 U	1.7 U	2.9.0	2.9 U	2.9 U		2.9 U	2.9 U	2.9 U	0 k.3	380 U	380 U	380 U	380 U	380 U
SEAD-121C SSDRMO-7 SOIL DRMO-1002	0	0.2 10/24/2002	SA		Value (Q)		3.1 U	3.1 11	3.1 UI	3.1 UJ	3.1 UJ							3.1 [1]		3.1 UJ	3.1 UJ	3.1 UJ	3.1 UJ	3.1 UJ	3.1 0.1	3.1 0.0	3.1 UJ	3.1 UJ	3.1 UJ	3.1 UJ	3.1.02	3.1 UJ	3.1 UJ		3.1 UI	3.1 UJ	3.1 00	5.1 07	380 U	380 U	380 U	380 U	380 U
SEAD-121C SSDRMO-6 SOIL DRMO-1001	0	0.2 10/24/2002	SA PID-RI		Value (Q)		2.7 U	2.7.1	2.7 U	2.7 U	2.7 U		27.2	2.7 U	2.7 U	2.7 U	2.7 0	2.7 11	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7.0	2.7 U	2.7 U	2.7 UJ	2.7 U	0.84 U	2.7 11	2.7 U	2.7 U		2.7 U	2.7 U	2.7 U	0	350 U	350 U	350 U	350 U	350 U
			Number	jo	Analyses 2		oo o	4 4	84	48	48	∞ <del>ç</del>	5 4	48	48	ob (	8 0	6 4	8	48	48	40	48	80 (	0 4	0 00	48	48	9	\$ ¢	5 4	94	4 00	00	9 9	8 6	20 ¢	ř	48	48	48	80 0	4 4 8 8
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			Frequency	Jo	Detection		%0	%0	%0	%0	%0	%%	28%	2%	%0	%6	%40	%0	%0	%0	4%	%0	%	% %	% 0	%0	%0	%0	%6	7,07	%%	%0	%61	%	%6	% ?	%0		%0	%0	%%	%0	%0
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Facility Location ID Matrix Sample ID	of Sample	om of Sample Sample Date	QC Code Study ID		Units		UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	00/KG	UG/KG	UG/KG	UG/KG	UG/KG	116/86	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	06/KG	11G/KG	UG/KG	UG/KG	UG/KG	UG/KG	110/40	UG/KG	UG/KG	UG/KG	UG/KG	05/KG	110,700	10/80			UG/KG	UG/KG	110/80	UG/KG
7 %	Sample Depth to Top of Sample	Sample Deptil to Bottom Sa			Parameter	Volatile Organic Compounds	1,1,1-inchloroethane	1.1.2-Trichloroethane	1,1-Dichloroethane	I, I-Dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane (total)	Acetone	Benzene	Bromodichloromethane	Bromotorm	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Cis-1,2-Dichloroethene	Cts-1,3-Dichloropropene	Meta/Para Vulana	Methyl bromide	Methyl butyl ketone	Methyl chloride	Methyl ethyl ketone	Methyl Isobutyl Ketone	Ortho Xvlene	Styrene	Tetrachloroethene	Toluene	Total Xylenes	Trans-1,Z-Dichloroethene	Trichloroethere	Vinyl chloride	Semivolatile Organic Compounds	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,5-Dichlorobenzene	2 4 S. Trichlorophenol	2,4,6-Trichlorophenol

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Di-n-octyphthalate Di-n-octyphthalate Dibenz(a, h)anthracene Dibenzofuran Diethyl phthalate Dimethylphthalate Fluoranthene	Benzo(ghi)perylene Benzo(k)fluoranthene Bis(2-Chloroethoxy)methane Bis(2-Chloroethy)lether Bis(2-Chloroisopropyl)ether Bis(2-Ethylhexy)lphthalate Buylienzylphthalate Curysene Di-n-butylphthalate	4-Chlorophenyl phenyl ether 4-Methylphenol 4-Nitroaniline 4-Nitrophenol Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(b)fluoranthene	2,4-Dichlorophenol 2,4-Dinitrophenol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2,6-Dinitrotoluene 2,6-Dinitrotoluene 2,6-Dinitrotoluene 2-Chloronaphthalene 2-Chloronaphthalene 2-Methylphenol 2-Methylphenol 2-Nitrophenol 3-Nitrophenol 3 or 4-Methylphenol 3 or 4-Methylphenol 3,3'-Dichlorobenzidine 3-Nitroanilime 4,6-Dinitro-2-methylphenol 4-Bromophenyl phenyl ether 4-Chloro-3-methylphenol 4-Chloro-3-methylphenol	Facility Location ID Matrix Sample Depth to Top of Sample ID Sample Depth to Bottom of Stample Sample Depth to Bottom of Sample Sample Date Study ID Sample Depth to Bottom of Stample
UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG	UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG	UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG	MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MAKON  MA	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample Date QC Code Study ID
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SEAD-121C SSDRMO-9 SOIL DRMO-1005 0 0.2 10/23/2002 SA PID-RJ	360 U 360 U 360 U 360 U 360 U 360 U 360 U	360 U 360 UJ 900 U 160 J 360 U 250 J	18 18 18 18 18 18 18 18 18 18 18 18 18 1	
SEAD-121C SSDRMO-8 SOIL DRMO-1004 I 0 0 0.2 10/23/2002 SA PID-RI	350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U	350 U 350 UJ 880 U 550 350 U	2,5,5 2,6,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,8,0 1,	18 U 18 U
SEAD-121C SSDRMO-7 SOIL DRMO-1003 0 0.2 10/24/2002 SA PID-RI	380 UJ 380 UJ 380 U 380 U 380 U 380 UJ 380 UJ	74 J 380 UJ 950 U 7600 380 U		
SEAD-121C SSDRMO-7 SOIL DRMO-1002 0 0.2 10/24/2002 SA PID-RJ	380 U 380 U 380 U 1100 J 380 U 380 U 380 U	97 J 380 UJ 960 U 13000 380 U 24000 J	20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 C 20 U
SEAD-121C SSDRMO-6 SOIL DRMO-1001 0 0.2 10/24/2002 SA PID-RJ	350 U 350 U 350 U 350 U 79 J 350 U 350 U	57 J 350 UJ 870 U 1100 350 U	1	18 U 18 U 10 SI
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Maximum	8.5 0 0 0 0 0 0 0 0 0 0 0 0	400 0 0 29000 0 34000	69 100 114 <sup>3</sup> 0 0 0 0 0 0 0 0 0 0 0 0 0	930
	UGKG UGKG UGKG UGKG UGKG	UG/KG UG/KG UG/KG UG/KG	100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG	UG/KG UG/KG
Facility Location 1D Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Depth Sample Date QC Code	Hexachlorobenzene Hexachlorobutadiene Hexachloroyclopentadiene Hexachlorosyclopentadiene Hexachloroethane Indeno(1,2,3-cd)pyrene Isophorone N-Nitrosodiphenylamine N-Nitrosodiphenylamine N-Nitrosodiphenylamine N-Nitrosodiphenylamine Nahrhalene	Nitrobenzene Pentachlorophenol Phenanthrene Phenol Pyene Pertol Pyere Pesticides/PCBs	4,4'-DDE A44'-DDT Addin Alpha-BHC Alpha-BHC Alpha-BHC Chlordane Beta-BHC Chlordane Delta-BHC Dieldrin Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan II Endosulfan I	Aroclor-1248 Aroclor-1254

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### SEAD-121C and SEAD-121I RI REPORT Table C-2 SURFACE SOIL SAMPLE RESULTS Seneca Army Depot Activity

NOTES:	Total Petroleum Hydrocarbons	Other Total Organic Carbon	Zinc	Vanadium	Thallium	Sodium	Silver	Selenium	Potassium	Nickel	Mercury	Manganese	Magnesium	Lead	Iron	Cyanide, Total	Cyanide, Amenable	Cyanide	Copper	Cobalt	Chromium	Calcium	Cadmium	Beryllium	Barium	Arsenic	Antimony	Aluminum	Metals and Cyanide	Aroclor-1260	Parameter				Sample Depth to Bottom of Sample	Sample Denth to Top of Sample			
	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG		UG/KG	Units	Study ID	QC Code	Sample Date	m of Sample	on of Sample	Samula II	Location ID	Facility
	7600	9000	3610	25.4	1.1	478	21.8	1.3	1990	224	0.47	858	20700	18900	51700	0	0	0	9750	17	74.8	296000	29.1	1.2	2030	11.6	236	17000		88	Value	Maximum							
	25%	100%	100%	100%	21%	88%	38%	21%	100%	100%	92%	100%	100%	100%	100%	0%	0%	0%	100%	100%	100%	100%	60%	100%	100%	100%	81%	100%		10%	Detection	Frequency of							
			110	150	0.7	172	0.75	2	2380	49	0.1	1060	21500	24.8	36500			0.35	33	30	29.6	121000	2.3		300	8.2	5.9	19300		10000	Value 1	Criteria							
	0	0	28	0	دیا	26	13	0	0	9	00	0	0	40	(s	0	0	0	35	0	12	6	14	_	7	2	11	0		0	Exceedances Detected	Number of							
	10	40	48	48	10	42	18	10	48	48	44	48	48	48	48	0	0	0	48	35	48	48	29	48	48	48	39	48		5	Detected	Number of Times							
	40	40	48	48	48	48	48	48	48	48	48	48	48	48	48	40	40	00	48	35	48	48	48	48	48	48	48	48		48	Analyses 2	Number of							
	43 U	4600	77.5 J	17 J	0.55 J	204	0.29 U	0.64	1200 Ј	42.5 J	0.07	468	6840	130	24700	0.534 U	0.53 U		49.3 J	14.4 R	22.9 J	34700 J	7.8	0.53	57.1 J	4.6	2 J	10900		18 UJ	Value (Q)	PID-RI	SA	10/24/2002	0.2	0	SOIL	SSDRMO-6	SEAD-121C
	190	5800	107 J	15.3 J	0.36 U	191	0.31 U	0.49 U	862 J	22.4 J	0.07	480	12700	117	18500	0.582 U	0.58 U		39.8 J	8.6 R	17.6 J	63600 J	0.57	0.5	80.9 J	6.2	3.2 J	7420		20 UJ	Value (Q)	PID-RI	SA	10/24/2002	0.2	0	SOIL	SSDRMO-7	SEAD-121C
	46 U	6000	96.8 J	14.4 J	0.35 U	194	0.3 U	0.47 U	712 J	23.5 J	0.06	553	6180	93.8	18700	0.575 U	0.57 U		32.8 J	8.7 R	18.8 J	61200 J	0.44	0.53	84.5 J	5.4	1.4 J	8280		ID 61	Value (Q)	PID-RI	SA	10/24/2002	0.2	0	SOIL SOIL	SSDRMO-7	SEAD-121C
	43 U	5300	93.2 J	12.4 J	0.33 U	302	0.28 U	0.44 U	1070 J	31 J	0.06	610	8290	66.8	18100	0.532 U	0.53 U		46.1 J	11.5 R	17.6 J	94200 J	0.97	0.4	41.1 J	5.1	1.8 J	7840		18 UJ	Value (Q)	PID-RI	SA	10/23/2002	0.2	0	SOIL DRMO-1004	SSDRMO-8	SEAD-121C
	140	6000	157 J	14.1 J	0.33 U	235 J	1.4	0.49 J	1120 J	32.9 J	0.04	581	7770	122	25000	0.542 U	0.54 U		216 J	11.4 R	22.6 J	92500 J	(J3	0.47	71.1 J	5.3	3.2 J	10200		IN 81	Value (Q)	PID-RI	SA	10/23/2002	0.2	0	SOIL DRMO-1005	SSDRMO-9	SEAD-121C

.

NOTES:

1) The oriteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.

2) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.

3) The maximum detected concentration was obtained from the average of the sample and its duplicate.

U = compound was not detected
J = the reported value is an estimated concentration
UJ = the compound was not detected; the associated reporting limit is approximate
R = the data was rejected in the data validating process
R = the data was rejected in the data validating process
N = compound was "tentatively identified" and the associated numerical value is approximate

## Table C-3 DITCH SOIL SAMPLE RESULTS SEAD-121C SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C

SE, SD, DIT

	Facility Location ID Marry: Sample ID Sample Depth to Top of Sample Imple Depth to Bottom of Sample Sample Depth Code Study ID Inite	ganic Compounds	oroethane	achloroethane	oroethane	oethane	oethene	oethane	opropane		oromethane		ilfide	achloride	cne	momethane	2	hloroethene	hloropropene	ne	Kylene	nide	ride	inde i ketone	utyl ketone	chloride	je.	44	culculc	ichloroethene	ichloropropene	iene	de .	e Organic Compounds probenzene	obenzene	obenzene	openzene	orophenol	orophenol	uphenol	phenol	
	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample Date QC Code QC Code Study ID	Clints	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	10/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	0.G/KG	110/80	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	08/50 08/50 10/8/51	DG/NG LIG/KG	UG/KG	UG/KG	UG/KG	UG/KG	0.00 C	UG/KG	UG/KG	UG/KG	UG/KG	ids UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	11G/KG	UG/KG	
	Maximum Value	A BINC	0	0	0	0	0	0 (	0 1	0	0	0	12	0	0	0 0	o c	0	0	0	0	0 0	<b>&gt;</b> (	130	0	0	0	0 0	0 0	0	0	0	0	C	0	0	0	0	0 0	o	0	
	Frequency of	Detection	%0	%0	%0	%0	%0	%0	%02	%0	%0	%0	20%	%0	%0	%%	%000	%0	%	%0	%0	%0	%0	30%	%%	%0	%0	% &	% 6	%%	%0	%0	%0	%0	%	%	%0	%0	% %	%0	%	
	Criteria Volune	v Sides	800	009		200	400	100	200	60	1		2700	009	1700	000	1900	000		5500				300	1000	100			1400	300		700	200	3400	7900	1600	8500	100	9	004	200	
	Number of Freedones	Exceedances	0	0	0	0	0	0 (	0 0	0 0	0	0	0	0	0	0 0	0 0	00	0	0	0	0	0 0	0 0	0	0	0	0 (	<b>o</b> (	00	0	0	0	c	0	0	0	0	0 (	> 0	00	
	Number of Times		C	0	0	0	0	0	0 1	· C	0	0	2	0	0	0 (	,		0	0	0	0	0 (	0 4	n 0	0	o	Q (	<b>D</b> (	o c	0	0	0	c	0	0	0	0	0 0	<b>&gt;</b> 0	0	•
Conce	Number of	Analyses	10	10	10	10	10	10	0 2	2 2	10	10	10	10	10	2 9	0 2	2 2	2 2	10	10	10	0 :	2 2	2 2	10	10	10	0 :	2 2	10	10	10	2	2 0	10	10	10	2 :	2 2	2 2	
Todac fm n	SEAD-121C SDRRMO-1 DITCHSOIL DITCHSOIL 2 11/5/2002 SA PID-RI NACLO OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL		7.8 111		2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	14 7	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2,8 UJ	2.8 UJ	2.8 UJ	2.8 03	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 111	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	340 11		360 U	360 U	910 U	360 U	360 U	360 U	
לזויזיד	SEAD-121C SDDRMO-2 DITCHSOIL DRMO-4001 0 11/5/2002 SA PID-RI VALLE (OO)	value (Q)	111 C1				12 UJ		12 UJ	12 51	12 UJ	12 UJ						12 00			12 UJ	12 UJ	12 UJ	12 UJ	12 01		12 UJ		12 UJ			12 UJ	12 UJ	111 0091	1600 111	1600 UJ	1600 UJ	4100 UJ	1600 UJ		1600 UJ	
	SEAD-121C SDDRMO-3 DITCHSOIL DITCHSOIL DRMO-4002 2 11/5/2002 SA PID-RI NACLOON	value (Q)	111 96	26 UJ		26 UJ	26 UJ	26 UJ		130 J	26 UI	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	00 97	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	26 01	26 UJ	26 UJ	26 UJ	26 UJ	26 UJ	26 111	26 UJ	26 UJ		1700 11	1700 UJ	1700 UJ	4300 UJ	1700 UJ	1700 UJ	1700 UJ 4300 TII	1300 03
	SEAD-121C SDDRMO-4 DITCHSOIL DRMO-4003 0 11/5/2002 SA PID-RI	value (Q)	111 61				12 UJ			12 03			12 UJ		12 UJ			12 01	12 03	12 UJ	12 UJ	12 UJ	12 UJ	12 UJ	130 J	12 UJ	12 UJ	12 UJ	12 UJ	12 13		12 UJ		*** ****	1500 01		1600 UJ		1600 UJ	1600 UJ	1600 UJ	50 0065
	SEAD-121C SDDRMO-5 DITCHSOIL DITCHSOIL DRMO-4004 0 11/5/2002 SA PID-RI NAME OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTICLE OF A PARTI	Value (Q)	111 5 9	6.5 111	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	12.1	6.5 111	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 0.1	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 0.3	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 UJ	6.5 0.1	6.5 UJ	6.5 UJ	6	840 03	840 III	840 UJ	2100 UJ	840 UJ	840 UJ	840 UJ	2100 03
	SEAD-121C SDDRMO-8 DITCHSOIL DRMO-4005 2 11/5/2002 SA PID-RI	Value (Q)	4 6 111	6.6 111	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	21 J	6.6 0.1	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	0.0 0.0	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UI	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 01	6.6 UJ	6.6 UJ		650 UJ	111 059	650 UI	1600 UJ	650 UJ	650 UJ	650 UJ	1900 07
		ı																																								

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## Table C-3 DITCH SOIL SAMPLE RESULTS SEAD-121C SEAD-121I RI REPORT Seneca Army Depot Activity

							Zeneca /	seneca Army Depot A	cuvity					
	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-
	Location ID							SDDRMO-1	SDDRMO-2	SDDRMO-3	SDDRMO-4	SDDRMO-5	SDDRMO-8	SDDRA
	Matrix Sample ID							DRMO-4000	DRMO-4001	DITCHSOIL DRMO-4002	DRMO-4003	DRMO-4004	DRMO-4005	DRMO-
mple Depth to Top of Sample	of Sample							0	0	0	0	0	0	
Sample Date	Sample Date							11/5/2002	11/5/2002	11/5/2002	11/5/2002	11/5/2002	11/5/2002	11/5/
	QC Code					Z		SA	SA	SA	SA	SA	SA	į
	,	Maximum	of	Criteria	of	of Times	of	1	1	1	1	1	- 1	11
	Units	Value	Detection	Values 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
ne	UG/KG	0	0%		0	0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
alene	UG/KG	0 0	0%	1000	0 0	00	10	360 11	1600 UJ	1700 UI	1600 U	840 U	650 UJ	
	UG/KG	0	0%	800	0	0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
alene	UG/KG	0	0%	36400	0	0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
	UG/KG	0	0%	100	0	0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
	UG/KG	0 0	0%	330	<b>o</b> c	0 0	10	360 11	4100 UJ	4300 UJ	111 006E	2100 UJ	1600 UJ	
nenol	UG/KG	790	10%		0	_	10	360 U	1600 UJ		1600 UJ	840 UJ	650 UI	
nzidine	UG/KG	0	0%		0	0	10	360 U	1600 UJ		1600 UJ	840 UJ	650 UJ	
ı <i>e</i> thylphenol	UG/KG	0 0	0%	500	0 0	0 0	5 5	0 016	4100 001	4300 UJ	111 000£	2100 UJ	1600 UJ	
phenyl ether	UG/KG	0	0%		0	0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
nyiphenoi	00/80	0 0	%	240	o c	o c	5 6	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
phenyl ether	UG/KG	0 (	0%	ţ	0 (	0 0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
	UG/KG	0	0%		0	0	10	910 U	4100 UJ	4300 UJ	3900 UJ	2100 UJ	1600 UJ	
	UG/KG	00	0%	0000	0	0	10	0 016 0 016	4100 UJ		3900 UJ	2100 UJ	1600 UJ	
•	UG/KG	0 (	0%	41000	0 (	0 0	10	360 U	fD 0091	1700 UJ	1600 UJ	840 UJ	650 UJ	
	UG/KG	250	20%	50000	0	2	10	360 U	250 J	1700 UJ	1600 UJ	840 UJ	650 UJ	
cene	UG/KG	900	20%	224 61	2 2	<b>&gt;</b>	10	360 U	1 000 J	1700 UJ	1600 UJ	840 UJ	650 UJ	
nthene	UG/KG	1100	20%	1100	0 1	2 1	10		1100 J		1600 UJ	840 UJ	650 UJ	
lene	UG/KG	290	10%	50000	0	_	10	360 U	290 J	1700 UJ	1600 UJ	840 UJ	650 UJ	
nthene	UG/KG	080	%01	1100	0 0	-	10	360 U	580 J		1600 UJ	840 UJ	650 UJ	
nyl)ether	UG/KG	00	0%		00	0 0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
propyl)ether	UG/KG	0	0%		0	0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
y))phinarate halate	UG/KG	00	0%	50000	0 0	0 0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	950 UI	
	UG/KG	0	0%		0	0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
late	UG/KG	0	20% 0%	8100	o	0 2	5 10	360 U	1200 J	1700 UJ	1600 UJ	840 UJ	650 UJ	
ilate	UG/KG	0	0%	50000	0	0	10	360 U	1600 UJ		1600 UJ	840 UJ	650 UJ	
racene	UG/KG	0 0	%	6200	0	0	6 6	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
te	UG/KG	00	%	7100	0 0	0 0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
ate	UG/KG	0	%	2000	0	0	10	360 U	1600 UJ		1600 UJ	840 UJ	650 UJ	
	UG/KG	2100	20%	50000	0 0	2 2	10		2100 J		1600 UJ	840 UJ	650 UJ	
zene	DG/KG	<b>\$</b>	%	410	<b>&gt;</b> 0	<b>-</b>	10 10	360 11	1600 111	. 1700 00	1000 U	840 UJ	II 059	
idiene	UG/KG	0 0	0%	710	0 0	0 0	10		1600 UJ	1700 UJ	1600 UJ	840 UJ	113 059	
opentadiene	UG/KG	0	0%		0	0	10	360 U	1600 UJ		1600 UJ	840 UJ	650 UJ	
пе	UG/KG	30	0%	300	0	- 0	10	360 U	1600 UJ		1600 UJ	840 UJ	650 UJ	
JPJICIIC	00/80	2/0	10%	2000	c	-	ī	300 0	1017	1,00 00	rn 0091	840 UJ	650 UJ	

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## Table C-3 DITCH SOIL SAMPLE RESULTS SEAD-121C SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C SEAD-121C

							School	and action	CHAILY					
Lo	Facility Location ID							SEAD-121C SDDRMO-1	SEAD-121C SDDRMO-2 DITCHSOII	SEAD-121C SDDRMO-3 DITCHSOIL	SEAD-121C SDDRMO-4 DITCHSOIL	SEAD-121C SDDRMO-5 DITCHSOIL	SEAD-121C SDDRMO-8 DITCHSOIL	SEA
Sample Dente to Too of Sample ID	Sample ID							DRMO-4000	DRMO-4001	DRMO-4002	DRMO-4003	DRMO-4004	DRMO-4005	DRM
mple Depth to Bottom of Sample	of Sample							2 6	0 0	5 6	5 0	5 6	5 6	
San	Sample Date							11/5/2002 SA	11/5/2002 SA	11/5/2002 SA	11/5/2002 SA	11/5/2002 SA	11/5/2002 SA	11
			Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	
		Maximum	of	Criteria	Jo	of Times	of	I Welve (O)	1	Vehice (O)	Velice (O)	Volum (O)	Velue (O)	
	1)G/KG	varue	Detection 0%	4400	Cxceedances	Detected	Analyses	340 II	(A) aluc (A)	1700 111	1600 TIT	840 111	650 LII	
ohenylamine	UG/KG	0	%		0	0	2 2	360 U	1600 UJ	1700 UJ	1600 UJ	840 'UJ		
propylamine	UG/KG	0	%0		0	0	01	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
	UG/KG	0	%0	13000	0	0	10	360 U	1600 UJ	1700 UJ	1600 UJ	840 UJ	650 UJ	
	UG/KG	0	%0	200	0	0	10	360 U	I000 II	1700 UJ	1600 UJ	840 UJ	650 UJ	
phenol	UG/KG	0	%0	1000	0	0	10	910 U	4100 UJ	4300 UJ	3900 UJ	2100 UJ	1600 UJ	
U	0G/KG	001	%07	30	0 0	7 0	0 0	360 U	1100 J	1700 UJ	11000 001	840 UJ 840 UJ	650 UJ	
	UG/KG	2100	20%	20000	0	2 73	2 0	360 U	2100 J	1700 UJ	1600 UJ	840 UJ	650 UJ	
CBs														
	UG/KG	0	%0	2900	0	0	10	0.22 UJ	1 UJ		U 56.0		0.4 UJ	
	UG/KG	0	%0	2100	0	0	10		1 UI	1.1 UI			0.4 UJ	
	UG/KG	0 0	%0	2100	0 (	0 (	0 9	0.22 UJ	1 01	1.1 UJ		0.51 UJ	0.4 UJ	
	0 5 6 7 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	> 0	%0	14.	0	0	0 5	0.11 0	0.5 0.1	0.55 U			0.2 UJ	
4 6 7	5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	> 0	%0	110	> 0	0 0	2 5	1.3 00	55	0.5 U)	27.0	3.1 0.0	2.4 0.1	
	110/80	o c	%%	200	0 0	o c	2 2	0.53 0	111 50	0 53 III	0.48 111	0.76	0.0	
	UG/KG	0	%0	2	0	0	0.0		9.5 111			4 9 111	3.8	
	UG/KG		%0	300	0	0	2 2	0.22 UJ	1 G	1.1		0.51 UJ	0.4 UJ	
	UG/KG	0	%0	44	0	0	10	0.11 UJ	0.5 UJ	0.53 UJ		0.26 UJ	0.2 UJ	
	UG/KG	0	%0	006	0	0	10	0.55 UJ	2.5 UJ	2.6 UJ	2.4 UJ	1.3 UJ	1 UJ	
	UG/KG	0	%0	006	0	0	10	0.33 U	1.5 UJ	1.6 UJ	1.4 UJ	0.77 UJ	0.6 UJ	
sulfate	UG/KG	0 0	%0	1000	0 0	0 0	0 6	0.66 UJ	3 C	3.2 UJ	2.9 UJ	1.5 UJ	1.2 UJ	
vde	11G/KG	0 0	%0	3	0 0	o c	2 5	0.88 0	4 4 E I I	4.2 00	2.6 0.5	2.1 0	1.6 0.1	
Je	UG/KG	0	%0		0	0	2 0	0.11 UI	0.5 UJ	U 53 UI	0.48 UI	0.26 UJ	0.2 UJ	
C/Lindane	UG/KG	0	%0	09	0	0	01	0.11 UJ	0.5 UJ	0.53 UJ	0.48 UJ	0.26 UJ	0.2 UJ	
ordane	UG/KG	0	%0	540	0	0	10	0.33 UJ	1.5 UJ	1.6 UJ	1.4 UJ	U 77.0	0.6 UJ	
:	UG/KG	0	%0	100	0	0	10	1.1 U	s UI	5.3 UJ	4.8 UJ	2.6 UJ	2 UJ	
poxide	UG/KG	0 0	%0	50	0 (	0 (	0 :	0.33 U	1.5 UJ	1.6 UJ	1.4 UJ	0.77 UJ	0.6 UJ	
10	110/KG	> <	% %		00	0 0	0 5	0.11 0	0.5 0.1	0.53 UJ	0.48 UJ	0.26 UJ	0.2 U)	
9	UG/KG	0	%0		0	0 0	2 0	5.7 11	11 90	27 111	24 111	111 51	10 111	
-	UG/KG	0	%0		0	0	0	1.4 U	6.4 UJ	6.8 UJ	6.1 UJ	3.3 UJ	2.6 UJ	
23	UG/KG	0	%0		0	0	6	8.7 U	39 UJ	42 UJ	38 UJ	20 UJ	16 UJ	
2	UG/KG	0	%0		0	0	0	2.4 U	11 U	11 01	10 UJ		4.3 UJ	
80	UG/KG	0	%0		0	0	6	Ω9	27 UJ	29 UJ			11 U	
4	UG/KG	0	%0	10000	0	0	6	12 U		SS UJ			21 UJ	
0	UG/KG	0	%0	10000	0	0	6	2.2 UJ	9.9 UJ	10 UJ	9.4 UJ	5.1 UJ	3.9 UI	
Cyanide	MG/KG	21500	100%	19300	-	10	10	2850	S600 J	5100 J	9540 J	9770 J	10100	
	MG/KG	4.9	%05	6.5	0	٧	10	0.97 J	4.5 J	4.7 J	4.3 UJ	2.5 J	1.8 UJ	
	MG/KG	6.1	100%	8.2	0	01	01	1.1	6.1 J	1.2 J	2.2 J	5.1 J	2.1	
	MG/KG	291	100%	300	0	.01	10	36.6 J	111 J	41.9 J	131 J	96.3 J	72.2 J	
	MG/KG	0.8	%08	=	0	00	10	0.2	0.64 UJ	0.68 UJ	0.67 J	0.6 J	0.63	
	MG/KG	14.3	%05	2.3	3	5	10	0.13 U	1.5 J	3.4 J	2.1 J	5.8 J	0.24 U	

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## Table C-3 DITCH SOIL SAMPLE RESULTS SEAD-121C SEAD-121I RI REPORT Seneca Army Depot Activity

							200000	an and we do not an	Carray					
	Facility						1	SEAD-121C	SEAD-121C		SEAD-121C	D-121C	SEAD-121C	SEAD-
Loca	Location ID							SDDRMO-1	SDDRMO-2	SDDRMO-3	SDDRMO-4	RMO-5	SDDRMO-8	SDDRA
	Matrix							DITCHSOIL	DITCHSOIL		DITCHSOIL	CHSOIL	DITCHSOIL	DITCHS
Sar	Sample ID							DRMO-4000	DRMO-4001		DRMO-4003	10-4004	DRMO-4005	DRMO-
mple Depth to Top of Sample	Sample							0	0		0	0	0	
e Depth to Bottom of	Sample							2	2	2	2	2	2	
Sample Date	le Date							11/5/2002	11/5/2002	11/5/2002	11/5/2002	1/5/2002	11/5/2002	11/5/
0	CCode							SA	SA	SA	SA	SA	SA	
S	tudy ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PI.
	_	Maximum	of	Criteria	of	of Times	of		-	-	-	-	_	
	Units	Value	Detection	Values 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
4	AG/KG	161000	100%		2	10	10	28900	133000 J	45400 J	61200 J	56000 J	24000	(J)
	AG/KG	29.8	100%	29.6	1	10	10	7.3	29.8 J	15.9 J	29.3 J	26.5 J	22.6	
1	/G/KG	15.8 3	100%	30	0	10	10	ų	10.2 J	7.2 J	10.2 J	14.7 J	11.4	
-	/G/KG	1190	100%	33	7	10	10	19.1	117 J	77.4 J	96.8 J	133 J	34	
able 1	MG/KG	2.36	10%		0	-	10	0.55 U	2.49 UJ	2.63 UJ	2.36 J	1.29 UJ	1.1 U	
1	MG/KG	2.36	10%		0	-	10	0.552 U	2,49 UJ	2.63 UJ	2.36 J	1.29 UJ	1.1 U	
	MG/KG	27300 3	100%	36500	0	10	10	5650	18400 Ј	13800 J	20400 J	23300 J	20500	(J.)
-	vig/Kg	436	100%	24.8	00	10	10	34.3	200 J	148 J	197 J	196 J	58.3	
	MG/KG	17600	100%	21500	0	10	10	3340	13100 J	5780 J	7480 J	6810 J	5150	
	MG/KG	918	100%	1060	0	10	10	126	754 J	271 J	616 J	918 J	471	
-	MG/KG	0.3	100%	0.1	6	10	10	0.09	0.3 J	0.14 J	0.2 J	0.09 J	0.11	
	MG/KG	42.7	100%	49	0	10	10	8.2	32.5 J	22.8 J	29.3 J	42.7 J	30.9	
	MG/KG	1410	100%	2380	0	10	10	368	880 J	1070 J	1370 J	1410 J	905	
	MG/KG	2.5	40%	2	2	4	10	0.73	2.1 UJ	2.3 J	2.5 J	1.6 J	0.82 U	
	MG/KG	2.6	50%	0.75	S	S	10	0.93	1.3 UJ	1.4 UJ	2.1 J	2.6 J	0.65	
	MG/KG	1120	100%	172	9	10	10	258	I 090 J	985 J	1120 J	465 J	388	
	MG/KG	0	0%	0.7	0	0	10	0.33 U	1.5 UJ	1.6 UJ	1.5 UJ	0.77 UJ	0.61 U	
	MG/KG	29.1	100%	150	0	10	10	8.6	29.1 J	16.1 J	23.6 J	20.9 J	17.8	
	MG/KG	566	100%	110	7	10	10	57.9 J	540	314	390	566	135 J	
Carbon	MG/KG	9100	100%		0	10	10	4600	6400 J	7500 J	6300 J	6200 J	7100 J	
ocarbons	MG/KG	2600	20%		0	2	10	1000	2600 J	211 UJ	190 UJ	100 UJ	80 UJ	

value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, uary 24, 1994.

icate pair was averaged and the average results were used in the summary statistic presented in this table. 
m detected concentration was obtained from the average of the sample DRMO-4008 and its duplicate 
in Loc ID SDDRMO-8.

was not detected

value is an estimated concentration

und was not detected, the associated reporting limit is approximate

s rejected in the data validating process

SEAD-121C SDDRMO-10 DITCHSOIL DRMO-4010 0 11/5/2002 SA PID-RI 1	Value (Q)		7.1 01	2.1 CJ	7.1 UJ	7.1 UJ	7.1 UJ	33 J	7.1 UJ		7.1 00					7.1 00					7.1 UJ	7.2 J	7.1 UJ	7.1 UJ	7.1 UI	7.10		7.1 UJ	7.1 UJ	7.1 UJ	7.1 UJ	910 UJ	910 UJ	910 UJ	910 UJ	2300 UJ	910 UJ	910 UJ	2300 UJ
SEAD-121C S SDDRMO-9 SI DITCHSOIL D DRMO-4009 D 2 11/5/2002 SA PID-RI	Value (Q)		4.6 UJ				4.6 UJ	4.6 CJ 25 J	4.6 UJ	4.6 UJ	4.6 UJ	4.6 UJ				4.6 UJ		4.6 UJ	4.6 UJ	4.6 UJ	4.6 UJ 4.6 TII	4.6 UJ	4.6 UJ	4.6 UJ	4.6 UJ	0.4	111 9 4	4.6 UJ	4.6 UJ		4.6 UJ	550 U			250 U	1400 U	550 U	550 U	1400 U
SEAD-121C SDDRMO-7 DITCHSOIL DRMO-4007 0 2 11/5/2002 SA PID-RI	Value (Q)		2.9 U 2.9 U	2:9 U	2.9 UI	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 UJ	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 UJ	2.9 UJ	2.9 U	0 6.7	2.9 11	2.9 U	2.9 U	2.9 U	2.9 U	430 U	430 U	430 U	430 U	1100 U	430 U	430 U 430 H	1100 U
SEAD-121C SDDRMO-6 DITCHSOIL DRMO-4006 0 11/5/2002 SA PID-RI 1	Value (Q)	i c	3.7 U	3.7 U	3.7 UJ	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 UJ		3.7 U	3.7 U	3.7 0	3.7 U	3.7 U	3.7 U	3.7 U	3.7 0	3.7 U	3.7 UJ	3.7 UJ	3.7 U	0.7.4	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	460 U	460 U		460 U	1200 U	460 U	460 U	1200 U
Number of	Analyses 2		0 0	01	10	01	0 0	2 2	10	0 :	2 2	01	10	10	01 9	2 5	2 2	10	01	0 9	0 0	0 01	10	10	01 0	2 5	. 01	10	10	10	10	10	10	10	01	2 :	2 9	2 0	10
Number of Times	Detected	•	0 0	0	0	0	0 0	0 1	0	0 0	o 6	10	0	0	0 0	0 0	0	0	0 (	0 0	0 0	· 100	0	0 (	0 0	o c	0	0	0	0	0	0	0	0	0	0 0	0 0	0	0
Number	Exceedances	c	00	0	0	0	0 0	0	0	0 (	0 0	0	0	0	0 0	o ¢	0	0	0 0	0 0	0 0	0	0	0 (	0 0	0 0	0	0	0	0	0	0	0	0	0	0 0	<b>&gt;</b> C	0 0	) O
Criteria	Values 1	0	009		200	400	100	200	09		2700	009	1700		0061	200		5500				300	1000	100		1400	1500	300		700	200	3400	7900	1600	8200	100	400	20	200
Frequency of	Detection	à	% %	%0	%0	%0	% %	40%	%0	%%	20%	%0	%0	%0	%0	%%	%	%0	%0	% %	%0	30%	%0	% %	% %	%	%0	%0	%0	%	%0	%0	%0	%0	%0	% &	% %	%	%0
Maximum	Value	c	0 0	0	0	0 0	0 0	150	0	0 0	12	0	0	0 (	0 0	0 0	0	0	0 0	0 0	00	130	0	0 0	<b>&gt;</b> C	0	0	0	0	0 (	0	0	0	0	0 0	0 0	> <b>c</b>	0	0
	Units	54/5/1	UG/KG	UG/KG	UG/KG	UG/KG	11G/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	04/50 10/40	10/80	UG/KG	UG/KG	UG/KG	00/80	UG/KG	UG/KG	UG/KG	UG/KG	06/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	10/80	UG/KG	UG/KG
Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Date QC Code	Parameter	Volatile Organic Compounds	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,z-Dichloropropane	Acetone	Benzene	Bromodichloromethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroform	Cis-1.2-Dichloroethene	Cis-1,3-Dichloropropene	Ethyl benzene	Meta/Para Xylene	Methyl bromide	Methyl chloride	Methyl ethyl ketone	Methyl isobutyl ketone	Methylene chlonde	Ortio Ayiene Styrene	Tetrachloroethene	Toluene	Trans-1,2-Dichloroethene	Trans-1,3-Dichloropropene	Inchloroethene	Vinyl chloride Semivolatile Organic Compounds	1,2,4-Trichforobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4,5-Trichlorophenol	2.4.0- Inculorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol

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						,	,				
	Facility Location ID							SEAD-121C SDDRMO-6	SEAD-121C SDDRMO-7	SEAD-121C SDDRMO-9	SEAD-121C SDDRMO-10
	Matrix Sample ID							DITCHSOIL DRMO-4006	DITCHSOIL DRMO-4007		DITCHSOIL DRMO-4010
Sample Depth to Top of Sample Sample Depth to Bottom of Sample	tom of Sample							2	2	2	2
	Sample Date OC Code							11/5/2002 SA	11/5/2002 SA	11/5/2002 . SA	11/5/2002 SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI
	:	Maximum	0.	Criteria	. 0	of Times	01		: _	: .	
2.4-Dinitrotoluene	UG/KG	O	Detection	Sante	Luceedances 0	Detected	Analyses 10	460 U	430 U	value (V)	910 [J]
2,6-Dinitrotoluene	UG/KG	0	0%	1000	0	0	10	460 U	430 U	550 U	910 UJ
2-Chloronaphthalene	UG/KG	, 0	0%	<b>)</b>	0	0	10	460 U	430 U	550 U	910 UJ
2-Methylnaphthalene	UG/KG	0 0	0%%	36400	<b>&gt;</b> c	0 0	<b>1</b> 10	460 U	430 U	0.055	111 016 CO 016
2-Methylphenol	UG/KG	0	0%	100	0	0	10	460 U	430 U	550 U	510 UJ
2-Nitroaniline	UG/KG	0 0	0%	430	0	0	10	1200 U	1100 U	1400 U	2300 UJ
3 or 4-Methylphenol	UG/KG	790	10%	000	0 0	<b>-</b> - c	5 5	460 11	430 0	550 11	010 016
3,3'-Dichlorobenzidine	UG/KG	0	0%		0 (	0 •	10	460 U	430 U	550 U	910 UJ
3-Nitroaniline	UG/KG	0	0%	500	0	0	10	1200 U	1100 U	1400 U	2300 UJ
4-Bromophenyl phenyl ether	UG/KG	0 0	0%		0 0	0 0	10 10	460 U	430 U	550 U	910 UJ
4-Chloro-3-methylphenol	UG/KG	0	0%	240	0	0	10	460 U	430 U	550 U	910 UJ
4-Chlorophenyl phenyl ether	UG/KG	0 0	0%	077	0 0	0 0	<b>1</b> 0	460 UI	430 U	0.05	010 UI
4-Nitroaniline	UG/KG	0	0%		0	0	10	. 1200 U	1100 U	1400 U	2300 UJ
4-Nitrophenol	UG/KG	0	0%	100	0	,	5 10	1200 U	1100 U	1400 U	2300 UJ
Acenaphthylene	UG/KG	0 0	0%	41000	0 0	0 0	10	460 U	430 U	550 U	510 OI
Anthracene	UG/KG	250	20%	50000	0	2	10	460 U	430 U	100 J	910 UJ
Benzo(a)anthracene	UG/KG	1100	20%	224	2	2	10	460 U	430 U	230 J	910 UJ
Benzo(a)pyrene Benzo(b)filioranthene	UG/KG	1100	20%	1100	o 14	2 2	i 0	460 U	430 U	I 081	III 016 [O 016
Benzo(ghi)perylene	UG/KG	290	10%	50000	0	- 1	10	460 U	430 U	550 U	910 UJ
Benzo(k)fluoranthene	UG/KG	580	10%	1100	0	_	10	460 U	430 U	550 U	910 UJ
Bis(2-Chloroethyl)ether	UG/KG	0 0	0%		00	0 0	5 6	460 U	430 U	50 U	III 016 IO 016
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	10	460 U	430 U	550 U	510 DI
Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%	50000	0	0	10	460 U	430 U	550 U	910 UJ
Carbazole	UG/KG	0 0	0%	20000	00	0 0		460 U	430 U	550 U	FI 016
Chrysene	UG/KG	1200	20%	400		2	10	460 U	430 U	240 J	910 UJ
Di-n-outylphthalate	UG/KG	00	0%	9000	0	0 0	5 6	460 U	430 U	550 U	010 UI
Dibenz(a,h)anthracene	UG/KG	0	0%	14	0	0	10	460 U	430 U	550 U	510 UJ
Dibenzofuran	UG/KG	0	0%	6200	0	0	10	460 UJ	430 UJ	550 U	910 UJ
Directly I phthalate	116/KG	00	%%	7100	0	<b>&gt;</b> 0	10	460 U	430 U	550 U	910 UJ
Fluoranthene	UG/KG	2100	20%	50000	0 0	20	10	460 U	430 U	520 J	510 O16
Fluorene	UG/KG	0	0%	50000	0	0	10	, 460 U	430 U	550 U	010 UJ
Hexachlorobenzene	UG/KG	0	%	410	0	0	10	460 U	430 U	550 U	010 UJ
Hexachlorocyclopentadiene	UG/KG	0 0	0%		0 0	0 0	10	460 UI	430 UI	11 055	111 016 CO 016
Hexachloroethane	UG/KG	0	0%		0	0	10	460 U	430 U	550 U	910 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	270	10%	3200	0	_	10	460 U	430 U	550 U	910 UJ

### Table C-3 DITCH SOIL SAMPLE RESULTS SEAD-121C

### SEAD-121C SEAD-121IC and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility  Location ID  Marrix Sample ID  Sample ID  Sample Date Sample Date Code Study ID  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG
Location ID  Matrix Sample ID  Matrix Sample ID  Matrix Sample ID  Matrix Sample ID  Matrix Sample ID  Matrix  Units  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UGKG  UG
Pacility   Location ID   Marxix   Sample   Date   Sample   Date   Sample   Date   Sample   Date   Sample   Date   Sample   Date   Sample   Date   Sample   Date   Sample   Date   Sample   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Date   Da
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Sample D. Sample D. Sample D. Sample D. Sample D. Saphorone N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosodiphenyli N-Nitrosod

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### SEAD-121C and SEAD-121I RI REPORT Table C-3 DITCH SOIL SAMPLE RESULTS SEAD-121C

Total Petroleum Hydrocarbons	Inatium Vanadium Zinc Other	Silver Sodium	Potassium Selenium	Nickel	Manganese Mercury	Magnesium	Lead ·	Iron	Cyanide, Total	Cyanide, Amenable	Copper	Cobalt	Chromium	Calcium	Parameter					Sample Depth to Bottom of Sample	Sample Depth to Top of Sample				
MG/KG MG/KG	MG/KG MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	Units		Study ID	QC Code	Sample Date	m of Sample	op of Sample	Sample ID	Matrix Matrix	Facility	
9100 2600	29.1 566	2.6 1120	2.5	42.7	918 0.3	17600	436	27300 <sup>3</sup>	2.36	2.36	1190	15.8 3	29.8	161000	Value	Maximum									
100% 20%	100%	100%	40%	100%	100% 100%	100%	100%	100%	10%	10%	100%	100%	100%	100%	Detection	οſ	Frequency								
	150	0.75 172	2380	49	0.1	21500	24.8	36500			33	30	29.6	121000	Values 1	Criteria									
00	700	o vo va	20	0	o 0	0	œ	0	0	0	7	0	-	2	Exceedances	<u>ુ</u>	Number								Seneca Army Depot Activity
10 2	10 0	o 10 %	4	10	10 10	10	10	10	1	1	10	10	10	10	Detected	of Times	Number								my Depot
10	10 10 10	10 10	10	10	10 10	10	10	10	10	10	10	10	10	10	Analyses 2	of	Number								Activity
4900 57 Ս	0.43 U 15.6 62.8 J	0.38 U 297	0.59 U	29.5	0.04	4480	14	21200	0.713 U	0.71 U	16.2	10.6	17.1	13200	Value (Q)	_	PID-RI	SA	11/5/2002	2	0	DRMO-4006	DITCHSOII	SEAD-121C	
4200 53 U	0.4 U 13.9 51.4 J				0.09			20500	0.662 U			11.5	14	16300	Value (Q)	_	PID-RI	SA	11/5/2002	2		- '	DITCHSOIL		
8300 68 U	10.8 528	1.8 398	1020 0.69 U	32.1	504 0.26	17600	436	15400	0.84 U	0.84 U	1190	8.5	18.3	161000	Value (Q)	_	PID-RI	SA	11/5/2002	2	0	DRMO-4009	DITCHSOIL	SEAD-121C	
9100 J 110 UJ	0.86 UJ 19.1 J 236 J	0.75 UJ 595 J	1070 J 1.2 UJ	29 J	510 J 0.12 J	7810 J	132 J	17100 J	1.4 UJ	1.4 UJ	55.1 J	10 J	27.9 J	21600 J	Value (Q)	_	PID-RI	SA	11/5/2002	2	0	DRMO-4010	DITCHSOIL	SEAD-121C	

NOTES:

1) The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.

3) Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.

2) The maximum detected concentration was obtained from the average of the sample DRMO-4008 and its duplicate DRMO-4005 at Loc ID SDDRMO-8.

U = compound was not detected
J = the reported value is an estimated concentration
UJ = the compound was not detected; the associated reporting limit is approximate
R = the data was rejected in the data validating process

SUBSURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C SEAD-121I RI REPORT
Seneca Army Depot Activity
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1	Facility Location ID							SEAD-121C SR121C-1	SEAD-121C SB121C-2	SEAD-121C	SEAD-121C SB121C-4	SEAD-121C	SEAD-121C	SEAD.
	Matrix							SOIL	SOLL	SOL	SOLL	TOS	SOL	A COCO
Sample Denth to Top of Sample	Sample ID							EB232	EB228	EB234	EB230	DRMO-1057	DRMO-1060	DRMO
Sample Depth to Bottom of Sample	of Sample							ر. الا ال	2.5	C.7	3.3	7 9	7 9	
Š	Sample Date							3/9/1998	3/9/1998	3/9/1998	3/6/1/6/8	10/25/2002	10/26/2002	10/25
	Study ID		Frequency		Number	Number	Number	SA	SA	SA	SA	SA PID. P.I	SA PID PI	Д
		Maximum	Jo	Criteria	Jo	of Times	Jo	2	3	3	2	2	2	7
rasnic Compounds	Units	Value	Detection	Value .	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
loroethane	UG/KG	0	%0	800	0	0	20		111 111	11 11	11 11	111 9 6	111 0 0	
rachloroethane	UG/KG	0	%0	009	0	0	2 2	12 U		D ::		2.6 U	2.8 UI	
oloroethane	UG/KG	0	%0		0	0	20		11 03	11 0	11 0	2.6 U	2.8 UJ	
roethane	UG/KG	0	%0	200	0	0	20				11 0	2.6 U	2.8 UI	
roethene	UGARG	0 0	%0	400	0	0	20					2.6 U	2.8 UJ	
roethene (total)	10/KG	0 0	%%	100	0 0	0 0	70	12 U	11 11	: : : :		2.6 UJ	2.8 UI	
ropropane	UG/KG	0	%%		0	0 0	, <sub>C</sub>		3 E			11 7 6	111 0 0	
-	UG/KG	28	45%	200	0	0	20			91	28.7	2.6 U	2.8 0	
	UG/KG	1800	10%	09	-	2	20				11 UI	2.6 U	2.8 UJ	
loromethane	UG/KG	0	%0		0	0	20	12 U		UII	11 UJ	2.6 U	2.8 UJ	
1.154-	UG/KG	0 (	%0		0	0	20				11 UJ	2.6 U	2.8 UJ	
utition	0.6/KG	0 (	%0	2700	0 (	0	20				11 UI	2.6 U	2.8 UI	
acinomine Trans	00/2011	<b>&gt;</b> C	% &	000	0 0	0 (	20		B :	11 U	ID ::	2.6 UJ	2.8 UJ	
omomerhane	02/001	0 0	° è	8/1	> 0	<b>o</b> (	070				5 :	2.6 U	2.8 UI	
ne	UG/KG	0	%%	1900	0 0	0 0	2 50	12 0	3 5			2.6 U	2.8 UJ	
	UG/KG	4	10%	300	0	0 6	202				5 -	0.4.0	2.8 00	
chloroethene	UG/KG	0	%0		0	10	2 2		,		7 7	2.60	2.8 03	
chloropropene	UG/KG	0	%0		0	0	20			U 11	11 UJ	2.6 U	2.8 UI	
ene	UG/KG	24000	2%	5500	-		20	12 U	11 U	11 U	11 C	2.6 U	2.8 UJ	
Xylene	UG/KG	130000	%9		0		16					2.6 U	2.8 UJ	
inide Line	0.5/KG	0 (	%0		0	0	20	12 U			11 03	2.6 UJ	2.8 UJ	
yi ketone onide	0.5/KG	> 0	%0		0 (	0 (	20		B :	0 11	11 UJ	2.6 UJ	2.8 UJ	
vi ketone	UGKG	2 2	10%	300	0 0	) c	70				D ::	2.6 U	2.8 UJ	
outyl ketone	UG/KG	0	%	1000	> 0	4 ¢	0 00				3 5	2.6 U	2.8 UJ	
chloride	UG/KG	3.5	10%	80	0	0 6	20 20	12.0	3 = =		3 2	2.6 U	2.8 UJ	
ne	UG/KG	75	%9		0	-	16				3	2.6.0	25.00	
	UG/KG	2.7	%5		0	-	20			11 U	II UI	2.6 U	2.8 UJ	
vethene	UG/KG	0	%0	1400	0	0	20	12 U	11 UJ		II UI	2.6 U	2.8 UJ	
950	110.KG	% 4 C	20%	1500	0 0	4 (	, 50	7 7	: c		۲ 4	2.6 U	2.8 UI	
Dichloroethene	UG/KG	0	%0	300	o c	0 0	1 7	17.0	5	0 11	0 11			
Dichloropropene	UG/KG	0	0%0		0	0	20 5		11 03	11 11	11 13	2.6 11	2.8 00	
hene	UG/KG	0	%0	700	0	0	20	12 U	11 UJ	11 0	5 5	2.6 U	2.8 UJ	
ide	UG/KG	0	%0	200	0	0	20		11 UJ	11 U	11 12	2.6 U	2.8 UJ	
ile Organic Compounds			1											
lorobenzene	UG/KG	0 (	%0	3400	0	0	20	U 44			76 U	370 U	370 U	
openzene	54/50 10/4/50	0 0	%6	006/	0 (	0	20	U 77			D 9/	370 U	370 U	
obenzene	0 2001	0 0	%%	1600	0 0	0 6	20	77 U			D 92	370 U	370 U	
foronhenol	1000	o c	% 6	85	> 0	0 0	70	0 77			76 U	370 U	370 U	
lorophenol	110/KG	0 0	%6	3	> <	0	2,50	0 2 2			180 U	920 U	920 U	
conhenol	110/KG	0 0	%%	000	> <	<b>-</b>	0 6	0 / 1			76 U	370 U	370 U	
iyiphenol	UG/KG	0	%%	000	0 0	0 0	20	7, 0	0 5 5	77 0	76 U	370 U	370 U	
phenol	UG/KG	0	%0	200	0	0	10	190 11			180 11	370 U	370 U	
toluene	UG/KG	0	%0		0	0	20	U 77			N 92	370 11	17075	
	9										)	)	)	

is/SENECA/PID Area/Report/Draft Final/Risk Assessment/data/S121C-Subsurface soil.xls/drmo\_subsoil B&S

Table C-4
SUBSURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

					<b>T</b> 00	seneca Ar	Seneca Army Depot Activity	vity					
Facility	i <u>δ</u> .						SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-12
Location	ŀ Ð						SB121C-1	SB121C-2	SB121C-3	SB121C-4	SBDRMO-10	SBDRMO-11	SBDRMO
Sample ID	₽₽						50IL EB232	EB228	EB234	EB230	DRMO-1057	DRMO-1060	DRMO-1
Sample Depth to Top of Sample	d ie						2.5	) , 2	2.5	2.5	n 2	. 2	
Sample Date	in in						3/9/1998	3/9/1998	3/9/1998	3/9/1998	10/25/2002	10/26/2002	10/25/2
QC Code Study ID	⊟େନ	Frequency		Number	Number	Number	SA EBS	SA EBS	SA EBS	SA EBS	PID-RI	PID-RI	PID
	Maximum	of '	Criteria	of	of Times	ଦ							
Units	l	Detection	Value 1	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	<b>\</b>
		%	1000	0	0	3 2	77 U	75 U	77	76 U	370 U	370 U	
iol UG/KG		0%	800	0 0	0 0	20	77 U	75 U	77 U	76 U	370 U	370 U	
nthalene UG/K		20%	36400	0	4	20	77 U	7 J	8.3 J	76 U	370 U	370 U	2
		0%	100	0	0	20	77 U	75 U	77 U	76 U	370 U	370 U	
UG/K		%	430	0	0	20	190 U	U 081	190 U	180 U	920 U	920 U	_
		8 %	330	o c	o c	20	` 0	\ \ \	// 0	/6 □	370 U	370 0	
benzidine UG/KG		0%		00	0 0	20	77 U	75 U	77 U	76 U	370 U	370 U	
		0%	500	0	0	20	U 061	180 U	190 U	180 U	920 U	920 U	
		%		0	0	20	190 U	180 U	190 U	180 U	920 UJ	920 U	
nethylphenol IIG/K		%	240	<b>.</b>	o c	3 6	77 11	75 []	77 11	76 []	370 U	370 U	
		0%	220	0	0	20	77 U	75 U	77 U	76 U	370 U	370 U	
yl phenyl ether UG/K		0%		0	0	20	77 U	75 U	77 U	76 U	370 U	370 U	
nol UG/K		8 %	900	0	0	4 6	190 II	75 U	180 II	76 U	11 000	11 000	_
UG/K		0%	8	0 (	0 0	20	190 U	180 U	1900	180 U	920 U	920 U	
c UG/K		15%	50000	0	LJ	20	77 U	20 Ј	13 J	76 U	370 U	370 U	
ine UG/K		10%	41000	, 0	2	20	77 U	75 U	77 U	76 U	370 U	370 U	
racene UG/KG	G 5200	35%	224	<b>,</b>	7 5	20	4.6 J	41 J 140	68 J	4.6 J	370 U	370 U	
		32%	61	LJ	6	19	6.3 J	100	58 J	6 J	370 U	370 U	
ក		42%	1100	-	00	19	6.6 J	110	74 J	5.8 J	370 U	370 U	
rylene UG/KG		37%	50000	0	7 م	19	12 J	1 50	54 J	6.2 J	370 U	370 U	
ethoxy)methane UG/K		%	100	0 (	0 0	20	77 U	75 U	77 U	76 U	370 U	370 U	
		%		0	0	20	77 U	75 U		76 U	370 U	370 U	
4		0%		0	0	20	77 U	75 U	77 U	76 U	370 U	370 U	
nalate		40%	50000	0	<b>ა</b> ∞	20 20	77 II	21 )	77 II	14 J	3/0 U	370 U	
UG/KG		15%	000	0 (	LJ F	20	77 U	56 J		76 U	370 U	370 U	
		35%	400	2	7	20	5.5 J	160	82	7.8 J	370 U	370 U	
thalate UG/K		15%	90005	ာင	ام در	20	\$ \ \ \	17 [	5.3 J 77 U	1 6 £	370 U	370 U	
me ·		16%	14	2	L	19	9.7 J	33 J	26 J	76 U	370 U	370 U	
		15%	6200	0	ı Lu	20	77 U	13 J		76 U	370 U	370 U	
nalate UG/K		0%	2000	<b>.</b> .	5 U	20	77 II	75 I I	77 11	76 11	370 U	370 U	
UG/KG		40%	50000	0 0	DO (	20	4.8 J	390	160	9.6 J	370 U	370 U	
		20%	50000	0	4	20	77 U	22 J	12 J	76 U	370 U	370 U	
		0%	410	. 0		3 20	77 U	75 U	77 17	76 U	370 U	370 U	
yclopentadiene UG/KG		0%		0 0	00	20	77 U	75 U	77 U	76 U	370 UJ	370 UJ	
		0%		0	0	20	77 U	75 U	77 U	76 U	370 U	370 U	
rene		30%	3200	0	0 0	20	8.6 J	58 J	48 J	5.9 J	370 U	370 U	
henvlamine UG/KG		0%	4400	00	0 0	20	77 U	75 U	77 U	76 U	370 U	370 U	
ropylamine UG/KG		0%		0	0	20	77 U	75 U	77 U	76 U	370 U	370 U	

SENECAPID Area/Report/Draft Final/Risk Assessment/data/S121C-Subsurface soil.x/s/drmo\_subsoil B&S

Table C-4
SUBSURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity
SEAD-121C
SEAD-121C
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SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD-121C   SEAD							<i>y</i> )	seneca Arı	Seneca Army Depot Activity	ivity					
National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing   National Processing		Facility Location ID							SEAD-121C SB121C-1	SEAD-121C SB121C-2	SEAD-121C SB121C-3	SEAD-121C SB121C-4	SEAD-121C SBDRMO-10	SEAD-121C SBDRMO-11	SEAD.
The control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the		Matrix							SOL	SOL	SOL	SOL	SOL	SOL	
Profession of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the c		Sample ID							EB232	EB228	EB234	EB230	DRMO-1057	DRMO-1060	DRMO
The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The column   The	Sample Depth to	Top of Sample							2.5	2 5	2.5	2.5	7	2 4	
Second Column	Sample Deprii to Bot	Sample Date							3/9/1998	3/9/1998	3/9/1998	3/9/1998	10/25/2002	10/26/2002	10/25
Study   December   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   Property   P		QC Code							SA	SA	SA	SA	SA	SA	
Thirty National Color		Study D	Maximum	Frequency	Criteria	Number	Number of Times	Number	EBS	EBS	EBS	EBS	PID-RI	PID-RI	Д
UGING   1990   25%   11300   0   4   20   77 U   77 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U   75 U		Units	Value	Detection	Value 1	Exceedances	Detected	Analyses	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	
UGNG   0	je.	UG/KG	1900	20%	13000	0	4	20	U 77	12 J	6.9 J	76 U	370 U	370 U	
UGKG   100    004   1000	ne	UG/KG	0	%0	200	0	0	20	U 11	75 U	U 77	76 U	370 U	370 U	
UGKKG         100         64         770         200         110         55 J         370 U	ophenol	UG/KG	0	%0	1000	0	0	20	D 061	180 UJ	190 U	180 UJ	920 U	920 U	
UGKKG   10   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%   15%	ne	UG/KG	1000	40%	20000	0	00	20	U 77	280	110	5.9 J	370 U	370 U	
UCKKG   1700   47%   50000   0   8   20   47   200   130   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131   131		UG/KG	0	%0	30	0	0	20	U 77	75 U	U 77	76 U	370 U	370 U	
March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   Marc	PCBs	UG/KG	1700	40%	20000	0	00	20	4.7 J	290	130	8.1 J	370 U	370 U	
Market   17   15%   1100   10   13   10   10   10   10		UG/KG	0	%0	2900	0	0	91	3.8 U	3.8 U	3.8 U	3.8 ∪	1.9 R	1.9 UJ	
UNIXED         11         75         100         1         20         18         98         16         38         19         19         19         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10 <th< td=""><td></td><td>UG/KG</td><td>17</td><td>15%</td><td>2100</td><td>0</td><td>3</td><td>20</td><td>3.8 U</td><td>13</td><td>17</td><td>2.5 J</td><td>IU 6.1</td><td>IJ 6.1</td><td></td></th<>		UG/KG	17	15%	2100	0	3	20	3.8 U	13	17	2.5 J	IU 6.1	IJ 6.1	
OWERGE         11         5%         41         0         10         20         20         19         20         20         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19		UG/KG	16	15%	2100	0	3	20	3.8 U	8.6	16	3.8 U	LO 6.1	1.9 UI	
UGING		UG/KG	11	2%	41	0	1	20	2 U	1.9 U	2 U	2 U	I.9 UI	1.9 UJ	
UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIVERSED   UNIV	J	UG/KG	0 0	%	110	0 (	0 (	50	2 U	1.9 U	2 U	2 U	U 6.1	L9 Q.	
March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   Marc	ordane	54/50	<b>o</b> (	% 6	0	<b>&gt;</b> (	o (	20	20	0 6:1	2 0	2 0	1.9 0.1	U 6:1	
UGKG         13         584         400         1         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10		08/50	<b>&gt;</b> c	% %	700	0 0	0 0	16	7 0	0 6:1	7 0	7 O	0 6.1	U.9 U.1	
UGKG         0         0         1         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15 </td <td>,</td> <td>116/80</td> <td>&gt; _</td> <td>%%</td> <td>300</td> <td>&gt; &lt;</td> <td>&gt; -</td> <td>0 00</td> <td>11 (</td> <td>1 2 1</td> <td>11 6</td> <td>11 6</td> <td>10 11</td> <td>10 11</td> <td></td>	,	116/80	> _	%%	300	> <	> -	0 00	11 (	1 2 1	11 6	11 6	10 11	10 11	
UGKG         78         5%         900         0         1         20         15 U	,	UG/KG	<u>;</u> 0	%%	8 4	0	- 0	07	3.8 U	1.8 U	3.8 [	3.8 U	1.9 U	ID 61	
UGKG         0         0%         0         0         18 U	11	UG/KG	78	%	006	0		20	2 U	U 6'1	2 C	2 U	U 6.1	1.9 U	
UUKKG   0   0   0   0   0   0   0   0   0	п	UG/KG	0	%0	006	0	0	20	3.8 U	3.8 ∪	3.8 U	3.8 U	U 6.1	1.9 U	
UGKG         35         45         100         0         1         20         38 U         38 U         38 U         38 U         19 U           UGKG         97         5%         100         0         1         20         38 U         38 U         38 U         19 U           UGKG         97         5%         60         0         20         20         20         19 U         20         20         19 U         19 U </td <td>i sulfate</td> <td>UG/KG</td> <td>0</td> <td>%0</td> <td>1000</td> <td>0</td> <td>0</td> <td>20</td> <td>3.8 U</td> <td>3.8 U</td> <td>3.8 U</td> <td>3.8 U</td> <td>1.9 U</td> <td>1.9 U</td> <td></td>	i sulfate	UG/KG	0	%0	1000	0	0	20	3.8 U	3.8 U	3.8 U	3.8 U	1.9 U	1.9 U	
UGMCG   0   0%   0%   0   0   0   0   0   0		UG/KG	23	%5	8	0	-	20	3.8 U	3.8 U	3.8 U	3.8 U	IU 6.1	1.9 U	
Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Marke   Mark	chyde	UGKG	0 ;	%0		0 (	0	20	3.8 U	3.8 U	3.8 U	3.8 U	1.9 U	U 6.1	
UGKG         0         0         2         2         1         1         2         2         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1	HC/T indane	10/80	`. c	0.00	9	0 0	- c	20	0 10	0.00	5.0	0.00	11.90	0.6.1	
UGKG         0         0         0         0         2         1         19         2         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19	hlordane	UG/KG	0	%	540	0	0	20	2 C	D 6:1	D 7	2 0 0	U 6:1	D 6:1	
UGKG         11         5%         20         1         19         2 U         11 J         2 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         19 U         10 U         10 U         10 U <td></td> <td>UG/KG</td> <td>0</td> <td>%0</td> <td>100</td> <td>0</td> <td>0</td> <td>20</td> <td>2 U</td> <td>U 6.1</td> <td>2 U</td> <td>2 U</td> <td>U 6.1</td> <td>IJ 6.1</td> <td></td>		UG/KG	0	%0	100	0	0	20	2 U	U 6.1	2 U	2 U	U 6.1	IJ 6.1	
UGKG         0         0%         0         20         20         191         200         200         190           UGKG         0         0%         0         20         200         190         200         190         190           UGKG         0         0%         0         0         20         20         200         190         200         190           UGKG         0         0%         0         0         20         20         38 U         38 U         38 U         19 U           UGKG         0         0%         0         0         20         38 U         38 U         38 U         19 U           UGKG         0         0%         0         0         20         38 U         38 U         38 U         19 U           UGKG         0         0%         0         20         38 U         38 U         38 U         19 U           UGKG         10000         0         20         38 U         38 U         38 U         19 U           MGKG         115         20%         39 U         40         20         31 U         30 U           MGKG         115         20% <td>epoxide</td> <td>UG/KG</td> <td>=</td> <td>2%</td> <td>20</td> <td>0</td> <td></td> <td>61</td> <td>2 U</td> <td>1.1.3</td> <td>2 U</td> <td>2 U</td> <td>U 6.1</td> <td>U 6.1</td> <td></td>	epoxide	UG/KG	=	2%	20	0		61	2 U	1.1.3	2 U	2 U	U 6.1	U 6.1	
UGKG         0         0         20         38 U         190 U         200 U         190 U           UGKG         0         0         20         20         38 U         38 U         38 U         19 U           UGKG         0         0         20         20         18 U         76 U         77 U         19 U           UGKG         0         0%         0         20         38 U         38 U         38 U         19 U           UGKG         0         0%         0         0         20         38 U         38 U         38 U         19 U           UGKG         0         0%         0         0         20         38 U         38 U         38 U         19 U           UGKG         10         0         20         38 U         38 U         38 U         19 U           UGKG         10         0         20         20         38 U         38 U         19 U           UGKG         100         0         20         38 U         38 U         38 U         19 U           MGKG         115         20         38 U         38 U         38 U         19 U           MGKG         115 </td <td>lor</td> <td>UG/KG</td> <td>0</td> <td>%0</td> <td></td> <td>0</td> <td>0</td> <td>20</td> <td>20 U</td> <td>D 61</td> <td>20 U</td> <td>20 U</td> <td>I.9 UI</td> <td>U 6.1</td> <td></td>	lor	UG/KG	0	%0		0	0	20	20 U	D 61	20 U	20 U	I.9 UI	U 6.1	
UGKG         0         0         20         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78         78<	71	06/KG	0 0	%0		0 0	0 0	50	200 U	190 U	200 U	200 U	D 61	U 61	
UG/KG         0         0         20         38 U         38 U         38 U         38 U         19 U           UG/KG         0         0         20         38 U         38 U         38 U         38 U         38 U         19 U           UG/KG         0         0         20         38 U         38 U         38 U         38 U         19 U           UG/KG         0         0%         0         20         38 U         38 U         38 U         38 U         19 U           UG/KG         0         0%         0         20         20         38 U         38 U         38 U         19 U           UG/KG         1500         1500         0         20         20         38 U         38 U         38 U         19 U           MG/KG         115         20%         38 U         38 U         38 U         19 U         19 U           MG/KG         115         20%         30         1         4         20         44         8.1         46         44         8.1         46         46         47         8.1         46         46         47         64         57         58         57         58	21	110/80	0 0	%		> 0	> 0	20	38 0	38 0	38 C	38 U	19 01	0 61	
UGKG         0         0         20         38 U         38 U <td>132</td> <td>116/86</td> <td>o c</td> <td>%0</td> <td></td> <td>&gt; 0</td> <td>0 0</td> <td>200</td> <td>38 0</td> <td>70 0</td> <td>1 0 0/</td> <td>7 00</td> <td>D &amp;I</td> <td>0.61</td> <td></td>	132	116/86	o c	%0		> 0	0 0	200	38 0	70 0	1 0 0/	7 00	D &I	0.61	
UG/KG         0         0%         0         20         38 U         39 U         30 U         30 U         30 U         4         20 U         14 U         11.4 U         11.5 U         4         20 U         4         4         4         8.1 U         4         20 U         4         4         4         20 U         4         4         4         4         4         4	142	UG/KG	0	%0		· 0	0	20	38 U	38 □	38 U	38 U	IU 61	Π 61	
UGKG         0         0%         10000         0         20         38 U         38 U         38 U         38 U         38 U         19 U           MGKG         1750         1950         0         2         2         1340         1620         8880         15700         19 U           MGKG         11.5         20%         5.9         1         4         2         1.4         1.15         0.88 I         15700         1500         10 U           MGKG         11.5         20%         5.9         1         4         2         1.44         8.1         4.6         6.4         5.7         1.9 U           MGKG         11.5         100%         3.0         1         2         2         1.44         8.1         0.88 U         1500         19 U           MGKG         11.0         100%         2         2         2         1.15 J         0.88 J         6.69 UJ         9.9 U         5.7           MGKG         11.0         100%         2.0         2         2         0.43         0.23         0.65 U         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03 <td>48</td> <td>UG/KG</td> <td>0</td> <td>%0</td> <td></td> <td>0</td> <td>0</td> <td>20</td> <td>38 U</td> <td>38 U</td> <td>38 U</td> <td>38 U</td> <td>U 61</td> <td>19 U</td> <td></td>	48	UG/KG	0	%0		0	0	20	38 U	38 U	38 U	38 U	U 61	19 U	
uGKG         200         15%         10000         3         20         38 U         200         21 J         38 U         19 UJ           MGKG         1760         100%         1900         0         20         20         13400         16200         8880         15700         15000         10J           MGKG         11.5         20%         5.9         1         4         20         14.4         11.5         0.98 J         0.69 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99 UJ         0.99	54	UG/KG	0	%0	10000	0	0	20	38 U	38 U	38 U	38 U	D 61	U 61	
MGKG 17600 100% 5.9 1 4 20 144 11.5 1 0.88 15 15700 15000 15000 15000 15000 MGKG 11.5 20% 5.9 1 4 20 144 11.5 1 0.88 1 0.69 UJ 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0.99 U 0	09	UG/KG	200	15%	10000	0	m	20	38 U	200	21 J	38 U	IU 61	19 U	
MGKG         11.5         20%         5.9         1         4         20         1.4         11.5         0.98         J         0.69         UJ         0.99         U           MGKG         18.1         100%         8.2         0         20         20         4.4         8.1         4.6         6.4         5.7         5.7           MGKG         1050         100%         300         1         20         20         0.7         0.43         0.52         0.63         0.87         0.87         0.87         0.03         0.87         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.0	d Cyanide	MG/KG	17600	100%	19300	o	20	20	13400	16200	0888	15700	15000	0101	
MGKG         8.1         100%         8.2         0         20         4,4         8.1         4,6         6,4         5.7         5.7           MGKG         1050         100%         300         1         20         20         642         1050         46.3         72.4         58.6         5.7           MGKG         1         100%         1.1         0         20         20         0.7         0.43         0.03         0.03         0.85         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03		MG/KG		20%	5.9		4	202	1.4 J	11.5 J	0.98 J	U 69:0	U 66.0	1 C	
MGKG         1050         100%         300         1         20         20         64.2         1050         46.3         72.4         58.6 J           MGKG         1         100%         1.1         0         20         20         0.7         0.43         0.52         0.63         0.87           MGKG         8.1         100%         1.1         0         20         20         0.7         8.1         0.07         0.05         0.13         0.13         0.13         0.13         0.13         0.13         0.13         0.1         0.1         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07         0.07		MG/KG		100%	8.2	0	20	20	4.4	8.1	4.6	6.4	5.7	4.6	
MGKG 81 100% 1.1 0 20 0.72 0.43 0.32 0.63 0.87  MGKG 81 10% 2.3 1 2 2 20 0.07U 8.1 0.07U 0.06U 0.13U 4  MGKG 97200 100% 121000 0 20 2280 31600 97200 13000 23000 J 4  MGKG 19.7 100% 29.6 3 20 20 21 37 13.1 30 25.6  MGKG 19.7 100% 33 6 20 20 18.7 2401 20.6 J 39.1 J 26.4 J  MGKG 0 0% 0.35 0 0 4 0.65 U 0.63 U 0.58 U 0.63 U 0.55 U  MGKG 0 0% 0.35 0 0 16 0.65 U 0.63 U 0.58 U 0.65 U 0.55 U		MG/KG	1050	100%	300		20	20	64.2	1050	46.3	72.4	58.6 J	55.2 J	
MG/KG 97.00 10% 2.3 1 2 20 0.07 U 8.1 0.07 U 0.06 U 0.13 U MG/KG 9720 100% 121000 0 20 20 2280 31600 97200 13000 23000 J 4 MG/KG 37 100% 296 3 20 20 21 31 3160 97200 13000 23000 J 4 MG/KG 19.7 100% 39 0 20 20 20 9.4 16 7.7 19.7 15.8 MG/KG 0 0% 0.35 6 20 20 18.7 J 2440 J 20.6 J 39.1 J 26.4 J MG/KG 0 0% 0.35 0 0 4 0.65 U 0.63 U 0.58 U 0.63 U 0.56 U 0.56 U		MG/KG		100%	1.1	0	20	20	0.72	0.43	0.32	0.63	0.87	0.63	
MGKG 37 100% 296 3 20 20 21 3100 97200 13000 23000 J 4.  MGKG 19.7 100% 30 0 20 20 9,4 16 7.7 19.7 15.8  MGKG 19.7 100% 33 6 20 20 18.7 J 2440 J 20.6 J 39.1 J 26.4 J  MGKG 0 0% 035 0 0 4 0.65 U 0.63 U 0.58 U 0.63 U 0.56 U  MGKG 0 0% 036 0 16 0.65 U 0.63 U 0.58 U 0.65 U 0.56 U		MG/KG		%01	2.3	- 0	2 %	50	0.07 U	0.00	0.07 U	0.06 U	0.13 U	0.13 U	
MGKG 197 100% 27,0 5 20 20 21 57 13.1 35 25 25.8 MGKG 197 100% 33 6 20 20 18.7 1 2440 J 20.6 J 39.1 J 26.4 J MGKG 0 0% 0.35 0 0 4 0.65 U 0.63 U 0.58 U 0.63 U 0.55 U 0.65 U 0.55 U 0.55 U 0.55 U 0.55 U		00000		100%	2002	) r	20	0, 6	0877	31000	007/6	13000	7 2000 7	43800 J	
MG/KG 2440 100% 33 6 20 20 18.71 2440 J 20.61 39.11 26.4 J MG/KG 0 0% 0.35 0 0 4 0.65 U 0.63 U 0.58 U 0.63 U 0.56 U 0.56 U		MG/KG		%001 100%	30	n 0	20 20	20 02	9.4	16	7.7	19.7	15.8	111	
MGKG 0 0% 0.35 0 0 4 0.65 U 0.63 U 0.58 U 0.63 U 0.56 U 0.56 U 0.56 U		MG/KG		100%	33	9	70	20	18.7 J	2440 J	20.6 J	39.1 J	26.4 J	35.7 J	
U 0C/D	- I down	MG/KG		%0	0.35	0 (	0 0	4 ;	0.65 U	0.63 U	0.58 U	0.63 U			
	\menaoic	54/5E	0	0%0		o	ο.	91					0.56 U	0.56 U	

ts\SENECA\PID Area\Report\Draft Final\Risk Assessment\data\S121C-Subsurface soil.xIs\drmo\_subsoil B&S

Table C-4
SUBSURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

							Seneca A	Seneca Army Depot Activity	tivity	1				
	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	D-121C	SEAD-12
۲	ocation ID							SB121C-1	SB121C-2	SB121C-3	SB121C-4	SBDRMO-10	MO-11	SBDRMO-
	Marrix							SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SC
S	Sample ID							EB232	EB228	EB234	EB230	DRMO-1057	10-1060	DRMO-10
Sample Depth to Top of Sample	of Sample							2.5	2	2.5	2.5	2	2	
mple Depth to Bottom of Sample	of Sample							w	2.5	tus.	(Ja	0	0.	
San	nple Date							3/9/1998	3/9/1998	3/9/1998	3/9/1998	10/25/2002	10/26/2002	10/25/20
	QC Code							SA	SA		SA	SA	SA	
	Study ID		Frequency		Number	Number	Number	EBS	EBS	EBS	EBS	PID-RI	PID-RI	PH-
		Maximum	of	Criteria	of	of Times	of						٠	
	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	) Value (Q)	Val
1	MG/KG	0	0%		0	0	16					0.565 U	0.56 U	0.6
	MG/KG	54100	100%	36500	1	20	20	23800	54100	16500	35600	30700	21100	344
	MG/KG	1780	100%	24.8	7	20	20	14.1 J	1780		26 J	8.4	14.4	11
	MG/KG	24900	100%	21500	_	20	20	4040	6480		7500	6700	11700	58
	MG/KG	790	100%	1060	0	20	20	299	752		394	550	378	s
	MG/KG	0.07	95%	0.1	0	18	19	0.05	0.07		0.06	0.02	0.03	0.
-	MG/KG	69.7	100%	49	w	20	20	35.8	56.6	22.3	69.7	44.5 J	32.1 J	4
	MG/KG	1870	100%	2380	0	20	20	1670	1220		1870	1360 J	951 J	12
	MG/KG	0	0%	2	0	0	20	1.1 U	0.97 U		0.92 U	0.46 U	0.47 U	0.
	MG/KG	0.72	10%	0.75	0	2	20	0.48 U	0.43 U		0.41 U	0.3 U	0.3 U	0
	MG/KG	214	70%	172	2	14	20	138 U	214		119 U	166	203	1
	MG/KG	1.80	10%	0.7	2	2	20	1.4 UJ	1.3 UI	1.5 UJ	1.2 UJ	0.34 U	0.35 U	0
	MG/KG	27	100%	150	0	20	20	21.8	19.3		21.7	23	15.8	2
	MG/KG	691	100%	110	7	20	20	70.5	691		158 85.1	85.1	66.7	
Carbon	MG/KG	9500	100%		0	16	16					4600		40
ım Hydrocarbons	MG/KG	3700	25%		0	4	16					45 UJ	45 UJ	

ı value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, muary 24, 1994.

d was not detected ed value is an estimated concentration pound was not detected; the associated reporting limit is approximate pound was not detected; the associated reporting limit is approximate was rejected in the data validating process and was "tentatively identified" and the associated numerical value is approximate and was "tentatively identified" and the associated numerical value is approximate.

Table C-4
SUBSURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

									•					
	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SFAL
	Location ID							SBDRMO-13	SBDRMO-14	SBDRMO-16	SBDRMO-17	SBDRMO-18	SRDRMO-20	SADRI
	Matrix							SOIL	SOIL	SOIL	SOT	SOT	NOS	
	Sample ID							DRMO-1066	DRMO-1069	DRMO-1075	DRMO-1078	DRMO-1082	DRMO-1088	DRMC
Sample Depth to Top of Sample	p of Sample							2	2	2	6	2001	2	
Sample Depth to Bottom of Sample	n of Sample							ı vo	1 10	1 40	1 1/2	a vo	1 4	
S	Sample Date							10/26/2002	10/25/2002	10/27/2002	10/28/2002	10/27/2002	10/26/2002	100
	QC Code							SA	SA	SA	SA	A S	A.S.	5
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-R1	
		Maximum	Jo	Criteria	Jo	of Times	Jo			!	?	1	2	
	Units	Units Value	Detection	Value 1	Exceedances	Detected	Analyses	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Volue (O)	
rganic Compounds										(3)	A 22m	A man	(A) anin	
nloroethane	UG/KG	0	%0	800	0	0	20	3.1 U	3 U	3 []	2.7 UI	11 2 2	2 8 111	
trachloroethane	UG/KG	0	%0	009	0	0	20	3.1 U	3 U	3.0	2.7 111	27.11	28.11	
nloroethane	UG/KG	0	%0		0	0	20	3.1 U	3.0	11.6	27 111	17.0	2 2 2 2	
roethane	UG/KG	0	%0	200		0	20	3.1 11	100	100	27.11	11.70	0 2 6	
roethene	UG/KG	0	%0	400	0	0	20	3.1 U	3 0	11 6	2.7 [1]	27.1	2 8 6	
												)	0	

		=	0	Criteria	10	of Times	Jo						
	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
rganic Compounds													
loroethane	UG/KG	0	%	800	0	0	20	3.1 U	3 U	3 U			2.8 UJ
trachloroethane	UG/KG	0	%0	009	0	0	20	3.1 U	3 U	3 U			2.8 UJ
loroethane	UG/KG	0	%0		0	0	20	3.1 U	3 U	3 U			2.8 U
roethane	UG/KG	0	%0	200	0	0	20	3.1 U	3 U	3 U			2 8 11
roethene	UG/KG	0	%0	400	0	0	20	3.1 ∪	3 U	3 17	2.7 UI	27.11	2 8 0
roethane	UG/KG	0	%0	100	0	0	20	3.1 U	3 171	3 11			111 8 6
roethene (total)	UG/KG	0	%0		0	0	4			0		ì	2.0 0.7
ropropane	UG/KG	0	%0		0	C	. 02	11 11	3 11	1 11		11 11	0
	UG/KG	28	45%	200		0	2 6			200		2.7	0.7 0.0 0.0 0.0 0.0
	110/4/6	1800	1007	207	> -	h (	07	600	50.00	G ;		1/1	3.7.1
- contraction	0 2001	2001	10%	00	- •	7	07	3.1 0	3 0	3 0		2.7 U	2.8 U
IIOI OILICIUANE	54/50	0	%0		0	0	20	3.1 U	3 U	3 U		2.7 U	2.8 UJ
-	UG/KG	0	%0		0	0	20	3.1 UJ	3 U	3 UJ		2.7 UJ	2.8 U
nltide	UG/KG	0	%0	2700	0	0	20	3.1 U	3 U	3 U		2.7 U	2.8 U
rachloride	UG/KG	0	%0	009	0	0	20	3.1 U	3 UI	3 U		2.7 U	2.8 111
zene	UG/KG	0	%	1700	0	0	20	3.1 U	3.11	3.11		2.7.11	78 11
omomethane	UG/KG	0	%0		0	C	20	3.1.1.1	1	2 0		7 7	2 0 0 0
25	UG/KG	0	%0	1900	0	o	2 0	3 1 2	) F	0 =		2 10	0 0
c	UG/KG	4	10%	300		, (	2 6			2 2		) i	0.2.0
chloroethene	110/80	- <	760		0 0	4 (	07	0;	); n	) ; n		2.7 U	2.8 U
chloropropen	02/01	0 0	200		0 0	> <	0 1	3.10	٠ <u>٠</u>	3 0		2.7 U	2.8 U
all of objects	0200	000	%0		0	0	20	3.1 0	3 €	3 U		2.7 U	2.8 U
CITE	00000	24000	%	2200		_	20	3.1 €	3 C	3 U		2.7 U	2.8 U
Aylene	06/RG	130000	%9		o		91	3.1 ∪	3 U	3 U		2.7 U	2.8 U
emide.	UG/KG	Q	%0		0	0	20	3.1 U	3 UJ	3 U		2.7 U	2.8 UJ
yl ketone	UG/KG	0	%0		0	0	20	3.1 U	3 UJ	3 U		2.7 U	2.8 UJ
oride	UG/KG	0	%0		0	0	20	3.1 UJ	3 UJ	3 UJ		2.7 111	28 111
yl ketone	UG/KG	7.6	10%	300	0	2	20	3.1 U	7.6 J	3 U	2.7 UI	27.11	28.11
butyl ketone	UG/KG	0	%0	1000	0	0	20	3.1 U	3 U	3.13		2711	28 111
chloride	UG/KG	3.5	10%	001	0	2	20	3.1 ∪	3 C	3 O		2.7.11	2 8 6
ine	UG/KG	75	%9		0	-	16	3.1 U	3 U	3.11		27.11	) i c
	UG/KG	2.7	2%		0	_	20	3.1.111	7	3 111		2.5	0 0
Sethene	UG/KG	0	%0	1400	0	0	20	3.1.1.1	100	3 = 6		3 1 6	0.00
	UG/KG	84	20%	1500	. 0	. 4	2 6	1.5	2 -	6 :		2 5 6	2.8
nes	UG/KG	0	%	1200	0	. 0	4	5	0	) n		7.7	7.8 0
Dichloroethene	UG/KG	0	%0	300	C		. 4	3 1 11	11.	11,			
Dichloropropene	UG/KG	0	%		0	c	2. 5.	2.5	) F	0 5		0 7 7 6	2.8 0
hene	UG/KG	0	%0	700	C		20	3.10	100	0 5		0 ; c	2.8 0
ide	UG/KG	0	%0	200	, ,	o c	04 6	2.5	2 5	0 :	2.7 03	2.7 U	2.8 U
ile Organic Compounds					,	,	2	;	o n	0		7.7	7.8 0
lorobenzene	UG/KG	0	%0	3400	0	c	30	400 11	410.11	140 11	11 026	11 036	
горендене	UG/KG	0	%0	7900		· c	2 6	1007		300 0	370 0	0.000	0 00 0
robenzene	UG/KG	C	%0	1600	• <		2 6	200		2000	0.00	0 000	400 0
robenzene	11G/KG	) C	%0	8500	> <		07 6	0 200	0.014	360 0	370 U	350 U	400 U
loron benel	02001		200	000	> <	> (	07	0.004	410 0	360 U	370 U	350 U	400 U
Jordan Handl	08001	0 0	820	3	<b>&gt;</b> (	0 :	70	1000 C	1000 U	O 006	930 U	N 088	1000 I
ionophienoi	00/20	<b>o</b> (	%		0	0	20	400 U	410 U	360 U	370 U	350 U	400 U
rophenol	UG/KG	0	%	400	0	0	20	400 U	410 U	360 U	370 U	350 U	400 U
ylphenol	UG/KG	0	%		0	0	20	400 U	410 U	360 U	370 U	350 U	400 U
phenol	UG/KG	0	%0	200	0	0	19	1000 U	1000 R	D 006	930 UJ	880 11	10001
toluene	UG/KG	0	%0		0	0	20	400 U	410 U	360 U	370 U	350 11	400 11
						,	-	!	)	>	>	2	200

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							Seneca A	Seneca Army Depot Ac	Activity					
	Facility Location ID							SEAD-121C	SEAD-121C SBDRMO-14	SEAD-121C	SEAD-121C SBDRMO-17	SEAD-121C SBDRMO-18	SEAD-121C SBDRMO-20	SEAD-12 SBDRMO
	Matrix							SOIL	SOIL	TIOS	SOIL	SOIL	SOIL	SC
Sample Depth to Top of Sample	Sample ID on of Sample							DRMO-1066 2	DRMO-1069 2	DRMO-1075 2	DRMO-1078 2	DRMO-1082 2	DRMO-1088 2	DRMO-11
mple Depth to Bottom of Sample	om of Sample							6	6	. 6	6	6	6	100700
	QC Code		ı			!	:	SA	SA	SA	SA	SA.	SA	
	Study ID	Maximum	Frequency of	Criteria	Number	Number of Times	Number of	PU-Z	PU-N	5	75-2	PU-KI	75-75	Ę
	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	٧a
hairne	TIG/KG	0	8 %	1000	0	0	3 20	4 6 6 C	410 U	360 U	370 U	350 U	400 U	
01	UG/KG	0 (	%	800	0 (	0 (	20	400 U	410 U	360 U	370 U	350 U	400 U	143_1
halene	UG/KG	2500	20%	36400	0	4	20	400 U	410 U	360 U	370 U	350 U	400 U	
01	UG/KG	0	%	100	0	. 0	20	400 U	410 U	360 U	370 U	350 U	400 U	
	TIO/KG	> c	8 %	330	o c	o c	2 6	11 000 U	410 00	360 []	370 U	350 []	1000	
henol	TIG/KG	> 0	0%	500	<b>&gt;</b> C	0 0	. C	400	410 0	11 091	370 U	350 U	400	
enzidine	UG/KG	0 (	0%		0 (	0 (	20	400 U	410 U	360 U	370 U	350 U	400 U	-
	UG/KG	0	0%	500	0	0	20	1000 U	U 0001	900 U	930 U	880 U	1000 U	10
methylphenol	UG/KG	0	8 %		0	0	3 23	1000 U	1000 UJ	900 U	930 U	350 U	1000 UJ	
ethylphenol	UG/KG	0 0	0%	240	0 0	0 0	20	400 U	410 U	360 U	370 U	350 U	400 U	
G	UG/KG	0	0%	220	0	0	20	400 U	410 U	360 U	370 U	350 U	400 U	
/l phenyl ether	UG/KG	. 0	%	8	0	0	20	400 U	410 U	360 U	370 U	350 U	400 U	•
01	UG/KG	<b>&gt;</b> C	0%	900	<b>&gt;</b> C	<b>5</b> C	4 6	1000 11	11 0001	11 006	930 []	11 088	10001	
	UG/KG	0	0%	<u>1</u> 8	0	0	20	1000 U	1000 UJ	J 006	930 U	U 088	1000 U	10
	UG/KG	50	15%	50000	0	w	20	400 U	410 U	360 U	370 U	350 U	400 U	
ř	UG/KG	220	10%	41000	0	2 12	20	400	410 0	220 J	370 U	350 U	400 U	
acene	UG/KG	5200	35%	224	ν¢	7	20	400 U	410 U	940	370 U	350 U	400 U	
TG.	UG/KG	920	32%	61	w	6	19	400 U	410 U	920 J	370 UJ	350 U	400 U	
anthene	UG/KG	1300	42%	1100		· 00	19	400 U	54 J	1300 J	370 UJ	350 U	400 ∪	
ylene	TIG/KG	490	37%	50000	00	ν -/	19	400 U	410 IT	210 J	370 UJ	350 UJ	400 1.	
thoxy)methane	UG/KG	0	0%		0 (	0 (	20	400 U	410 U	360 U	370 U	350 U	400 U	
thyl)ether	UG/KG	0	0%		0	0	20	400 U	410 U	360 UJ	370 U	350 UJ	400 U	
opropyl)ether	UG/KG	30	0%	5000	0	. 0	20	400 U	410 U	360 U	370 U	350 U	400 U	
thalate	UG/KG	39	10%	50000	o c	v) o	20	400 U	410 0	360 []	370 U	350 ()	400 U	
	UG/KG	56	15%		0	w	20	400 U	410 U	45 J	370 U	350 U	400 U	
	UG/KG	4900	35%	400	2	7	20	400 U	410 U	880	370 U	350 U	400 U	
naiate	UG/KG	17	10%	5000	<b>&gt;</b> C	K	20	400 U	410 U	360 U	370 U	350 U	400 1. C	
thracene	UG/KG	33	16%	14	2	LJ I	19	400 U	410 UJ	360 UJ	370 UJ	350 UJ	400 U	
	UG/KG	45	15%	6200	0	ıω	. 20	400 U	410 U	45 J	370 U	350 U	400 U	
alate	10/60	o 2	0%	3000	<b>o</b> c	<b>&gt;</b> 4	3 6	400	410 0	360 U	370 U	350 U	400 0	
	UG/KG	1600	40%	50000	0 (	00 (	20	400 U	110 J	1600	370 U	350 U	400 U	
	UG/KG	160	20%	50000	0	4.	20	400 U	410 U	160 J	370 U	350 U	400 U	
nzene	UG/KG	• •	0%	410	0	00	20 20	400 U	410 U	360 U	370 U	350 U	400 U	
clopentadiene	UG/KG	0 0	%		0 0	0 0	20	400 U	410 UJ	360 U	370 UJ	350 U	400 U	
ane	UG/KG	0	0%		0	0	20	400 U	410 U	360 U	370 U	350 U	400 U	
cd)pyrene	UG/KG	150	30%	3200	0	6	20	400 U	410 UJ	150 J	370 U	350 UJ	400 U	
	UG/KG	0	2%	4400	. 0	. 0	20	400 U	410 ℃	360 U	370 U	350 U	400 U	
opylamine	UG/KG	00	0 %		00	00	20 20	400	410 11	360 U	370 U	350 U	400 U	
of James and	0		č		ć	ď	ţ	3	1.0	0	i d			

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SUBSURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity
SEAD-121C SEAD-121C
SEAD-121C SEAD-121C

						<i>n</i> 2	seneca Ar	Seneca Army Depot Activity	civity					
	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD.
	Matrix							SOL	SOIL	SOL	SOL	TOS	NOS	
	Sample ID							DRMO-1066	DRMO-1069	DRMO-1075	DRMO-1078	DRMO-1082	DRMO-1088	DRMO
Sample Depth to Top of Sample	op of Sample							2 4	7 7	2	2	2 4	7	
Sample Deput to Bottom of Sample Date	Sample Date							10/26/2002	10/25/2002	10/27/2002	10/28/2002	10/27/2002	10/26/2002	10/27
	QC Code							SA	SA	SA	SA	SA	SA	
	Study ID	Maximim	Frequency	2	Number	Number	Number	PID-RI	P.D-RI	PID-RI	PID-RI	PID-RI	PID-RI	Д
	Units	Value	Detection	Value	Exceedances	Detected	Analyses	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	
	UG/KG	1900	20%	13000	0	4	20	400 U	410 U	360 U	370 U	350 U	400 U	
20	UG/KG	0	%0	200	0	0	20	400 U	410 U	360 U	370 U	350 U	400 U	
phenol	UG/KG	0	%0	1000	0	0	20	1000 U	1000 U	D 006	930 U	N 880 N	1000 U	
ne	UG/KG	1000	40%	20000	0	00	50	400 U	66 J	1000	370 U	350 U	7 400 T	
	UG/KG	0	%0	30	0	0	20	400 C	410 U	360 U	370 U	350 U	400 U	
PCBs	UG/KG	1700	%04	20000	0	00	50	400 U	120 J	1700	370 U	350 U	400 U	
	UG/KG	0	%0	2900	0	0	16	2 UJ	2.1 R	U 6.1	0.22 U	1.8 UJ	2.1 UJ	
	UG/KG	17	15%	2100	0	3	20	2 UJ	2.1 UJ	L9 UJ	0.22 UJ	1.8 UI		
	UG/KG	16	15%	2100	0	.3	20	2 UJ	2.1 UJ	14 J	0.22 UJ	1.8 UJ	2.1 UJ	
	UG/KG	=	2%	4	0		50	2 UJ	2.1 U	11 J	0.11 U	1.8 UI	2.1 UJ	
	UG/KG	0 0	% ?	110	0 (	0 (	5 50	2 UJ	2.1 U	IJ 6.1	1.3 U	D.8.1	2.1 UJ	
rdane	0.6/KG	<b>o</b> (	% &	000	0 0	0	20 50	5 0	2.1 U	10 6.1	0.34 U	S:1	2.1 0	
	110,80	0	%0	700	0 0	0 0	07	2 00	2.1 0	1.9 0.1	0.11.0	1.8 0		
	TIG/KG	2	%	300	o c	o –	20 20	0 07	2111	11 6 1	0 22 111	18 11		
	UG/KG	0	%	\$ 4	0	• 0	61	2 UJ	2.1 UI	65 R	0.11 UJ		2.1 UJ	
	UG/KG	78	2%	006	0	-	50	2 C	2.1 U	78	0.56 U		2.1 U	
п	UG/KG	0	%0	006	0	0	20	2 U	2.1 U	U 6.1	0.34 U		2.1 U	
sulfate	UG/KG	0	%0	1000	0	0	20	2 U	2.1 U	U 6.1	U 29.0		2.1 U	
	UG/KG	23	2%	100	0	-	20	2 UJ	2.1 UJ	23 J	U 6.0		2.1	
nyde	05/KG	0 0	%6		0 0	0 -	50	200	2.1 U	1.9 U	U) 6.0		2.1	
4C/Lindane	UG/KG	0	%%	09	o 0	- C	2 6	2 111 2	2.1.0	11911	0.11.0		2.1	
Nordane	UG/KG	0	%0	540	0	0	20	2 UJ	2.1 U	I) 6.1	0.34 U			
	UG/KG	0	%0	9	0	0	20	2 UJ	2.1 U	1.9 U	1.1 U	1.8 UJ	2.1	
epoxide	UGKG	Ξ	2%	20	0 (	_ (	19	2 UI	. 2.1 U	24 R	0.34 U	1.8 UJ	2.1	
ior	0 N/201	<b>&gt;</b> 0	%%		0 0	0 0	2, 23	200	2.1 U	0 6:1	0.11 U	U.8.1		
16	UG/KG	0	%%		0	0	20 20	20 01	21 UI	ID 61	5.8 UI		21	
21	UG/KG	0	%0		0	0	50	20 U	21 U	U 61	1,5 U		21	
32	UG/KG	0	%0		0	0	70	20 UJ	21 UJ	U 61	ID 6	18 UJ	21 U	
42	UG/KG	0	%0		0	0	50	20 U	21 UJ	ID 61	2.5 U		21	
8 4 4	UG/KG	0 0	% %	00001	0 0	0 0	50	20 U	21 U	D 61	6.2 U		21	
09	UG/KG	000	15%	0000	o c	۰ ۳	2 6	20 02	21 0	19 02	12 03			
d Cyanide					,	)	2	2		3	3		3	
	MG/KG	17600	%001	19300	0 -	50	20	17600	12500	10300	15200 J	13800	15500	
	MG/KG	C.1.	%07	υ α ν. υ	- 0	4 %	2, 50	0 1.1	1.1 0	0.99 0	0.78 J	0.96 U	1.1 0	
	MG/KG	1050	880	300	o	20	20	28 0	103	57.5	1 18	64.4	1 2 56	
	MG/KG	_	100%	1.1	0	20	20	-	0.76	0.55	0.85 J	0.68	0.96	
	MG/KG	8.1	%01	2.3	-	2	20	0.14 U	0.15 U	0.14 J	0.06 U	0.13 U	0.14 U	
	MG/KG	97200	100%	121000	0 1	50	50	18400	2890 J	00099	18300 J	26200	9560 J	
	MG/KG	19.7	%00I	30.8	m C	20 02	20	28.1	22.7	20	28.9 J	25.8	24.8	
	MG/KG	2440	100%	33	9	20	20	25.7	16.7 J	24.9	27 J	38.7	20.8 J	
al dominated	MG/KG	0 0	%0	0.35	0 (	0 0	4 ;	11.00		** 55 0	11 13 0			
anerable	245	>	20		>	>	01	0.0	0.63 0	0.55 0	0.57.0	0.54 0	0.00	

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Table C-4
SUBSURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

							Selleca A	eneca Army Depot Activity	uvity					
	Facility								SEAD-121C	.,	SEAD-121C	AD-121C	SEAD-121C	SEAD-12
Location ID	ation D							SBDRMO-13	SBDRMO-14	SBDRMO-16	SBDRMO-17	RMO-18	SBDRMO-20	SBDRMO.
	Matrix								SOIL		SOIL	SOIL	SOIL	SC
Sar	mple 🖽								DRMO-1069		DRMO-1078	MO-1082	DRMO-1088	DRMO-II
Sample Depth to Top of	Sample								2		2	2	2	
nple Depth to Bottom of Sample	Sample								6		6	0	6	
Samp	ple Date								10/25/2002		10/28/2002	0/27/2002	10/26/2002	10/27/20
Ø	C Code								SA		SA	SA	SA	
S	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID.
	-	Maximum	of,	Criteria	ુ	of Times	of,							
	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Va
	AG/KG	0	0%		0	0	16	0.6 U	0.631 U		0.568 U	0.5 <b>39</b> U	0.613 U	0.5
~	xig/Kg	54100	100%	36500	_	20	20	33700	24000		27100 J	30000	27900	262
7	MG/KG	1780	100%	24.8	7	20	20	11.3	16.6		11.3 J	31	18	
<b>~</b>	MG/KG	24900	100%	21500		20	20	6490	4110		6590 J	7720	5230	66
7	MG/KG	790	100%	1060	0	20	20	754	402		643 J	470	658	
<b>5</b>	MG/KG	0.07	95%	0.1	0	18	19		0.01		0.03	0.04	0.04 J	0
5	MG/KG	69.7	100%	49	(J)	20	20	44.3 J	29.1 J	31.5	42.6 J	44.7 J	34.1 J	(J.)
-	MG/KG	1870	100%	2380	0	20	20	1570 J	1160 J		1560 J	1220 J	1640 E	1.
	MG/KG	0	0%	2	0	0	20	0.5 U	0.52 U		0.38 U	0.45 U	0.5 U	0
-	MG/KG	0.72	10%	0.75	0	2	20	0.32 U	0.33 U		0.72 J	0.29 U	0.32 U	0
	MG/KG	214	70%	172	2	14	20	141	133		104	152	119 U	
יער	MG/KG	1.8	10%	0.7	2	2	20	0.37 U	0.38 U		1.1 J	0.33 U	0.37 U	0
-	MG/KG	27	100%	150	0	20	20	27 J	20.7		20.6 J	20.3 J	25.3	
70	MG/KG	691	100%	110	7	20	20	89.1 J	110		75 J	130 J	86.5	7
	MG/KG	9500	100%		0	16	16	5100	5400	4200	6700	3500	5900	69
m Hydrocarbons N	MG/KG	3700	25%		0	4	16	48 UJ	51 UJ	3700 J	2200 Ј	43 J	49 UJ	

. value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, nuary 24, 1994.

d was not detected dvalue is an estimated concentration you'd value is an estimated concentration sound was not detected, the associated reporting limit is approximate as rejected in the data validating process when the data validating process are rejected in the data validating process.

## Table C-4 SUBSURFACE SOIL SAMPLE RESULTS SEAD-121C SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13 SEAD-13

						Seneca	Army Del	Seneca Army Depot Activity					
	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID							SBDRMO-23	SBDRMO-24	SBDRMO-5	SBDRMO-6	SBDRMO-7	SBDRMO-9
	Matrix							TIOS	NOS	TIOS	SOIL	SOL	SOL
Sample Depth to Top of Sample	of Sample							DKMO-1096 2	DKMO-1099	DKMO-1041 2	DKMO-1044	DRMO-1047	DRMO-1054
Sample Depth to Bottom of Sample	of Sample							9	9	9	9	9	9
S	Sample Date							2002/82/01	10/28/2002	10/27/2002	10/25/2002	10/27/2002	10/25/2002
	Study ID		Frequency		Number	Number	Number	PD-RI	PD-RI	PD-RI	P.D-RI	PD-RI	PID-RI
	:	Maximum	jo .	Criteria	Jo -	of Times	of	;	;				
Volatile Organic Compounds	Units	Value	Detection	Value	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1-Trichloroethane	UG/KG	0	%0	800	0	0	20	2.8 UI	3.2 U	2 8 11	2.2 11	1196	111 0 0
1,1,2,2-Tetrachloroethane	UG/KG	0	%0	009	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
1,1,2-Trichloroethane	UG/KG	0	%0		0	0	20	2.8 UI	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
1,1-Dichloroethane	UG/KG	0	%	200	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UI
i,i-Dichloroethene	UG/KG	0	%0	400	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
1,2-Dichloroethane	UG/KG	0	%	100	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 UJ	2.6 U	2.9 UI
1,2-Dichloroethene (totat)	0.5/KG	0 0	%%		0 0	0 (	4 (			;	;	;	
Acetone	110/80	× ×	45%	000	0 0	o 6	20	U 8.7	3.2 0	0.8.0	2.2 U	2.6 U	2.9 UJ
Benzene	UG/KG	1800	10%	209	- c	, (	202	28.71	11 6 2	14.0	2.2 0	2.0 0.1	2.9 0.1
Bromodichloromethane	UG/KG	0	%0		. 0	10	20	2.8 UJ	3.2 U	2.8 []	2.2 0	2.6 11	2.9 111
Вготоботт	UG/KG	0	%0		0	0	20	2.8 UJ	3.2 U	2.8 UJ	2.2 U	2.6 UJ	2.9 UJ
Carbon disulfide	UG/KG	0	%0	2700	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
Carbon tetrachloride	UG/KG	0	%0	009	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 UJ	2.6 U	2.9 UJ
Chlorobenzene	UG/KG	0	%0	1700	0.	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
Chlorodibromomethane	UG/KG	0	%0		0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
Chloroethane	06/86	0 •	%0	1900	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UI
Choroloffin Cis. 1 2. Dichloroethene	24/20	<b>a</b> C	% 0.1	300	0 (	r) (	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 ∪	2.9 UI
Cis-1.3-Dichloronronene	10/80	0 0	%0		> <	> 0	9 6	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
Ethyl benzene	UG/KG	24000	%	5500	o	o -	0, 00	2.8 U	3.2 0	2.8 U	2.2 0	2.6 U	2.9 0.1
Meta/Para Xylene	UG/KG	130000	%9		. 0		16	2.8 111	3.2 U	28.7	2.2	2.6 0	1300001
Methyl bromide	UG/KG	0	%0		0	. 0	20	2.8 UJ	3.2 C	2.8 U	2.2 UI	2.6 U	2.9 111
Methyl butyl ketone	UG/KG	0	%0		0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 UJ	2.6 U	2.9 UI
Methyl chloride	UG/KG	0	%0		0	0	20	2.8 UJ	3.2 U	2.8 UJ	2.2 UJ	2.6 UJ	2.9 UJ
Methyl ethyl ketone	UG/KG	9.7	10%	300	0	2	20	2.8 UJ	3.2	2.8 U	2.2 UJ	2.6 U	2.9 UJ
Methyl Isobutyl ketone	UG/KG	0 ;	%0	1000	0	0	20	2.8 UI	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
Orbo Xvlenc	5 4 6 1	5.5	%01	3	0 0	77 -	50	3.9 UJ	3.5	2.8 U	2.2 U	2.6 U	2.9 UJ
Styrene	UG/KG	2.7	%		o c		10	2.8 UJ	3.2 0	2.8 U	2.2 U	2.6 U	75
Tetrachloroethene	UG/KG	0	%	1400	0	. 0	20 50	2.8 UJ	3.2 U	2.8 UI	2.2.0	2.6 01	2.7 J
Toluene	UG/KG	84	20%	1500	0	4	20	2.8 UI	3.2 U	2.8 U	2.2 U	2.6 U	84
Total Xylenes	UG/KG	0	%0	1200	0	0	4						
I rans-1, 2-Dichloroethene	UG/KG	0	%0	300	0	0	16	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
rans-1,3-Dichloropropene	UG/KG	0 0	%	ě	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UI
View objects	0800	0 (	% 8	00/	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
vinyi cinoride Semivolatile Organic Compounds	54/50	>	%0	200	0	0	20	2.8 UJ	3.2 U	2.8 U	2.2 U	2.6 U	2.9 UJ
1.2.4-Trichlorohenzene	116/KG	c	%0	3400	c	c	ć	11 056	11 007				
1.2-Dichlorobenzene	UG/KG	0	%	7900	o c	0 0	200	370 11		3/0 0	350 U	350 UI	390 UJ
1,3-Dichlorobenzene	UG/KG	0	%0	1600	0	0	20	370 U		370 11	350 11	350 11	390 0
1,4-Dichlorobenzene	UG/KG	0	%0	8500	0	0	20	370 U	400 U	370 U	350 U	350 U	390 11
2,4,5-Trichlorophenol	UG/KG	0	%0	100	0	0	20	940 U	1000 U	920 U	890 U	0 068	1U 079
2,4,6-Trichlorophenol	UG/KG	0	%0		0	0	20	370 U	400 U	370 U	350 U	350 U	390 UJ
2,4-Dichlorophenol	UG/KG	0	%0	400	0	0	20	370 U	400 U	370 U	350 U	350 U	390 UJ
2,4-Dimemylphenol	UG/KG	0 (	%		0	0	20	370 U	400 U	370 U	350 U	350 U	390 UJ
2.4-Dinigophenol	0.07/KG	0 0	% &	200	0 (	0 (	19	940 UI	1000 U	920 U	N 890 UI	890 UI	U 076
ליים שנייטיטיטיטיטים בריי	2	>	200		o	Þ	20	3/0 U	400 0	3/0 U	350 U	350 U	390 UJ

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						Seneca	Army De	Seneca Army Depot Activity					
	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID  Matrix							SBDRMO-23 SOIL	SBDRMO-24  SOIL	SBDRMO-5 SOIL	SBDRMO-6 SOIL	SBDRMO-7 SOIL	SBURMO-9 SOIL
Sample ID Sample Depth to Top of Sample	Sample ID op of Sample							DRMO-1096 2	DRMO-1099 2	DRMO-1041 2	DRMO-1044 2	DRMO-1047 2	DRMO-1054 2
Sample Depth to Bottom of Sample Sample Date	om of Sample Sample Date							6 10/28/2002	6 10/28/2002	6 10/27/2002	6 10/25/2002	6 10/27/2002	6 10/25/2002
	QC Code		Frequency		Number	Z III	Z	SA.	SA-SA	P∏-BI	SA.	PID-BI	P∏-BI
	l l	Maximum	of	Criteria	of	of Times	of	į,	į.	ţ	į	į	į
rameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Chloronaphthalene	UG/KG	0 0	0%	1000	0 0	0 0	20	370 U	400 U	370 U	350 U	350 U	390 UJ
Chlorophenol	UG/KG	0	0%	800	0	0	20	370 U	400 U	370 U	350 U	350 UJ	390 U
dethylnaphthalene	UG/KG	2500	20%	36400	0	4	20	370 U	400 U	370 U	350 U	350 U	1600 J
Acthylphenol	UG/KG	0	8 %	100	0	0	20	370 U	400 U	370 U	350 U	350 U	390 U
ditronhenol	100/80	<b>&gt;</b> C	0%	330	<b>.</b>	<b>&gt;</b> C	20 6	370 U	11 000	370 U	350 11	1 058	10 0/6 f) 0/6
r 4-Methylphenol	UG/KG	0 0	%	č	0 (	0 (	16	370 U	400 U	370 U	350 U	350 U	390 UJ
'-Dichlorobenzidine	UG/KG	0	0%		0	0	20	370 U	400 U	370 U	350 UJ	350 U	390 UJ
litroaniline	UG/KG	0	0%	500	0	0	20	940 UJ	1000 U	920 U	890 U	890 U	970 UJ
-Dinutro-2-methylphenol	UG/KG	0 0	0%		0	0 0	20	940 UJ	1000 U	920 U	11 058	10 068	390 UJ
Chloro-3-methylphenol	UG/KG	0	0%	240	0	0	20	370 U	400 U	370 U	350 U	350 U	
hloromenyi phenyi ether	TIG/KG	<b>&gt;</b> C	0%	220	o c	o c	20	370 U	400 U	370 U	350 U	350 U	111 06£
Aethylphenol	UG/KG	0	0%	900		0	4 !	:	;	;	;		
Vitroamline	UG/KG	0	0%	3	. 0	0	20	940 U	1000 U	920 U	890 U	890 U	970 UJ
enanhthene	106/86	ß c	150%	000	<b>&gt;</b> C	ω C	3 6	370 11	0001	17011	30 0	350 U	111 06E 10 0/6
enaphthylene	UG/KG	220	10%	41000	0 (	2	20	370 U	73 J	370 U	350 U	350 U	390 UJ
thracene	UG/KG	240	15%	50000	0	ı ω	20	370 U	400 U	370 U	350 U	350 U	390 UJ
nzo(a)anunacene		920	37%	61	<i>⊶</i>	zv ~	10	17 075	200 1	370 U	350 UI	11 056	390 U
nzo(b)fluoranthene	UG/KG	1300	42%	1100	<b>,</b> (	00 (	19	370 U	170 J	43 J	350 UJ	350 U	390 UJ
nzo(ghi)perylene	UG/KG	210	37%	50000	0 0	٠ ٦	19	370 UJ	I 001	370 UJ	350 UJ	350 UJ	390 UJ
(2-Chloroethoxy)methane	UG/KG	0 4	%0%	1100	0 0	0 6	20	370 U	400 U	370 U	350 U	350 UJ	390 UJ
(2-Chloroethyl)ether	UG/KG	0	%		0	0	20	370 UJ	400 UJ	370 UJ	350 U	350 U	390 U
(2-Chloroisopropyl)ether	UG/KG	9 0	0%	50000	00	• 0	20	370 U	400 U	370 U	350 U	350 U	390 UJ
tylbenzylphthalate	UG/KG	39	10%	50000	0 (	20	20	370 U	400 U	370 U	350 UJ	350 U	390 UJ
rbazole	UG/KG	56	15%		0	w	20	370 U	.400 U	370 U	350 U	350 U	390 UJ
rysene	UGKG	4900	35%	400	) N	2 ~1	20	. 4900	140 J	370 U	350 UJ	350 U	390 UJ
n-octylphthalate	UG/KG	17	15%	00000	0 0	ω <sub>K</sub>	20	370 U	400 U	370 U	350 U	350 UJ	390 UJ
penz(a,h)anthracene	UG/KG	33	16%	14	2	LJ	19	370 UJ	400 U	370 UJ	350 UJ	350 UJ	390 UJ
penzofuran	UG/KG	45	15%	6200	. 0	, w	20	370 U	400 U	370 U	350 U	350 U	390 UJ
ethyl phthalate	UG/KG	250	25%	7100		<b>5</b> V	20	370 U	250 J	370 U	350 U	350 U	390 UJ
oranthene	UGKG	1600	40%	50000	0 0	∞ c	20	370 U	210 J	62 J	350 U	350 U	390 UJ
orene	UG/KG	160	20%	50000	0 (	4	20	370 U	54 J	370 U	350 U	350 U	390 UJ
xachlorobenzene	UG/KG	0	0%	410	0	0	20	370 U	400 U	370 U	350 U	350 U	
xachlorobutadiene	UG/KG	0	%		0	0	20	370 UJ	400 U	370 U	350 U	350 UJ	
xachlorocyclopentadiene	TOKG	o c	2 %		<b>o</b> c	<b>&gt;</b> 0	20	370 U	400 11	370 0	350 U	350 U	390 U
leno(1,2,3-cd)pyrene	UG/KG	150	30%	3200	0 (	ο (	20	370 U	f 66	370 UJ	350 UJ	350 UJ	390 UJ
phorone	UG/KG	0	%	4400	0	0	20	370 UJ	400 U	370 U	350 U	350 UJ	
Nitrosodiphenylamine	UG/KG	0	20%		0		20	370 U	400	370 U	350 U	350 U	390 U
and an order of	9	•	•		(	•	;						

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Table C-4
SUBSURFACE SOIL SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity
Seneca Army Depot Activity
SEAD-12
SEAD-12
SEAD-12
SEAD-12
SEAD-12
SEAD-12
SEAD-12
SEAD-12
SEAD-12
SEAD-12

						Seneca	Army De	Seneca Army Depot Activity					
	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID							SBDRMO-23	SBDRMO-24	SBDRMO-5	SBDRMO-6	SBDRMO-7	SBDRMO-9
	Sample ID							NRMO-1096	SOIL DRMO-1099	SOIL DRMO-1041	SOIL DRMO-1044	SOIL DRMO-1047	SOIL DRWO-1054
Sample Depth to Top of Sample	op of Sample							2	2	2	2	2	2
sample Deput to Bottom of Sample Sample Date	om ot sampte Sample Date							9 10/28/2002	9 10/28/2002	6 2027/2001	10/25/2002	6 200 <i>2/72/</i> 01	6002/5/201
	QC Code							SA	SA	SA	SA	SA	SA
	Study ID	Maximum	Frequency	Criteria	Number	Number of Times	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)
Vaphthalene	UG/KG	1900	20%	13000	0	4	50	370 U	400 U	370 U	350 U	350 UJ	1200 J
Vitrobenzene	UG/KG	0	%0	200	0	0	20	370 UJ	400 UJ	370 U	350 U	350 UJ	390 UJ
Pentachlorophenol	UG/KG	0	%0	1000	0	0	20	940 U	1000 U	920 U	D 068	U 068	U 076
henanthrene	UG/KG	1000	40%	20000	0	00	20	370 U	170 J	370 U	350 U	350 U	62 J
henol	UG/KG	0	%0	30	0	0	20	370 U	400 U	370 U	350 U	350 U	390 U
'yrene Pesticides/PCBs	UGÆG	1700	40%	20000	0	00	20	370 U	260 J	50 J	350 UJ	350 U	390 UI
,4'-DDD	UG/KG	0	%0	2900	С	c	1,	0.73 11	11 72 0	11 0 1	118 111	11 9 1	r c
1,4'-DDE	UG/KG	17	15%	2100	0	m	20	0.23	0.24 0	11 61	5 E 8 E	S = 1	2 R
1,4'-DDT	UG/KG	91	15%	2100	0	m	20		0.24 UJ	U 6.1	1.8 UJ	1.8 UI	2 03
Aldrin	UG/KG	=	2%	41	0	-	20	0.11 U	0.12 U	U 6.1	1.8 UJ	1.8 UJ	2 UJ
Alpha-BHC	UG/KG	0 1	%	110	0	0	20	1.4 U	1.5 U	U 6.1	1.8 UJ	1.8 UI	2 UJ
Alpha-Chlordane	UG/KG	0 (	%	;	0	0	70	0.34 U	0.37 U	U 6.1	1.8 UJ	1.8 UJ	2 UJ
Phordane	DOWE 110/40	> 0	% &	700	0 0	0 (	50	0.11 U	0.12 U	U 6.1	1.8 UJ	1.8 UJ	2 U
Delta-BHC	116/86	> <u>"</u>	%%	90	00	o +	9 6	2.1 U	2.3 U	0 61	2 2 2	18 U	20 U
Dieldrin	UG/KG	0	%	\$ 4	> 0	⊶ C	07 61	0.22 U	0.24 0.	U 6.1	0 E	1.8 0.1	2 UJ
Endosulfan I	UG/KG	78	2%	. 06	0	·	70	0.56 U	0.61 11	50 61	0 8 1	1.8 0.	2 UJ
Endosulfan II	UG/KG	0	%0	900		0	20	0.34 U	0.37 U	U 6:1	1.8 .1	1.8 U	
endosulfan sulfate	UG/KG	0	%0	1000	0	0	20	0.68 U	0.73 U	U 6.1	1.8 U	1.8 U	
endrin Endrin aldebiode	UG/KG	23	2%	100	0 (	(	20	U 6.0	UD 200	U 6.1	1.8 U	1.8 UJ	2 UJ
Endrin ketone	110/86	2 0	%0		0 0	٥.	20 50	0.9 0.1	0.97 UI	0 6.1	1.8 C	1.8 U	2 U
Samma-BHC/Lindane	UG/KG	0	%	09	> 0	- C	07 02	0 10	0.12 0	0.6.1	0 8 1	0 8:1	2 0
Gamma-Chlordane	UG/KG	0	%0	540	0	0	2 2	0.34 U	0.37 U		18 11	S 8:1	2 0.5
feptachlor	UG/KG	0	%0	18	0	0	20	1.1 U	1.2 U		1.8 UJ	1.8 UJ	2 U
reptachlor epoxide	UG/KG	Ξ:	2%	20	0	-	19	0.34 U	0.37 U		1.8 UJ	1.8 UJ	2 U
Methoxychlor	UG/KG	0 0	%0		0 .	0	50	0.11 U	0.12 U		1.8 ∪	1.8 U	2 UJ
Aroclor-1016	110/80	> <	% %		> 0	0	50	3.6 U	3.9 U		18 U	18 U	20 U
Aroclor-1221	UG/KG	0	% %		> c	o c	200	U) 6.5	0.5 U	U 61	0 81	18 UI	20 U
Aroclor-1232	UG/KG	0	%		0	0	2 2	0 C.1	9.7 UI		0 81	0 81	0 07
Aroclor-1242	UG/KG	0	%0		0	0	20	2.5 U	2.7 U		18 U	18 U	20 C
Arocior-1248	UG/KG	0	%		0	0	20	6.2 U	0.7 U		18 U	18 U	20 U
Arocior-1254	UG/KG	0 6	%0	10000	0	0	20	12 UJ	13 UI	D 61	18 U	18 U	20 U
Viocioi - 1200 Vietals and Ovanide	5450	700	15%	10000	٥	m	20	2.3 UJ	2.4 UJ	19	18 U	18 U	20 U
Aluminum	MG/KG	17600	100%	19300	c	6	00	1 0202	1,4000	14100	00011		
Antimony	MG/KG	11.5	20%	5.9	-	3 4	20	0.26 11	14900 J	1.0	11600	16100	12300
Arsenic	MG/KG	8.	100%	8.2	0	50	30 20	2.4 J	1 1 9	0 - 1	0.50	0.57	0 1.1
Barium	MG/KG	1050	100%	300	-	50	50	67,5 J	107 J	7.56	, 19 T	5.42	1.5 28
3eryllium	MG/KG		%001	1.1	0	20	20	0.4 J	0.86 J	0.76	0.65	0.81	0.72
Sadmium	MG/KG	8.1	10%	2.3	-	2	20	0.06 U	0.06 U	0.13 U	0.13 U	0.13 U	0.14 U
Calcium	MG/KG	97200	100%	121000	0	20	20	56200 J	12600 J	18800	22100 J	7870	I 00061
hromium	MG/KG	37	100%	29.6	3	20	20	11.11	25.4 J	26.1	30,2	29.6	22.3
oball	MG/KG	19.7	%00I	30	0	70	20	6.8 J	15 J	17.9	13.6	17.9	12
Syanide	MG/NG MG/NG	2440	% 001	33	9 0	8 0	70	16.4 J	19.2 J	37.6	96.7 J	32.3	22.3 J
Cyanide, Amenable	MG/KG	0	%%	0.00	<b>o</b> c	<b>&gt;</b> C	4 7	11 23 0	11 63 0	11 73 0	11 73 0		
			,		,	>	2	)	0.00	0.00	0.54	0.54 0	0.89 U

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Table C-4
SUBSURFACE SOIL SAMPLE RESULTS
SEAD-121C SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

						Seneca	Army De	Seneca Army Depot Activity					
	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	D-121C	SEAD-121C
	Location ID							SBDRMO-23	SBDRMO-24		SBDRMO-6	DRMO-7	SBDRMO-9
	Matrix							SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sample ID							DRMO-1096	DRMO-1099	DRMO-1041	DRMO-1044	MO-1047	DRMO-1054
Sample Depth to Top of Sample	p of Sample							2	2	2	2	2	2
Sample Depth to Bottom of Sample	n of Sample							6	6	6	6	6	6
8	Sample Date							10/28/2002	10/28/2002	10/27/2002	10/25/2002	/27/2002	10/25/2002
	QC Code							SA	SA		SA	SA	SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PD-RI	PID-RI	PID-RI
		Maximum	악	Criteria	of	of Times	of						
ameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
nide, Total	MG/KG	0	0%		0	0	16	0.569 U	0.618 U	C	0.539 ∪	0.54 U	0.59 U
	MG/KG	54100	100%	36500	_	20	20	10700 J	28100 J	32800	25300	34600	23400
1	MG/KG	1780	100%	24.8	7	20	20	6.2 J	13.6 J	33.8	19.3	19	26.2
nesium	MG/KG	24900	100%	21500	_	20	20	24900 J	6220 J	6880	5960	8740	5040
ganese	MG/KG	790	100%	1060	0	20	20	324 J	646 J	790	526	323	438
сшу	MG/KG	0.07	95%	0.1	0	18	19	0.02	0.04		0.02	0.03	0.03
ce!	MG/KG	69.7	100%	49	u	20	20	18 J	38.7 J	J	40.2 J	53.7 J	31.5 J
ssium	MG/KG	1870	100%	2380	0	20	20	I 010 J	1370 J	J	1490 J	1380 J	1360 Ј
nium	MG/KG	0	0%	2	0	0	20	0.37 U	0.4 U	0.47 U	0.45 ∪	0.45 ∪	0.49 U
er	MG/KG	0.72	10%	0.75	0	2	20	0.42 U	0.72 J	C	0.29 U	0.29 ∪	0.32 U
ium	MG/KG	214	70%	172	2	14	20	163	124		162	107 U	167
llium	MG/KG	1.8	10%	0.7	2	2	20	0.65 U	1.8 J	0.34 U	0.33 U	0.33 ∪	0.36 U
adium	MG/KG	27	100%	150	0	20	20	11 J	23.2 J	_	17.4	24.5 J	21
	MG/KG	691	100%	110	7	20	20	52.8 J	126 J	117 J	68.3	167 J	73.9
er I Organic Carbon	MG/KG	9500	100%		Þ	16	16	2900	6400	4000	3600	9500	3600
d Petroleum Hydrocarbons	MG/KG	3700	25%		0	4	16	46 UJ	49 UJ	Ξ	43 UJ	43 UJ	1900 J
TES: he criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, ordinal forms (24, 1904)	DEC Technic	al and Admin	istrative Guida	nce Memoran	dum (TAGM) HW	R-94-4046,							

compound was not detected the reported value is an estimated concentration the reported value is an estimated concentration = the compound was not detected; the associated reporting limit is approximate the data was rejected in the data validating process the data was rejected in the data validating process.

Table C-5A
EBS GROUNDWATER SAMPLE RESULTS
SEAD-121C

SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

				n	eneca Ari	Seneca Army Depot Activity	ivity				
	Facility								SEAD-121C MW121C-1	SEAD-121C MW121C-1	SEAD-12 MW121
3	Matrix								MD GW	MS GW	)
S	Sample ID								EB023	EB153	EB
Sample Depth to Top of Sample	of Sample								2.1	2.1	
Sar	Sample Date								3/17/1998	3/17/1998	3/17/1
	OC Code Study ID		Frequency			Number	Number	Number	EBS	SA EBS	щ
	di Caro	Maximum	Jo	Criteria	Criteria	Jo	of Times	Jo			
er	Units	Value	Detection	Type 1	Value	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	V
Organic Compounds											
chloroethane	NG/L	0	%0	ВA	2	0	0	7	1 C	n I	
etrachloroethane	NG/L	0	%0	GA	2	0	0	2	1 U	1 U	
chloroethane	NG/L	0	%0	GA	_	0	0	2	1 U	1 U	
loroethane	NG/L	0	%0	GA	5	0	0	2	1 U	1 U	
oroethene	NG/L	0	%0	GA	2	0	0	2	1 U	1 U	
omo-3-chloropropane	NG/L	0	%0	GA	0.04	0	0	2	1 U	1 U	
omoethane	NG/L	0	%0	GA	9000.0	0	0	2	1 U	1 U	
lorobenzene	NG/L	0	%0	GA	3	0	0	2	1 U	1 U	
loroethane	NG/L	0	%0	GA	9.0	0	0	2	1 U	1 U	
loropropane	NG/L	0	%0	GA		0	0	2	1 U	1 U	
lorobenzene	NG/L	0	%0	GA	3	0	0	2	1 U	1 U	
lorobenzene	NG/L	36	%0\$	GA	3	1	1	2	1 U	1 U	
	NG/L	57 3	%09			0	1	2	52	61	
	NG/L	0	%0	GA		0	0	2	1 U	1 U	
loromethane	NG/L	1	20%	GA	5	0	1	2	1 U	1 U	
chloromethane	NG/L	0	%0	MCL	80	0	0	2	1 U	1 U	
пт	NG/L	4	%05	MCL	80	0	1	2	1 U	1 U	
lisulfide	UG/L	2 3	20%			0	yand	2	2	7	
etrachloride	NG/L	0	%0	GA	2		0	2	1 U	1 U	
nzene	NG/L	2	%05	GA	2	0	1	2	1 U	1 U	
bromomethane	NG/L	0	%0	MCL	80	0	0	2	1 U	1 U	
hane	NG/L	0	%0	GA	ς,	0	0	2	U I	1 U	
пт	NG/L	0	%0	GA	7	0	0	2	1 U	1 U	
Dichloroethene	NG/L	0	%0	GA	2	0	0	2	1 U	1 U	
Dichloropropene	NG/L	0	%0	GA	0.4	0	0	2	1 U	1 U	
nzene	NG/L	0	%0	GA	2	0	0	2	1 U	1 U	
ra Xylene	NG/L	0	%0			0	0	0			
romide	NG/L	0	%0	СA	ς,	0	0	2	1 U	1 U	
utyl ketone	DG/L	0	%			0	0 (	2	5 U	2 C	
hloride	NG/L	0	%0	GA	2	0	0	7	1 0	0 1	

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				7.0	eneca Ar	Seneca Army Depot Activity	ivity				
	Facility					,	,		SEAD-121C	SEAD-121C	SEAD-121
	Location ID								MW121C-1	MW121C-1	MW121C
	Matrix								GW	G₩	ଦ
	Sample ID								EB023	EB153	EB15
Sample Depth to Top of Sample	p of Sample								2.1	2.1	
ample Depth to Bottom of Sample	m of Sample								9.7	9.7	3/17/190
	OC Code								SA	SA	S
	Study ID		Frequency			Number	Number	Number	EBS	EBS	EB
		Maximum	of	Criteria	Criteria	of	of Times	of			
	Units	Value	Detection	Type 1	Value	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Valı
yl ketone	UG/L	0	0%			0	0	2	5 U	5 U	
butyl ketone	UG/L	0	0%			0	0	2	5 U	5 U	
chloride	UG/L	0	0%	GA	S	0	0	2	2 U	2 U	
ne	UG/L	0	0%	GA	S	0	0	0			
	UG/L	0	0%	GA	5	0	0	2	1 U	1 U	
pethene	J.G/L	0	0%	GA	5	0	0	2	1 '	1 U	
		o c	0%	O A	n U	> <	o c	) <i>(</i>	. I C		
Dichloroethene	15 (£	<b>&gt;</b>	0%	G G	лU	<b>&gt;</b> C	o c	<b>)</b>	 	- - -	
Dichloropropene	UG/L	0	0%	GA :	0.4	0	0 '	2 1	1 U	1 U	
thene	UG/L	0	0%	GA	S	0	0	2	1 U	1 U	
ride	UG/L	_	50%	GA	2	0	_	2	1 U	1 U	
ile Organic Compounds											
llorobenzene		0	0%	GA	Ŋ	0	0	2		1.1 U	1
robenzene	T/ĐN	0	0%	GA	w	0	0	2		1.1 U	
robenzene	T/DU	0	0%	GA	ω	0	0	2		1.1 U	
robenzene	T/Pn	0	0%	GA	w	0	0	2			1
nlorophenol	UG/L	0	0%	GA	_	0	0	2		2.7 U	2
nlorophenol	UG/L	0	0%	GA	1	0	0	2		_	
rophenol	T/PO	0	0%	GA	Ŋ	0	0	2			1
nylphenol	UG/L	0	0%			0	0	2			
phenol	TC/L	o	0%	)	'n	> C	o c	2 12		2.7 U	- 2
otoluene	IIG/I	o (	0%	G (	אנ	0 (	0 (	) I			-
aphthalene	UG/L	0	0%			0	0	2		1.1 U	
henol	UG/L	0	0%			0	0	2		_	
aphthalene	UG/L	0	0%			0	0	2		1.1 U	
henoi	UG/L	0	0%			0	0	2		1.1 U	
line	UG/L	0	0%	GA	٠ ٧	0	0	2		2.7 U	· N
nol	UG/L	0	0%	GA	- ,	0	0	> >		1.1 0	
a) iprioroi	Q Q	ď	3	ç		ď	Ć	c			

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EBS GROUNDWATER SAMPLE RESULTS SEAD-121C and SEAD-121I RI REPORT SEAD-121C Table C-5A

Seneca Army Depot Activity

EB

SEAD-121C

SEAD-121C

SEAD-17 MW121 3/17/1 0  $\Box$ 1.1 U  $\Gamma$ Ω Ω Ω  $\Box$  $\mathbf{1}$ 0.12 J ß₩ EB153 9.7 3/17/1998 MW121C-1 Value (Q) EB023 GW 9.7 SA MW121C-1 3/17/1998 Analyses 2 Number oĮ of Times Detected Number 700000000000000000 00 0 0 0 Exceedances Number of 000 0000 0000000000 000 0 0 Criteria Value 50 2 0 Criteria Type GA GA GA GA GA GA GA GA GA GA Frequency 100% 100% 50% %0 %0 Maximum Value 0.123 0.4 00 00000000 Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Date QC Code Study ID Facility Location ID Matrix Sample ID UG/L UG/L UG/L UG/L UG/L UG/L NG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L UG/L NG/L NG/L NG/L NG/L NG/L NG/L UG/L lloroethoxy)methane ro-2-methylphenol phenyl phenyl ether phenyl phenyl ether loroisopropyl)ether hylhexyl)phthalate -3-methylphenol loroethyl)ether lorobenzidine fluoranthene fluoranthene zylphthalate anthracene ylphthalate thylene Iphenol aniline рутепе thene niline niline henol

ne

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0.0573

NG/L

lphthalate ohthalate

NG/L

,h)anthracene

furan

ylphthalate

0

NG/L NG/L

1.1 U 1.1 UJ

1.1 U 0.057 J 1.1 U

Table C-5A
EBS GROUNDWATER SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

				70	eneca Ar	Seneca Army Denot Activity	ivitv				
	Facility			,					SEAD-121C	SEAD-121C	SEAD-121
	Location ID								MW121C-1	MW121C-1	MW121C-
	Matrix								GW	GW	G)
	Sample ID								EB023	EB153	EB15
Sample Depth to Top of Sample	op of Sample								2.1	2.1	1.
mple Depth to Bottom of Sample	om of Sample								9.7	9.7	3/17/105
	Sample Date								3/1//1998	3/1 //1998	3/1//199
	QC Code		Frequency			Number	Number	Number	SA EBS	FBS	EB
		Maximum	of	Criteria	Criteria	of	of Times	of			
	Units	Value	Detection	Type 1	Value	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Valı
ne	UG/L	0	0%			0	0	2		1.1 U	1
	UG/L	0.48	50%			0	_	2		1.1 U	0.4
benzene	UG/L	0	0%	GA	0.04	0	0	2		1.1 U	1
butadiene	UG/L	0.4	100%	GA	0.5	0	2	2		0.061 J	0
ocyclopentadiene	UG/L	0	0%	GA	S	0	0	2		1.1 UJ	1
ethane	UG/L	0	0%	GA	ر.	0	0	2		1.1 U	
,3-cd)pyrene	UG/L	0	0%			0	0	2		1.1 U	
	UG/L	0	%			0	0	) N		1.1	
upnenyiamine	J/C/L		0%0			· <		۸ (		: :	
hpropylamine	1.6/1	<b>&gt;</b> c	0%%			0 0	0 0	2 1		1:1 0	
ne	UG/L	0	0%	GA	0.4	0	0	2		1.1 U	1
ophenol	UG/L	0	0%	GA	_	0	0	2		2.7 U	2
ne	UG/L	0.24	50%			0	_	2		1.1 U	0.5
	UG/L	0	0%	GA	_	0	0	2		1.1 U	
	UG/L	0.13	50%			0	_	2		1.1 U	0.1
PCBs					,	1	•	•	)		)
	UG/L	0.81	100%	GA	0.3	2	2	2	0.9	0.11 U	0.8
	UG/L	0.3	100%	GA	0.2		2	2	0.27 J	0.093 J	20
	UG/L	0.56	100%	GA	0.2	. 2	) N	2	0.29 J	0.28	20.
	UG/L	0	0%	GA	0	0 0	0	2	0.057 U	0.057 U	0.0
()	UG/L	0.059	100%	GA	0.01	2	2	2	0.057 U	0.036 J	0.03
ordane	UG/L	$0.082^{3}$	50%			0	_	2	0.096	0.068	0.0
	UG/L	$0.33^{3}$	100%	GA	0.04	2	2	2	0.56 J	0.096 J	0.0
	UG/L	0	100%			0	0	0			
• 3	UG/L	$0.16^{3}$	100%	GA	0.04	2	2	2	0.23 J	0.094	0.
	UG/L	0.2	100%	GA	0.004	2	2	2	0.11 U	0.052 J	0
IΙ	UG/L	0.10 3	50%			0	1	2	0.11 J	0.08 J	0.0:
П	UG/L	0.28	100%			0	2	2	0.28 J	0.11 U	0.3
1 sulfate	UG/L	0.69	100%			0	2	2	0.28 J	0.14 J	0.
	, i	9			1010 011 -1	4		_			

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Table C-5A
EBS GROUNDWATER SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

				2	eneca Ari	Seneca Army Depot Activity	IVILY				
ō.	Facility Location ID								SEAD-121C MW121C-1	SEAD-121C MW121C-1	SEAD-12 MW1210
3	Matrix								MD GW	MS GW	)
Š	Sample ID								EB023	EB153	EBI
Sample Depth to Top of Sample	f Sample								2.1	2.1	
San San San	Sample Date								3/17/1998	3/17/1998	3/17/19
	QC Code								SA	SA	
	Study ID		Frequency			Number	Number	Number	EBS	EBS	B
		Maximum	of	Criteria	Criteria	of	of Times	of			
er	Units	Value	Detection	Type 1	Value	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Va
	NG/L	0.71	20%	GA	0	0	1	2	0.11 U	0.11 U	0
dehyde	NG/L	0.97	100%	СA	2	0	2	2	0.22 J	0.073 J	0
tone	NG/L	0.2	20%	GA	2	0	-	2	0.11 U	0.11 U	
3HC/Lindane	NG/L	0.038	%05	GA	0.05	0	-	2	0.057 U	0.057 U	0.0
Chlordane	NG/L	0.28 3	100%			0	2	2	0.47	0.086 J	0
77	NG/L	0.14 3	%09	GA	0.04	1	1	2	0.23 J	0.058 J	0.0
or epoxide	NG/L	0.11	100%	GA	0.03	2	2	2	0.057 U	0.072 J	0
thlor	NG/L	0.62	100%	GA	35	0	2	2	0.57	0.57 U	0
le	ng/L	0	%0	GA	90.0	0	0	7	5.7 U	5.7 U	
016	NG/L	0	%0	GA	60.0	0	0	2	1.1 ∪	1.1 U	
221	NG/L	0	%0	GA	60.0	0	0	2	2.3 U	2.3 U	
232	NG/L	0	%0	GA.	60.0	0	0	2	1.1 U	1.1 U	
242	NG/L	0	%0	GA	60.0	0	0	2	1.1 U	1.1 U	
248	$\Omega G/\Gamma$	0	%0	ВA	60.0	0	0	2	1.1 U	1.1 U	
254	NG/L	0	%0	GA	60.0	0	0	2	1.1 U	1.1 U	
260	NG/L	0	%0	GA	60.0	0	0	2	1.1 U	1.1 U	
nd Cyanide	()	c c	300	Ç	Ċ	ć	(	ć		i i	i
Ε.	1,51	5350	100%	SEC SEC	, 20	7 (	77 (	7 (	133	738 J	S
	3 !	0 .	020	5	n	>	>	7	0.1.0	0.1.0	
	UG/L	2.8	20%	MCL	10		_	2	3.7 U	3.8	
	NG/L	106	100%	GA	1000	0	2	2	39.5	38	
	NG/L	0.1	%05	MCL	4	0	-	2	0.1 U	0.1 U	
	UG/L	0.27 3	%05	GA	5	0	1	7	0.39	0.3 U	
	ng/L	167500 3	100%	•		0	2	2	172000 J	163000	162
ш	NG/L	6.5	100%	GA	20	0	2	2	1.2	2.4	
	NG/L	3.6	100%			0	2	2	1.4 U	1.6	
	NG/L	5.2	100%	GA	200	0	2	2	1.2 U	2	
	NG/L	0	%0			0	0	2	2 C	S U	
Amenable	MG/L	0	%			0	0	0			
Total	MG/L	0	%			0	0	0			

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EBS GROUNDWATER SAMPLE RESULTS SEAD-121C and SEAD-121I RI REPORT SEAD-121C Table C-5A

16	9.3	2.4	2	2	0	5000	SEC	100%	16.4	UG/L
0	2.4	1.5 U	2	2	0			100%	6.5	UG/L
6	6.7 U	6.7 U	2	0	0	2	MCL	0%	0	UG/L
952	11200	8920	2	2	_	20000	GA	100%	95200	UG/L
	1.3 U	1.3 U	2	0	0	50	GA	0%	0	UG/L
4	5.6 J	3.7 J	2	2	0	10	GA	100%	4.7 3	UG/L
214	10900	7610	2	2	0			100%	21400	UG/L
10	4.2	2.8	2	2	0	100	GA	100%	10.6	UG/L
0	0.1 U	0.1 U	2	0	0	0.7	GA	0%	0	UG/L
110	1140	1590	2	2	2	50	SEC	100%	1365 <sup>3</sup>	, UG/L
2320	24100	23800	2	2	0			100%	23950 <sup>3</sup>	n UG/L
1	1.8 U	1.8 U	2	0	0	15	MCL	0%	0	UG/L
562	1430	346	2	2	2	300	GA	100%	5620	UG/L
Val	Value (Q)	Value (Q)	Analyses 2	Detected	Exceedances	Value	Type 1	Detection	Value	Units
			of	of Times	of	Criteria	Criteria	of	Maximum	,
EE	EBS	EBS	Number	Number	Number			Frequency		Study ID
S	SA	SA								QC Code
3/17/199	3/17/1998	3/17/1998								Sample Date
S	9.7	9.7								ample Depth to Bottom of Sample
_	2.1	2.1								Sample Depth to Top of Sample
EB15	EB153	EB023								Sample ID
ଦ	GW	GW								Matrix
MW121C	∕W121C-1	MW121C-1								Location ID
SEAD-121	EAD-121C	SEAD-121C								Facility
				ivity	Seneca Army Depot Activity	eneca Ar.	S			
						1				

YSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)
Maximum Contaminant Level - Drinking Water Standards and Health Advisory (EPA 822-B-00-001)
secondary Drinking Water Regulations - Drinking Water Standards and Health Advisory (EPA 82-B-00-001)
duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
ximum detected concentration was obtained from the average of the sample-duplicate pair: EB153/EB023 at MW121C-1.

ound was not detected

orted value is an estimated concentration ompound was not detected; the associated reporting limit is approximate

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Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Date QC Code Qt Code		Maximum	Frequency of	Criteria	Criteria	Number of	Number of Times	Number of	SEAD-121C MW121C-3 GW 121C-2000 7.75 9.5 2/3/2003 RPD-RU 2	SEAD-121C MW121C-3 GW 121C-2009 7.75 9.5 \$/7/2003 SA PID-RI	SEAD-121C MW121C-4 GW 121C-2002 4.5 10 2/3/2003 SA PID-RI	SEAD-121C-MW121C-GW 121C-200- 4. 2/4/200 S. PID-R
ter	Units	Value	Detection	Type 1	Level	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Valu
Organic Compounds	116.1	c	790	δ.	v		C	4	11 \$	0.4.11	11 5	
Cetrachloroethane	UG/L	0	%0	S S	s v	> 0	0	0 0	5 0	0.3 U	5 U S	
chloroethane	UG/L	0	%	GA	-	0	0	9	5 0	0.3 U	5 U	
iloroethane	UG/L	0	%0	GA	5	0	0	9	5 U	0.4 U	S U	
loroethene	NG/L	0	%0	GA	2	0	0	9	D 5	0.3 UJ	5 U	
omo-3-chloropropane	NG/L	0	%0	GA	0.04	0	0	0				
omoethane	NG/L	0	%0	GA	900000	0	0	0				
lorobenzene	NG/L	0	%0	GA	3	0	0	0				
loroethane	NG/L	0	. %0	GA	9.0	0	0	9	2 U	0.3 U	5 U	
doropropane	NG/L	0	%0	GA	1	0	0	9	2 C	0.4 U	2 U	
lorobenzene	NG/L	0	%0	GA	ю	0	0	0				
lorobenzene	NG/L	0	%0	GA	٣	0	0	0				
	UG/L	0	%0			0	0	4	s UJ	5.8 R	s UJ	
	UG/L	0	%0	GΑ	ı	0	0	9	2 U	0.3 U		
hloromethane	UG/L	0	%0	GA	5	0	0	0				
ichloromethane	$\Omega G/\Gamma$	0	%0	MCL	80	0	0	9	5 U	0.4 U	5 U	
тт	NG/L	0	%0	MCL	80	0	0	9	2 U	0.3 U	S U	
disulfide	NG/L	0	%0			0	0	9	s UI	0.3 UJ	s ui	
tetrachloride	UG/L	0	%0	GA	5	0	0	9	S U	0.4 U	2 U	
enzene	NG/L	0	%0	GA	5	0	0	9	2 U	0.4 U	ΩS	
ibromomethane	NG/L	0	%	MCL	08	0	0	9	5 U	0.4 U	2 U	
thane	$\Omega G/\Gamma$	0	%0	GA	5	0	0	9	2 U	0.4 UJ	2 U	
Strin	NG/L	0	%0	GA	7	0	0	9	2 U	0.4 U	2 U	
Dichloroethene	UG/L	0	%0	GA	5	0	0	9	S U	0.3 U	5 U	
Dichloropropene	NG/L	0	%0	GA	0.4	0	0	9	2 U	0.3 UJ	5 U	
nzene	$\Omega G/\Gamma$	0	%	ВA	2	0	0	9	2 U	0.4 U	5 U	
ra Xylene	UG/L	0	%0			0	0	9	2 U	0.8 U	5 U	
promide	UG/L	0	%0	ВA	2	0	0	9	2 U	0.4 U	2 U	
outyl ketone	NG/L	0	%0			0	0	9	5 U	2.8 U		
chloride	UG/L	0	%0	GA	5	0	0	9		0.4 U	5 UI	
ethyl ketone	UG/L	0	%0			0	0	3	S UI	3.6 R	s UJ	
isobutyl ketone	UG/L	0	%0			0	0	9	5 U	2.5 U	5 U	
ne chloride	NG/L	0	%0	GA	2	0	0	9	2 C	0.7 UI	5 U	
ylene	NG/L	0	%0	GA	2	0	0	9	5 U	0.4 U	5 U	
	NG/L	0	%0	GA	2	0	0	9	5 U		5 U	
loroethene	NG/L	0	%0	GA	2	0	0	9	5 U	0.5 U	5 U	

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	Facility								SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID								MW121C-3	MW121C-3	MW121C-4	WD -7171 W W
	Matrix Sample ID								121C-2000	121C-2009	121C-2002	121C-2004
Sample Depth to Top of Sample	of Sample								7.75 9.5	7.75 9.5	4.5	4.5 10
Sample Date	Sample Date								2/3/2003	5/7/2003	2/3/2003	2/4/2003
	QC Code								SA	SA	SA	S/
	Study ID		Frequency			Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-R
		Manual	2	CITICITA	CINCIL	. :			· · ·			17.1
ter	Units	Value	Detection	Type .	Level	Exceedances	Detected	Analyses -	Value (Q)	Value (Q)	Value (Q)	Valu
denes	UG/L	0 (	0%	GA :	5	0	0					
2-Dichloroethene	UG/L	0	0%	GA	S.	0	0	, 6	5 U	0.4 U	5 U	
3-Dichloropropene	TVĐU	0	0%	GA	0.4	0	0	6	5 U	0.3 U	5 U	
pethene	TVĐU	0	0%	GA	5	0	0	6	5 U	0.4 U	5 U	
loride	UG/L	0	0%	GA	2	0	0	6		0.3 U	5 U	
atile Organic Compounds				<u>.</u>		,	,					
chlorobenzene	106/1	0 0	%	G A	s u	o	o c	Νσ	1.1.	11.7	1.2	- 1
dorobenzene	UG/L	0 0	0%	GA:	w	0 (	0	6	1.2 U	1.2 U	1.2 U	1.
dorobenzene	T/DU	0	0%	GA	ω	0	0	6	1 U	1 U	1 U	1.
ichlorophenol	UG/L	0	0%	GA	1	0	0	6	1 U	1 U	1 U	1.
ichlorophenol	UG/L	0	0%	GA	_	0	0	6	1 U	1 U	1 U	1.
dorophenol	UG/L	0	0%	GA	5	0	0	. 6	1.3 U	1.3 U	1.4 0	) .
ethylphenol	T/DU	0	%			0	0	0	2.3 U	2.3 U	2.4 U	2.
trophenol	TOT	0	0%	)		0	0	·ω		2 0		•
trotoluene	T/9U	0	0%	GA	ı Ur	0	0		. 1.1		. :	• :
trotoluene	T/DU	0	0%	GA	v	0	0	, 0		. 1		4 1
naphthalene	UG/L	0	0%			o c	o c	۰ ٥	1.2	1.7.1	1.2	
phenol	1/90	· c	0%			o c	o	٠ ٥	1.1	1.1.	3 :-	
Inaphthalene	16/1	o c	0%			<b>&gt;</b> C	0 0	у о	11.6	1.1.0	11 -	
miline	T/DU	0 (	0%	GA	. 5	0	0	6	1 U	U 1	1 U	1
henoi	TVĐU	0	0%	GA	_	0	0	6	1.1 U	1.1 U	1.1 U	1.
fethylphenol	UG/L	0	0%	GA	<b>⊷</b>	0	Ö	ω	1.8 U		1.9 U	1.
hlorobenzidine	UG/L	0	0%	GA	5	0	0	. 6	1 5	1 U	. I U	
miline	T/S/U	0	0%	GA	· U	o 0	o c	٠.٥		1.2 [	1.2	
tro-2-methylphenol		0 0	%	GA	_	0 0	o c	λ 0	13.1	1311	1.2.0	
opnenyi phenyi enter	197	0 0	0%	۵ م	-	> 0	0 0	ς (		1.1		
oaniline	UG/L	0 0	%	GA.	u, ·	0 (	0 (	6 (	1.2 UJ	1.2 U	1.2 UJ	1
ophenyl phenyl ether	UG/L	0	0%			0	0	6	1.2 U	1.2 U	1.2 U	1.
/lphenol	UG/L	0	0%			0	0	ω		1.8 U		
miline	UG/L	0	0%	GA	S	0	0	6	2.4 U	2.4 U	2.5 U	2
henol	UG/L	0	%	GA	_	0	0	6	1.1 U	1.1 U	1.1 U	. 1
nthene	UG/L	0	%			0	0	. 6				
nthylene	UG/L	0	0%			0	0	6	1.2 U	1.2 U	1.2 U	1

### Table C-5B RI GROUNDWATER SAMPLE RESULTS SEAD-121C

### SEAD-121C SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility								SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121
	Location ID								MW121C-3	MW121C-3	MW121C-4	MW121C
	Sample 1D								121C-2000	121C-2009	121C-2002	121C-200
Sample Depth to Top of Sample	Top of Sample								7.75	7.75	4.5	4
Sample Depth to Bottom of Sample	tom of Sample								9.5	9.5	10	
	Sample Date								2/3/2003	5/7/2003	2/3/2003	2/4/200
	QC Code								SA	SA	SA	S
	Study ID		Frequency			Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-
		Maximum	o	Criteria	Criteria	of	of Times	of	2	m	2	
ster	Units	Value	Detection	Type '	Level	Exceedances	Detected	Analyses 4	Value (Q)	Value (Q)	Value (Q)	Valu
ene	NG/L	0	%0			0	0	9	1.3 U	1.3 U	1.4 U	1
)anthracene	$\Omega G/\Gamma$	0	%0			0	0	9	1 C	1 C	1 U	1
)pyrene	UG/L	0	%0	GA	0	0	0	9	1.5 U	1.5 U	1.6 U	1
)fluoranthene	NG/L	0	%0			0	0	9	1 U	1 O	1 U	1
shi)perylene	NG/L	0	%0			0	0	9	1.3 UJ	1.3 UJ	1.4 UI	1
c)fluoranthene	NG/L	0	%0			0	0	9	2.6 U	2.6 U	2.7 U	2
hloroethoxy)methane	NG/L	0	%0	GA	5	0	0	9	1 U	1 U	1 U	1
hloroethyl)ether	NG/L	0	%0	GA		0	0	9	1.2 U	1.2 U	1.2 U	1
hloroisopropyl)ether	NG/L	0	%0	GA	5	0	0	9	1 U	1 U	1 U	1
thylhexyl)phthalate	NG/L	1.4	17%	GA	5	0	-	9	1 U	1 U	1 U	1
nzylphthalate	NG/L	0	%0			0	0	9	1 U	1 U	1 U	1
ole .	NG/L	0	%0			0	0	9	0.42 U	0.42 U	0.43 U	0.4
je Je	NG/L	0	%0			0	0	9	1.6 U	1.6 U	1.7 U	1
tylphthalate	NG/L	1.6	17%	GA	50	0	-	9	1.2 U	1.2 U	1.2 U	1
tylphthalate	UG/L	0	%0			0	0	9	1.5 U	1.5 U	1.6 U	1
(a,h)anthracene	UG/L	0	%0			0	0	9	1.5 UJ	1.5 UJ	1.6 UJ	1
ofuran	UG/L	0	%0			0	0	9	1 U	1 U	1 U	1
phthalate	NG/L	0	%0			0	0	9	1 U	1 0	U I	1
ylphthalate	UG/L	0	%0			0	0	9	1 U	1 U	1 U	1
thene	UG/L	0	%0			0	0	9	1 U	1 U	1 U	1
e	NG/L	0	%0			0	0	9	1.1 U	1.1 U	1.1 U	1
lorobenzene	NG/L	0	%0	GA	0.04	0	0	9	1.1 U	1.1 U	1.1 U	П
lorobutadiene	UG/L	0	%0	GA	0.5	0	0	9	1.5 U	1.5 U	1.6 U	1
lorocyclopentadiene	NG/L	0	%0	GA	5	0	0	4	3.8 U	3.8 R	4 U	
loroethane	UG/L	0	%0	GA	5	0	0	9	1.1 U	1.1 U	1.1 U	_
1,2,3-cd)pyrene	UG/L	0	%0			0	0	9	1.6 U	1.6 UJ	1.7 U	
oue.	NG/L	0	%0			0	0	9	1 C	1 U	1 U	_
sodiphenylamine	NG/L	0	%0			0	0	9	2 U	2 U	2.1 U	(4
sodipropylamine	UG/L	0	%0			0	0	9	1 U	1 UJ	1 U	
alene	UG/L	0	%0			0	0	9	1.2 U	1.2 U	1.2 U	-
nzene	NG/L	0	%0	GA	0.4	0	0	9	1 U	1 U	1 U	
lorophenol	NG/L	0	%0	GA	ŕ	0	0	9	1.9 U	1.9 U	2 U	
threne	T/90	0	%0			0	0	9	1 U	1 U	1 U	
	NG/L	0	%	GA	_	0	0	9	1 U	1 U	1 U	
	NG/L	0	%0			0	0	9	1 C	1 U	1 C	
des/PCBs												,
00	NG/L	0	%0	GA	0.3	0	0	2	0.01 R	0.01 UJ	0.01 R	0.

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					5	Schera vi mà pebor ventra	Character					
	Facility								SEAD-121C	SEAD-121C	SEAD-121C	SEAD-1210
	Location ID								MW121C-3	MW121C-3	MW121C-4 GW	MW121C-4
	Sample ID								121C-2000	121C-2009	121C-2002	121C-2004
Sample Depth to Top of Sample	Cop of Sample								7.75	7.75	4.5	4.0
Sample Depth to Bottom of Sample Date	Sample Date								2/3/2003	5/7/2003	2/3/2003	2/4/2003
	QC Code								SA	SA	SA	S.A
	Study ID		Frequency			Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-R
		Maximum	of	Criteria	Criteria	of	of Times	of	2	دي	2	
ter	Units	Value	Detection	Type '	Level	Exceedances	Detected	Analyses '	Value (Q)	Value (Q)	Value (Q)	Valu
7 W	T/SOIT	o c	0%%	GA A	0 0	0 0	00	s u	0.005 CJ	0.005 0	0.00 C	0.00
•	UGAL	0 0	0%	GA.	001	0 (	0 (	<b>رى</b> 1	0.02 U	0.02 UJ	0.02 U	0.00
HC	UG/L	0	0%	GA	0.01	0	0	5	0.01 U	0.01 UJ	0.01 U	0.0
hlordane	UG/L	0	0%			0	0	5	0.02 U	0.02 UJ	0.02 U	0.00
C	UG/L	0	0%	GA	0.04	0	0	5	0.01 U	0.01 U	0.01 U	0.0
пе	UG/L	0	0%			0	0	ı w	0.14 U		. 0.14 U	0.1
HC.	T/ĐU	0 0	0%	GA A	0.04	0 0	o c	n U	0.004 0	0.004 0	0.004 0	0.00
ân I	UGAL	0 0	0%		0.00	0 (	0 (	S (	0.02 UJ	0.02 UJ	0.02 UJ	0.0
ân II	TYDU	0	0%			0	0	5	0.01 UJ	0.01 UJ	0.01 UJ	0.0
fan sulfate	UG/L	0	0%			0	0	5	0.02 U	0.02 U	0.02 U	0.0
	UG/L	0	0%	GA	0	0	0	, v,	0.02 UJ	0.02 U	0.02 UJ	0.0
retone	IIG/I	0 0	0%%	GA S	<b>.</b> , .	0 0	0 0	cs c	0.009 U	0.009 UJ	0.009 U	0.00
BHC/Lindane	TOUL	0	0%	GA	0.05	0	0	S	0.009 U	0.009 UJ	0.009 U	0.00
Chlordane	T/ĐU	0	0%			0	0	S	0.01 U	0.01 U	0.01 U	0.0
lor	T/DU	0	0%	GA	0.04	0	0	5	0.007 U	0.007 U	0.007 U	0.00
lor epoxide	TVDU	0	0%	GA	0.03	0	0	S	0.009 UJ	0.009 U	0.009 UJ	0.00
/chlor	UG/L	0	0%	GA	35	0	0	S	0.008 UJ	0.008 U	0.008 UJ	0.00
ne	UG/L	0	0%	GA	0.06	0	0	S	0.12 U	0.12 U	0.12 U	0.1
1016	UG/L	0	0%	GA	0.09	0	0	, Un	0.24 U	0.24 UJ	0.24 U	0.2
.1221	UG/L	0	0%	GA	0.09	0	0	, 0	0.08 U	0.081 U	0.08	0.0
1232	T/PO	0 0	0%	G A	0.09	<b>&gt;</b> C	0 0	A (	0.000	0.091 111	11 80 0	0.0
1242	TIGA	0 0	0%	GA S	0.00	0 (	0 (	us (	0.12 U	0.12 U	0.12 U	0.1
.1254	UG/L	0	0%	GA	0.09	0	0	5	0.05 U	0.051 U	0.05 U	0.0
1260	UG/L	0	0%	GA	0.09	o	0	S	0.01 U	0.01 UJ	0.01 U	0.0
and Cyanide												
LTD.	UG/L	588	100%	SEC	50	4 0	) 0	. 0	401	239	146 J	103
лу	1/50	0.4	33%	GA.	5 6	) h	) 1	, 0	25.0	4,00	4 5 1	10
	UG/L	2 0	0%	MCL	100	0 0	, ,	n 0	4.5 0	4.5 0	30.6	4. 6
	UG/L	73.7	100%	GA	1000	o	. 0	0	/3./	09.3 J	29.0	26
B	UG/L	0.24	17%	MCL	4'	0		0	0.9 (	0.1	0.9 0	9 9
m	UG/L	1.1	17%	GA	S	0		6	0.8 U	0.8 U	0.8 U	0.
	UG/L	558000	100%	)	3	0	0	0	115000	114000	420000	21300
TITO OTT	T/DO	21.4	05%	Q'A	30	c	·	c	1.7	0.1.0	1.4	,

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### RI GROUNDWATER SAMPLE RESULTS SEAD-121C and SEAD-121I RI REPORT SEAD-121C Table C-5B

Seneca Army Depot Activity

Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Comple Date	Facility Location ID Matrix Sample ID Op of Sample Om of Sample Sample Date								SEAD-121C MW121C-3 GW 121C-2000 7.75 9.5 2/3/2003 SAS	SEAD-121C MW121C-3 GW 121C-2009 7.75 9.5 \$7/72003	SEAD-121C MW121C-4 GW 121C-2002 4.5 10 2/3/2003 SA	SEAD-121 MW121C GV 121C-200 2/4/200
y SS		Maximum	Frequency of	Criteria	Criteria	Number of	Number of Times	Number of	PID-RI 2			PID-1
ster	Units	Value	Detection	Type 1	Level	Exceedances	Detected	Analyses 2	Value (Q)		- 1	Val
	UG/L	3	20%	ć	000	0 0	m "	9	2.3 U			4
	UG/L	0	%0%	5	700	0	n 0	0	0			
e, Amenable	MG/L	0	%0			0	0	9	0.01 U	0.01 U	0.01 U	0.0
	MG/L	0	%0			0	0	3	0.01 U		0.01 U	0.0
	NG/L	868.725 3	%05	GA	300	3	3	9	540	516	34.9 U	17.
	UG/L	10.5	83%	MCL	15	0	5	9	4.1	3 U	5.6	4
ium	NG/L	109000	100%			0	9	9	27700	27800	73600	880
rese	NG/L	297	100%	SEC	20	9	9	9	139	135	328	2.
>	NG/L	0.2	33%	GA	0.7	0	2	9	0.2 U	0.2	0.2 U	0
	NG/L	2 3	17%	GA	100	0	1	9	2 U	2 U	2 U	m
tun	NG/L	9400	100%			0	9	9	2070	1790 J	9430	63
Е	NG/L	8.9	33%	GA	10	0	2	9	4.2 U	1.3 U	3 U	
	NG/L	0	%0	GA	20	0	0	9	3.7 U	3.7 U	3.7 U	(*)
	NG/L	58400 3	100%	GA	20000	3	9	9	18300	17900	60100	567
ш	NG/L	0	%0	MCL	2	0	0	9	4.2 U	5.3 U	4.2 U	4
un	NG/L	0	%0			0	0	9	2.5 U	1.4 U	2.5 U	(4
	NG/L	96.2	100%	SEC	2000	0	9	9	12.8 J	38.2	9.2 J	

0

MG/L

etroleum Hydrocarbons

0.041 U

1 🗆

0.04 U

9

0

<sup>=</sup> NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)

= Maximum Contaminant Level - Drinking Water Standards and Health Advisory (EPA 822-B-00-001)

= Secondary Drinking Water Regulations - Drinking Water Standards and Health Advisory (EPA 82-B-00-001)

sle-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.

maximum detected concentration was obtained from the average of the sample-duplicate pair. 121C-2004/121C-2002 at MW121C-4.

repound was not detected reported value is an estimated concentration e compound was not detected; the associated reporting limit is approximate data was rejected in the data validating process

						*	•				
	Facility								SEAD-121C	SEAD-121C	SEAD-121C
	Location ID Matrix								MW121C-4 GW	MW121C-6 GW	MW121C-6 GW
	Sample ID								121C-2010	121C-2003	121C-2012
Sample Depth to Bottom of Sample	op of Sample								10	10	10
	Sample Date								5/7/2003 SA	2/3/2003 SA	5/7/2003 SA
	Study ID		Frequency			Number	Number	Number	PID-RI	PID-RI	PID-RI
	,	Maximum	of	Criteria	Criteria	of	of Times	of	з	2	u
Parameter	Units	Value	Detection	Type 1	Level	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds		,		•		•					
1,1,1-Trichloroethane	TG/L	0	0%	GA.	, U1	0	0	. 0	0.4 U	5 U	
1,1,2,2-1 etrachloroethane	LIG/L	o c	2 %	O A	ں ۔	o C	o c	n 0	0.3	, C	0.5
1,1,2-112moroeudie	TIG/L	0 0	0%%	ล G	л -	0 0	<b>o</b> c	<b>.</b>	0.5 0	2 0	0.5 0
1,1-Dichloroethene	UG/L	0	0%	GA	<b>5</b>	0	0	6	0.3 U	5 U	0.3 UJ
1,2-Dibromo-3-chloropropane	UG/L	0	0%	GA	0.04	0	0	0			
1,2-Dibromoethane	UG/L	0	0%	GA	0.0006	0	0	0			
1,2-Dichlorobenzene	TIG/L	00	0%%	G A	ο Λ	0	0	v 0			
1.2-Dichloropropane	UG/L	0 0	0%	GA .	- 6	0 (	0, 0	ο (	0.4 U	5 U	0.4 U
1,3-Dichlorobenzene	UG/L	0	0%	GA	ω	0	0	0			
1,4-Dichlorobenzene	UG/L	0	0%	GA	w	0	0	0			
Acetone	T/O/L	0	0%	)		0	0	4 .	5.8 R	5 UJ	8.5 UJ
Benzene	116/1	0	0%	G GA	٠ ب	0	0	00			
Bromodichloromethane	UG/L	0	0%	MCI.	80	0 (	0	6 (	0.4 U	5 U	
Bromoform	UG/L	0	0%	MCL	80	0	0	6	0.3 U	5 U	
Carbon disulfide	UG/L	0	0%			0	0	6	0.3 U	5 UJ	
Carbon tetrachloride	UG/L	0	0%	GA	v	0	0	6	0.4 U	5 U	
Chlorobenzene	TVDU	0	0%	GA	S	0	0	6	0.4 U	5 U	
Chlorodibromomethane	TVBU	0	0%	MCL	. 80	0	0	0	0.4 U	5 U	
Chloroethane	100/1	o c	0%	G A	1 v	o c	0 0	. 0	0.4	5 C	
Cis-1.2-Dichloroethene	UG/L	0 0	0 %	G A	ν, <u> </u>		0 0	00	0.4	5 0	0.4 0
Cis-1,3-Dichloropropene	U <sub>O</sub> /L	0	0%	GA	0.4	0	0	6	0.3 U	5 U	
Ethyl benzene	UG/L	0	0%	GA	5	0	0	6	0.4 U	5 U	
Meta/Para Xylene	UG/L	0	0%			0	0	6	0.8 U	5 U	
Methyl bromide	UG/L	0	0%	GA	5	0	0	6	0.4 U	5 U	
Methyl butyl ketone	UG/L	00	0%	>	'n	0 0	0	0	2.8 U	5 U	
Methyl ethyl ketone	LIGA.	0 0	0%	5	·	0 0	0 0	ی در	3 6 6	2 0	
Methyl isobutyl ketone	UG/L	0 0	0%			0 0	0 0	6 L	2.5 U	5 0	
Methylene chloride	T/9U	0	0%	GA	υ	0	0	6	1.3 UJ	5 U	
Ortho Xylene	UG/L	0	0%	GA	S	0	0	6	0.4 U	5 U	
Styrene	UG/L	0	0%	GA	S	0	0	6	0.3 U	5 U	
Tetrachloroethene	UG∕L	0	0%	GA	S	0	. •	6	0.5 U	5 U	

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Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Date QC Code	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample Date								SEAD-121C MW121C-4 GW 121C-2010 4.5 10 5/7/2003	SEAD-121C MW121C-6 GW 121C-2003 6.9 10 2/3/2003 SA	SEAD-121C MW121C-6 GW 121C-2012 6.9 10 5/7/2003
	Study ID	Maximum	Frequency of	Criteria	Criteria	Number of	Number of Times	Number of	PID-RI 3	PID-RI 2	PID-RI 3
Parameter	Units	Value	Detection	Type 1	Level	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)
Toluene	UG/L	0	%0	GA	5	0	0	9	0.4 U	5 U	0.4 U
Total Xylenes	NG/L	0	%0	GA	2	0	0	0	;		
Trans-1,2-Dichloroethene	NG/L	0 (	%0	GA	ر د	0 (	0 (	9 4	0.4 U	0.5	0.4 U
Trans-1,3-Dichloropropene	7,501	00	%%	A G	4. 4.	0 0	o c	0 9	0.5 U	) S	0.4 0 U
Vinyl chloride	NG/L	0	%0	GA	5 2	0	0	9	0.3 U		0.3 U
Semivolatile Organic Compounds	(4										
1,2,4-Trichlorobenzene	NG/L	0	%0	GA	2	0	0	9	1.2 U	1.2 U	1.2 U
1,2-Dichlorobenzene	NG/L	0	%0	GA	m	0	0	9	1 0	1 0	D 1
1,3-Dichlorobenzene	UG/L	0	%0	GA	М	0	0	9	1.2 U	1.2 U	1.2 U
1,4-Dichlorobenzene	UG/L	0 0	%0	GA	m -	0 0	0 0	9			
2,4,5-1 nonlorophenol	100	0 0	%0	¥ 5	٠.	0 0	0 0	o v	)		
2,4,6-1 ncnloropnenol	1/5/1	o c	%%	8 g	\c	0 0	0 0	0 40	13.11	13.0	13 U
2 4-Dimethylphenol	17071	0 0	%0	5	ì	o c	) C	· v	2.3 11	2.4.13	2.3 U
2,4-Dinitrophenol	T/S/n	0	%0			0	0	) M	2 C C	)	2 UI
2,4-Dinitrotoluene	NG/L	0	%0	GA	2	0	0	9	1.1 U	1.1 U	1.1 U
2,6-Dinitrotoluene	UG/L	0	%0	GA	2	0	0	9	1 U	1 U	1 U
2-Chloronaphthalene	NG/L	0	%0			0	0	9	1.2 U	1.2 U	1.2 U
2-Chlorophenol	NG/L	0	%0			0	0	9	1.1 U	1.1 U	1.1 U
2-Methylnaphthalene	$\Omega G \Lambda L$	0	%0			0	0	9	1.2 U	1.2 U	1.2 U
2-Methylphenol	NG/L	0	%0			0	0	9	n I	1 C	10
2-Nitroamline	NG/L	0	%0	GA	2	0	0	9	1 0	1 C	0 7
2-Nitrophenol	NG/L	0	%0	GA G		0	0	9 (	1.1 U	D ;	1.1 U
3 or 4-Methylphenol	UG/L	0 (	% %	45 d	- ·		0 (	J (		0 6.1	
3,3'-Dichlorobenzidine	7,50 1.0%	0 (	%0	Y O	'n	0 (	<b>o</b> (	o (		3 :	
3-introamine	1/50 1.00/L	<b>o</b> (	%0	¥ 5	0	<b>&gt;</b> (	<b>O</b> (	0 \	0.7.1	0.7.1	0 7:1
4,6-Dinitro-2-methylphenol	UG/L	0 (	%0	GA	-	0 (	0 (	9 \	1.2 U	0.7.1	1.2 UJ
4-Bromophenyl phenyl ether	UG/L	0	%0	i	,	0	0	0	J.5. U		⊃ ;
4-Chloro-3-methylphenol	UG/L	0	%0	GA		0	0	9	0 1:1	01:1	0 1.1
4-Chloroaniline	NG/L	0	%0	GA	2	0	0	9	1.2 U		1.2 0.1
4-Chlorophenyl phenyl ether	UG/L	0	%0			0	0	9	1.2 U	1.2 U	1.2 U
4-Methylphenol	NG/L	0	%0			0	0	m	1.8 ∪		1.8 U
4-Nitroaniline	NG/L	0	%0	GA	2	0	0	9	2.4 U	2.5 U	
4-Nitrophenol	UGL	0	%0	GA	_	0	0 (	9 \	D : .	1.1 U	01.1
Acenaphthene	7/5/C	0	%0			0 (	<b>o</b> (	o \	); :		
Acenaphthylene	7/50	0	%0			0	>	o	0 7:1	0 7:1	0 7:1

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						,	•				
	Facility								SEAD-121C	SEAD-121C	SEAD-121C
	Location ID  Matrix								MW121C-4 GW	GW MW121C-6	GW GW
	Sample ID						,		121C-2010	121C-2003	121C-2012
Sample Depth to Top of Sample Sample Depth to Bottom of Sample	m of Sample								10	10	10
	Sample Date						,		5/7/2003	2/3/2003	5/7/2003
	Shidy II)		Frequency			Number	Number	Number	PID-RI	PID-RI	PID-RI
		Maximum	of	Criteria	Criteria	of	of Times	of	ω	2	ω
Parameter	Units	Value	Detection	Type 1	Level	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)
Anthracene	T/DU	0	0%			0	0	6	1.3 U	1.3 U	1.3 U
Benzo(a)anthracene	UG/L	0	0%			0	0	6	D 1	1 U	1 U
Benzo(a)рутепе	TVĐU	0	0%	GA	0	0	0	. 0	1.5 U	1.5 U	1.5 U
Benzo(b)fluoranthene	T/D/L	0	%			0	0	0		13 111	110
Benzo(ki)fluoranthene	UGAL	0 0	0 %			0 0	0 (	0, 0	2.7 U	2.7 U	2.6 U
Bis(2-Chloroethoxy)methane	UG/L	0	0%	GA	5	0	0	6	1 [	1 U	n 1
Bis(2-Chloroethyl)ether	UG/L	0	0%	GA	_	0	0	6	1.2 U	1.2 U	1.2 U
Bis(2-Chloroisopropyl)ether	TOT	<u>,</u> 0	17%	G A	<b>ካ</b> ሀሳ	0	- o	n 0	141	1 0	1 1
Butylbenzylphthalate	UG/L	0 ;	0%	5	,	0 "	0,	ο (	1 0	1 U	1 U
Carbazole	UG/L	0	0%			0	0	6	0.42 U	0.43 U	0.42 U
Chrysene	UG/L	0	0%			0	0	6	1.6 U	1.6 U	1.6 U
Di-n-butylphthalate	UG/L	1.6	17%	GA	50	0	. 1	. 6	1.2 U	1.2 U	1.6 J
Di-n-octylphthalate	UG/L	0	0%			0	0	0	1.5 U	1.5 U	1.5 U
Dibenz(a,h)anthracene	TIG/I	0 0	0%			0 0	0 0	n 0	1.5	1.5 (5	11 1
Diethyl phthalate	UG/L	0	0%			0	0	6	1 U	1 U	1 0
Dimethylphthalate	UG/L	0	0%			0	0	6	1 U	1 U	1 U
Fluoranthene	UG/L	0	0%			0	0	6	1 0	1 U	1 U
Fluorene	T/DU	0	0%			0	0	. 0	1.1 U	1.1 U	1.1 U
Hexachlorobenzene	UG/L	0	0%	GA	0.04		0	۰ ٥	1.1 0	1.1 0	1.1 (
Hexachlorobutadiene	1,07	> <	0%	G A	'n	0 0	0 0	٥ م	3.0 11	11 0 5	3 g D
Hexachloroethane	UG/L	0 0	0%	GA	y, c		0 0	6 4	1.1 U	1.1 U	1.1 U
Indeno(1,2,3-cd)pyrene	UG/L	0	0%			0	0	6	1.6 U	1.6 U	1.6 UJ
Isophorone	UG/L	0	0%			0	0	6	1 U	1 0	1 U
N-Nitrosodiphenylamine	UG/L	0	0%			0	0	, 0	2 0	2.1 U	2 U
Naphthalene Naphthalene	IIGA GGE	<b>&gt;</b> C	0%			0 0	0 0	эл c	1.2 U	1211	1.2 11
Nitrobenzene	TVBU	0	0%	GA	0.4	0	0	6	1 U	1 U	1 U
Pentachlorophenol	T/9U	0	0%	GA	_	0	0	6	1.9 U	2 U	1.9 U
Phenanthrene	UG/L	0	0%			0	0	6	1 U	1 U	1 0
Phenol	UG/L	0 0	%	GA	1	0	0	n 0	1 0	1 0	1 0
Pesticides/PCBs	Ç.	•	ò			¢	•	•			•
4,4'-DDD	UG/L	0	0%	GA	0.3	0	0	2	0.01 UJ	0.01 R	

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	Facility								SEAD-121C	SEAD-121C	SEAD-121C
	Location ID								MW121C-4	MW121C-6	MW121C-6
	Matrix								В	ΜĐ	МÐ
	Sample ID								121C-2010	121C-2003	121C-2012
Sample Depth to Top of Sample	Top of Sample								4.5	6'9	6.9
Sample Depth to Bottom of Sample	tom of Sample								10	10	10
	Sample Date								5/7/2003	2/3/2003	5/7/2003
	QC Code					,	,	,	SA	SA	SA
	Study ID		Frequency			Number	Number	Number	PID-RI	PID-RI	PID-RI
		Maximum	Jo	Criteria	Criteria	Jo	of Times	Jo	3	2	3
Parameter	Units	Value	Detection	Type '	Level	Exceedances	Detected	Analyses 4	Value (Q)	(Q)	Value (Q)
4,4'-DDE	NG/L	0	%0	GA	0.2	0	0	5	0.005 U	0.005 UJ	
4,4'-DDT	NG/L	0	%0	GA	0.2	0	0	2	0.01 UJ	0.01 R	
Aldrin	NG/L	0	%0	GA	0	0	0	5	0.02 U	0.02 U	
Alpha-BHC	UG/L	0	%0	GA	0.01	0	0	2	0.01 UJ	0.01 U	
Alpha-Chlordane	NG/L	0	%0			0	0	5	0.02 U	0.02 U	
Beta-BHC	NG/L	0	%0	GA	0.04	0	0	S	0.01 U	0.01 U	
Chlordane	NG/L	0	%0			0	0	М		0.14 U	
Delta-BHC	NG/L	0	%0	GA	0.04	0	0	2	0.004 UJ	0.004 UJ	
Dieldrin	NG/L	0	%0	GA	0.004	0	0	5	O.009 U	O.009 U	
Endosulfan I	NG/L	0	%0			0	0	5	0.01 U	0.02 UJ	
Endosulfan II	NG/L	0	%0			0	0	\$	0.01 UJ	0.01 UJ	
Endosulfan sulfate	NG/L	0	%0			0	0	\$	0.02 UJ	0.02 U	
Endrin	UG/L	0	%0	GA	0	0	0	\$	0.02 UJ	0.02 UJ	
Endrin aldehyde	NG/L	0	%0	GA	2	0	0	5	0.02 U	0.02 UJ	
Endrin ketone	NG/L	0	%0	GA	2	0	0	5	O.009 U	0.009 U	
Gamma-BHC/Lindane	T/90	0	%0	GA	0.05	0	0	5	0.009 UJ	O.009 U	
Gamma-Chlordane	NG/L	0	%0			0	0	5	0.01 U	0.01 U	
Heptachlor	NG/L	0	%0	GA	0.04	0	0	5	0.007 U	0.007 U	
Heptachlor epoxide	NG/L	0	%0	GA	0.03	0	0	5	0.008 U	0.009 UJ	
Methoxychlor	NG/L	0	%0	GA	35	0	0	5	0.008 UJ	0.008 UJ	
Toxaphene	T/90	0	%0	GA	90.0	0	0	5	0.12 U	0.12 U	
Aroclor-1016	NG/L	0	%0	GA	0.09	0	0	5	0.24 U	0.24 U	
Aroclor-1221	$NG/\Gamma$	0	%0	ВA	60.0	0	0	5	0.081 U	0.08 U	
Aroclor-1232	$NG/\Gamma$	0	%0	GA	60.0	0	0	5	0.091 U	O.09 U	
Aroclor-1242	$NG/\Gamma$	0	%0	GA	60.0		0	5	0.081 U	0.08 U	
Aroclor-1248	NG/L	0	%0	ΒĄ	60.0	0	0	5	0.12 U	0.12 U	
Aroclor-1254	$\Omega G \mathcal{T}$	0	%0	GA	0.09	0	0	5	0.051 U	0.05 U	
Aroclor-1260	NG/L	0	%0	GA	0.09	0	0	ς,	0.01 U	0.01 U	
Metals and Cyanide											
Aluminum	UG/L	588 3	. %001	SEC	20	4	9	9	19.9 J	88.7 J	41.1 J
Antimony	NG/L	8.4	33%	GA	٣	2	2	9	3.8 U	8.4 J	3.8 U
Arsenic	NG/L	0	%0	MCL	10	0	0	9	4.5 U	4.5 U	4.5 U
Ватішт	UG/L	73.7	100%	GA	1000	0	9	9	21 J	19.4	18.2 J
Beryllium	UG/L	0.24	17%	MCL	4	0	1	9	0.24 J	O 6.0	0.1 U
Cadmium	UG/L	1.1	17%	GA	5	0	1	9	0.8 U	0.8 U	1.1 J
Calcium	NG/L	558000	100%			0	9	9	338000 J	258000	418000
Chromium	T/DN	21.4	83%	GA	20	0	2	9	1.5 J	3.3	21.4

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### RI GROUNDWATER SAMPLE RESULTS SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity SEAD-121C Table C-5B

			1C-4.	e. 2002 at MW12	B-00-001) 3PA 82-B-00-001) sented in this table 121C-2004/121C	y (EPA 822. 1 Advisory (I 7 statistic pre plicate pair:	98) alth Advisor is and Health the summary re sample-du	\$1.1.1, June 19 andards and He Water Standard is were used in the average of the	andard (TOGS king Water St ns - Drinking average result btained from t	oundwater St t Level - Drin ter Regulatio raged and the tration was ol	NOTES:  1) GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)  1) GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)  MCL = Maximum Contaminant Level - Drinking Water Standards and Health Advisory (EPA 822-B-00-001)  SEC = Secondary Drinking Water Regulations - Drinking Water Standards and Health Advisory (EPA 82-B-00-001)  2) Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.  2) The maximum detected concentration was obtained from the average of the sample-duplicate pair: 121C-2004/121C-2002 at MW121C-4
1 U	0.04 ر	1 U	0	0	0			0%	0	MG/L	Other Total Petroleum Hydrocarbons
96.2	12.6 J	24.8	6	6	0	5000	SEC	100%	96.2	UG/L	Zinc
1.4 U	2.5 (	1.4 U	. 6	0	0			0%	0	UG/L	Vanadium
5.3 U	4.2 L	5.3 U	6	0	0	2	MCL	0%	0	UG/L	Thallium
17600	26400	54100	6	6	u	20000	GA	100%	58400 <sup>3</sup>	UG/L	Sodium
3.7 U	3.7 L	3.7 U	6	0	0	50	GA	0%	0	UG/L	Silver
1.3 U	6.8	1.9 J	6	2	0	10	GA	33%	6.8	UG/L	Selenium
6320 J	3850	9400	6	6	0			100%	9400	UG/L	Potassium
2 U	2 U	2 U	6	_	0	100	GA	17%	2 3	T/DU	Nickel
0.2	0.2 U	0.2 U	6	2	0	0.7	GA	33%	0.2	UG/L	Мегсшу
170	297	279	6	6	6	50	SEC	100%	297	UG/L	Manganese
89000	109000	61800	6	6	0			100%	109000	UG/L	Magnesium
10.5	3.8	9	6	5	0	15	MCL	83%	10.5	UG/L	Lead
22.2 U	34.9 U	22.2 U	6	ω	w	300	GA	50%	868.725 <sup>3</sup>	UG/L	Iron
	0.01 U		ພ	0	0			0%	0	MG/L	Cyanide, Total
0.01 U	0.01 U	0.01 U	6	0	0			0%	0	MG/L	Cyanide, Amenable
			0	0	0			50%	0	UG/L	Cyanide
17.7 J	2 U	11.8 J	6	W	0	200	GA	50%	17.7	UG/L	Copper
0.7 U	3 J	1.5 J	6	ω	0			50%	ω	T/DU	Cobalt
Value (Q)	Value ((	Value (Q	es 2	Detected	Exceedances	Level	Type 1	Detection	Value	Units	Parameter
ا س	2	LJ		of Times	of	Criteria	Criteria	of	Maximum	omey to	
PID-RI	PID-RI	PID-RI	Nimber	Nimber	Vimber			Fraguency		Strict In	
AS	45	SA 2005								Sample Date	
5/7/2003	2/3/2003	5/7/2003								i or sample	ordings to monog of indeed architect
10	10	10								p of Sample	Sample Depth to Top of Sample
121C-2012	1C-2003	121C-2010								Sample ID	,
GW	GW	GW								Matrix	
MW121C-6	V121C-6	MW121C-4								Location ID	
SEAD-121C	D-121C	SFAD-121C								Facility	

U = compound was not detected
J = the reported value is an estimated concentration
UJ = the compound was not detected; the associated reporting limit is approximate
R = the data was rejected in the data validating process

j			

·		

### SEAD-121C and SEAD-1211 RI REPORT GROUNDWATER SAMPLE RESULTS BUILDING 360 (SEAD-27) Seneca Army Depot Activity Table C-6

	Facility								Building 360	Building 360	Building 360	Building 360
Ŝ	Location ID								MW-2	MW-2	I-SOMP	I-SOMP
	Matrix								ΘW	ωS	ΜĎ	δŞ
Ŋ	Sample ID								DRMO-2014D	DRMO-2014	DRMO-2007	DRMO-2015
Sample Depth to Top of Sample	of Sample								16.7	16.7	E	0
Sample Depth to Bottom of Sample	of Sample								16.7	16.7	3	0
San	Sample Date								5/8/2003	5/8/2003	4/3/2003	5/8/2003
	OC Code								DQ	SA	SA	SA
	Study ID		Frequency			Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum	, , 0	Criteria	Criteria	Jo	of Times	Jo	3	33	7	3
Parameter	Units	Value	Detection	Type 1	Value	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1254	UG/L	0	%0	GA	60.0	0	0	9		0.051 U	0.052 U	0.051 U
Aroclor-1260	$\Omega G/\Gamma$	0	%	GA	60.0	0	0	9		0.01 UJ	0.01 U	0.01 UJ
Metals and Cyanide												
Aluminum	NG/L	105	21%	SEC	20	4	4	7	18.4 U	18.4 U	83.7 J	105 J
Antimony	UG/L	0		GA	3	0	0	7	3.8 U	3.8 U	3.8 ∪	3.8 ∪
Arsenic	UG/L	4.73	14%	MCL	10	0		7	4.5 U	4.5 U	4.5 U	4.5 U
Barium	UG/L	141 3	_	GA	1000	0	7	7	125.27 J	125 J	124	123 J
Beryllium	UG/L	0		MCL	4	0	0	7	0.1 U	0.1 U	0.1 U	0.1 U
Cadmium	NG/L	3.9		GA	2	0		7	0.8 U	U 8.0	3.9 J	O.8 U
Calcium	UG/L	119149.797	100%			0	7	7	119149.7969	119000	54700	62800
Chromium	$\Omega$	84		GA	20	-	2	7	10.99	11.3	30.3	84
Cobalt	UG/L	7.4	•			0	3	7	0.7 U	0.7 U	7.4 J	7 J
Copper	UG/L	167	43%	GA	200	0	3	7	3.6 U	3.6 J	145	191
Cyanide	UG/L	0	43%			0	0	0				
Cyanide, Amenable	MG/L	0				0	0	9		0.01 U	0.01 U	0 01 U
Cyanide, Total	MG/L	0				0	0	0				
Iron	UG/L	255000	100%	GA	300	4	7	7	119.08	118	145000 J	255000
Lead	NG/L	204	78%	MCL	15	7	2	7	3 U	3 U	93.7	204
Magnesium	UG/L	27400	100%			0	7	7	27359.2598	27400	18900	20800
Manganese	UG/L	1645 3	100%	SEC	20	7	7	7	528.01	527	1180	1250
Mercury	NG/L	0.28	78%	GA	0.7	0	7	7	0.2 U	0.2	0.2 U	0.28
Nickel	$\Omega$	38.8	%98	GA	100	0	9	7	24.8 J	24.3 J	31.4	38.8 J
Potassium	$\Omega G/\Gamma$	12300	100%			0	7	7	2021.03 J	2040 J	11800 J	12300 J
Selenium	NG/L	7.5	21%	GA	10	0	4	7	1.3 U	1.3 U	7.5	1.3 U
Silver	$\Omega$	9.6	14%	GA	20	0	-	7	3.7 U	3.7 U	3.7 U	8.6 J
Sodium	UG/L	428503	100%	GA	20000	7	7	7	37900.7383	37800	32300	35000
Thallium	NG/L	3.3 3	14%	MCL	7	-	-	7	5.3 U	5.3 U	5.3 U	5.3 U
Vanadium	NG/L	4.4	14%			0		7	. 1.4 U	1.4 U	1.4 U	4.4 J
Zinc	NG/L	5740	100%	SEC	2000	7	7	7	18.32 J	17.9 J	2500	5740
Other							,					;
Total Petroleum Hydrocarbons	MG/L	1.52	33%			0	7	9		-	1.52	1 0

### NOTES:

<sup>1.</sup> GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)

MCL = Maximum Contaminant Level - Drinking Water Standards and Health Advisory (EPA 822-B-00-001)

SEC = Secondary Drinking Water Regulations - Drinking Water Standards and Health Advisory (EPA 82-B-00-001)

2) Sample-duplicate pairs were averaged and the average results were used in the summary statistic presented in this table.

in this table.

3) The maximum detected concentration was obtained from the average of the sample and its duplicate pairs:

DRMO-2005/DRMO-2008 collected April 2003 from MW-1 and DRMO-2013/DRMO-2019 collected May 2003 from MW-1.

U = compound was not detected J = the reported value is an estimated concentration UJ = the compound was not detected, the associated reporting limit is approximate R = the data was rejected in the data validating process

## Table C-6 GROUNDWATER SAMPLE RESULTS BUILDING 360 (SEAD-27) SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility Location ID				}				Building 360 MW-2	Building 360 MW-2	Building 360 T-SUMP	Building 360 T-SUMP
	Matrix Sample ID								GW DRMO-2014D	GW DRMO-2014	GW DRMO-2007	GW DRMO-2015
Sample Depth to Top of Sample	p of Sample								16.7	16.7	en e	00
	Sample Date								5/8/2003	5/8/2003	4/3/2003	5/8/2003
	OC Code Study ID		Frequency			Number	Number	Number	DO PID-RI	SA PID-RI	SA PID-RI	SA PID-RI
		Σ	of	Criteria Criteria		Jo	of Times	of	3	3	5	3
Parameter	Units	Value	Detection	Type	Value E	Exceedances	Detected	Analyses *	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Directly! prinalate	1/5/1	0	%%			0	0	o vo		0 1	1 T	0 0
Fluoranthene	T/S/O	0	%			• •	0	9		1 0	10.0	1 O
Fluorene	UG/L	0	%0			0	0	9		1.1 U	I.1 UI	1.1 U
Hexachlorobenzene	UG/L	0	%0	GA	0.04	0	0	9		1.1 U	1.1 UJ	1.1 U
Hexachlorobutadiene	T/S/I	0	%0	GA	0.5	0 (	0 (	9 (		1.6 U	1.5 UI	1.5 U
Hexachlorocyclopentadiene	1/9/L	0 0	%0	& 6	n v	0 0	<b>&gt;</b> c	m 4		4 - X I	3.9 U	3.9 K
nexacmoroemane Indeno(1,2,3-cd)pyrene	1001	0	% %	Š	n	00	. 0	0 40		1.7 UJ	1.6 UI	1.6 UJ
Isophorone	NG/L	0	%			. 0	0	o vo		0	3 -	1 0
N-Nitrosodiphenylamine	UG/L	0	%0			0	0	9		2.1 U	2.1 UJ	2 U
N-Nitrosodipropylamine	UG/L	0	%0			0	0	9		1 U	1 UI	1 UJ
Naphthalene	UG/L	0	%0			0	0	9		1.2 U	1.2 UJ	1.2 U
Nitrobenzene	UG/L	0	%0	GA	0.4	0	0	9		D :	D i	D 1
Pentachlorophenoi	UG/L	0 (	%0	GA	-	0 0	0 (	m ;		2.	2 K	0 6.1
Phenanthrene	UG/L	0 0	%	ć		0 0	0 0	ο,		) : - •	3 6	) i
Pyrene	1001	0 0	% %	45	-	<b>o</b> c	<b>,</b> c	י ע			¥ .	0 =
Pesticides/PCBs	ò	>	2			>	>	•		-		
4,4'-DDD	UG/L	0	%0	GA	0.3	0	0	9		0.01 U	U 10.0	0.01 UJ
4,4'-DDE	UG/L	0	%	GA	0.2	0	0	ø		0.005 U	0.005 U	0.005 U
4,4'-DDT	UG/L	0	%0	GA	0.2	0	0	9		0.01 UJ	0.01 UJ	0.01 U
Aldrin	UG/L	0	%	GA	0	0	0	9		0.02 UJ	0.02 U	0.02 UJ
Alpha-BHC	UG/L	0 (	%	GA	0.01	0 (	0 (	9 (		0.01 UJ	0.01 UJ	0.01 UI
Alpha-Chlordane	DG/L	0 (	% %	ć		0 0	0 0	9 (		0.02 UJ	0.02 U	0.02 UJ
Beta-BHC	UG/L	0 0	% %	GA	0.04	0 0	0 0	9 "		0.01 U	0.01 U	0.01 0
Delta-BHC	100	o c	%%	GA	0.04	0 0	0 0	ט מ		0.004 11	0.004	0.004 UI
Dieldrin	UG/L	0	%0	GA.	0.004	0	0	9		U 600.0	U 600.0	U 600.0
Endosulfan I	NG/L	0	%0			0	0	9		0.02 UJ	0.02 U	0.02 UJ
Endosulfan II	UG/L	0	%			0 (	0	9 '		0.01 U	0.01 U	
Endosultan sultate	UG/L	0 0	% 8	ć	•	0 0	0 0	o 4		0.02 U	0.02 U	0.02 0
Endrin Fodrin aldahada	1/5/1	o c	\$ %	¥ و 5 و	> v	> <	> <	o v		0.02 0.0	0.02 0	
Endrin ketone	UG/L	• •	%	S &	, 40	. 0	0	9		tU 600.0	D 600.0	
Gamma-BHC/Lindane	UG/L	0	%	GA	0.05	0	0	9		LU 600.0	U 600.0	U 600.0
Gamma-Chlordane	UG/L	0	%			0	0	9		0.01 UJ	0.01 UJ	0.01 U
Heptachlor	UG/L	0	%0	GA	0.04	0	0	9		0.007 U	0.007 U	0.007 U
Heptachlor epoxide	UG/L	0	%0	ВA	0.03	0	0	9		0.009 U	O.009 U	
Methoxychlor	NG/L	0	%0	GA	35	0	0	9 '		0.008 U	0.008 UJ	0.008 U
Ioxaphene	UG/L	0 (	%0	S. G	0.06	0 (	0 (	9 1		0.12 U	0.12 U	0.12 U
Aroclor-1016	UG/L	0 0	%0	<b>8</b> 6	0.09	0 0	<b>&gt;</b> 0	0 4		0.24 UJ	0.25 UJ	0.24 UJ
Aroclor-1221	7,50	> 0	%%	5 0	70.0	0 0	0	o v		0.081 U	0.083 U	0.082 U
Aroclor-1232	1001	> c	%	ر ک ر	, o	o c	o c	י כ		0.091	0.094 0.0	0.092 0.0
Aroclor-1248	COL.	> 0	%%	\$ &	0.00	> c	> C	o vo		0.12 U	0.083 U	
2000	) )	,	,	;	>	>	,	,		1	;	

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## Table C-6 GROUNDWATER SAMPLE RESULTS BUILDING 360 (SEAD-27) SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility Location ID Matrix Sample ID								Building 360 MW-2 GW DRMO-2014D	Building 360 MW-2 GW DRMO-2014	Building 360 T-SUMP GW DRMO-2007	Building 360 T-SUMP GW DRMO-2015
Sample Depth to Top of Sample Sample Depth to Bottom of Sample	p of Sample n of Sample								16.7	16.7 16.7	en en	00
	Sample Date								5/8/2003 DIT	5/8/2003 SA	4/3/2003	5/8/2003
	Study ID		ncy			Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum		Criteria Criteria		of.	of Times	of .	m .	E	7	
1 2_Dichlorobenzene	Units 116/1	Varue	Defection 0%	Type	Value E	Exceedances	Detected	Analyses	value (Q)	value (Q)	Value (Q)	Value (Q)
1.3-Dichlorobenzene	116/1	o c	%%	S &	) ("	0 0	0 0	o vo		12.1	12 [1]	12 11
1,4-Dichlorobenzene	T/S/A	0	%	S S	'n	0	0	9 9		חו	in i	0 -
2,4,5-Trichlorophenol	UG/L	0	%	GA	_	0	0	ю		1 U	- R	1 0
2,4,6-Trichlorophenol	NG/L	0	%0	GA		0	0	9		1 U	1 U	1 O
2,4-Dichlorophenol	NG/L	0 0	%0	GA	2	0 0	0 0	е г		1.4 U	1.3 R	13 U
2,4-Dinitrophenol	7.50 0.00/L	00	%0			00	0	กค		2.1 UJ	X 4.7	2 5 U
2,4-Dinitrotoluene	NG/L	0	%0	GA	\$	0	0	9		1.1 U	1.1 UJ	0 : :
2,6-Dinitrotoluene	NG/L	0	%0	GA	2	0	0	9		1 U	I UI	0 1
2-Chloronaphthalene	7/5/1	0 0	% %			0 0	0 0	9 -		1.2 U	12 UJ	1.2 U
2-Methylnaphthalene	CG/L	0	%%			0	0	n vo		1.1 0	1.1 K	120
2-Methylphenol	UG/L	0	%0			0	0			1 U	- 12	n I
2-Nitroaniline	UG/L	0	%0	GA	2	0	0	9		1 U	ı UJ	1 U
2-Nitrophenol	NG/L	0	%0	GA		0	0	60		1.1 U	1.1 R	1.1 U
3 or 4-Methylphenol	767 067	0 0	%	¥ ċ		0 0	0 0	0 4		:		
2,5-Dichlorobenzique	7/50 1/54	> 0	%0	5 3	n 4	0 0	0 0	0 4		01:		0
2-Introduinie 4 6-Dinitro-2-methylphenol	116/1	> <	%0	\$ 6	n -	> 0	> <	۰ ۵		1.2 0.1	1.2 0.1	1.2 0.5
4-Bromophenyl phenyl ether	T/S/n	0	%	5		0	00	n vo		1.4 U	1.3 UJ	13.0
4-Chloro-3-methylphenol	UG/L	0	%0	GA	-	0	0	٣		1.1 U	1.1 R	0 1.1
4-Chloroaniline	UG/L	0	%0	GA	\$	0	0	3		1.2 U	1.2 R	1.2 U
4-Chlorophenyl phenyl ether	UG/L	0 0	%0			0 0	0 (	9 0		1.2 U	1.2 UJ	1.2 U
4-Methylphenol	7/5/1	<b>&gt;</b> C	%0	ć	v	0 0	0 0	m v		1.9 U	1.9 R	1.8 U
4-Nitrophenol	T/S/n	0	%0	8 8	ı -	0	00	o en		1.1 U	1.1 8	110
Acenaphthene	UG/L	0	%0			0	0	9		1 U	ID I	1 U
Acenaphthylene	T/SD	0	%0			0	0	9		1.2 U	1.2 UJ	1.2 U
Anthracene	7.50	00	% &			0 0	0 0	9 4		1.4 U	1.3 UI	1.3 U
Benzo(a)pyrene	NG/L	0	%0	· GA	0	0	0	9 40		1611	11 5 1	151
Benzo(b) fluoranthene	T/50	0	%0			0	0	9		1 0	I UI	1 0
Benzo(ghi)perylene	UG/L	0	%0			0	0	9		1.4 UJ	1.3 UJ	1.3 UJ
Benzo(k)fluoranthene	UGL	0 (	%0	į	,	0	0	9		2.7 U	2.7 UJ	2.7 U
Dis(2-Chloroethoxy)methane	7/5/1 1/0/1	<b>5</b>	%0	5 6	Λ.	0 (	0 0	۰ م		0::		0 : -
Bis(2-Chloroisopropyl)ether	1,01	o c	% %	5 6	- ¢	<b>&gt;</b> C	o c	0 4		0 7 1	0.2.1	0 7 1
Bis(2-Ethylhexyl)phthalate	UG/L	2.5	17%	G.	۰ ۷	0	-	9		ח	n n	2.5 J
Butylbenzylphthalate	NG/L	0	%0			0	0	9		DI	1 01	n ı
Carbazole	UG/L	0	%0			0	0	9		0.43 U	0.43 UJ	0.42 U
Chrysene	UG/L	0	%0			0	0	9		U.7 U	1.6 UJ	U 9'I
Di-n-butylphthalate	707 121	0 0	%%	GA	20	0 0	0 0	9 4		1.2 U	1.2 UJ	1.2 U
Di-n-octylpntnalate	1,50	<b>&gt;</b> <	%n Vo			> <	> <	۷ ۵		0.01	1.5 U	0.5.1
Dibenzofuran	UG/L	, 0	%0			> 0	» o	o 0		10.5	3 5	3 0
	!		;			,	•	,				

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### Table C-6 GROUNDWATER SAMPLE RESULTS BUILDING 360 (SEAD-27) SEAD-121C and SEAD-1211 RI REPORT

	Building 360 T-SUMP GW DRMO-2015 0 5/8/2003	3	A gine	0.4 U	0.3 U	2.1	0.3 0.1		0.3 U	0.4 U		9.1 UI	0.3 U	0.4 U	0.3 U	0.6 J	0.4 U	0.4 U	0.4 U		0.3 UJ	0.8 U	0.4 U	2.8 U	3.6 R	2.5 U	1.3 UJ	0.4.0 0.3 U	0.5 U	0.4 U	0.4.13	0.3 U	0.4 U	1.3	1.2 U
	Building 360 T-SUMP GW DRMO-2007 3 4/3/2003	rib-rd 2 Value (O)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	2 0	0 %	1.3 J	0		SU	5 U		IO 01	5 U	5 U	S U	S UI	0 8	SU	5 03	200	2 0 5 1	3 0	S UI	2 0 0	s uj	2 U	5 UJ	200		5 U	1 5	5 0	2 U	1.4 J	1.2 UJ
	Building 360 MW-2 GW GW DRMO-2014 16.7 16.7 5/8/2003	rib-kd 3 Value (O)	(X) Sing (X)	0.4 U	0.3 U 0.3 U	0.4 U	0.5		0.3 U	0.4 U		U 6.8	0.3 U	0.4 U	0.3 U	0.3 UJ	0.4 U	0.4 U	0.4 UJ	0.3 U	0.3 UJ	0.8 U	0.4 U	2.8 U	3.6 R	2.5 U	0.7 UI	0.3 U	0.5 U	0.4 U	0.4 1	0.3 U	0.4 U	0.3 U	1.2 U
TONI	Building 360 MW-2 GW . GW DRMO-2014D 16.7 16.7 5/8/2003																																		
Activity		Number of	CALIBRA	9 1	9 9	9 1	00	0 0	o vo	90	00	4	90	o vo	9	<b>9</b> 4	ο ν	9	9 9	9	y v	9	9 1	οvo	m	9	9 4	9 9	9	90	o vo	9	9	9	9
ay Depot	,	of Times	1	0 (	00	4 (	0	0 0	0	- 0	00	-	0 0	00	0	0	0	0	00	2 (	00	0	0	0 0	0	0	- 0	0	0	0 0	<b>&gt;</b>	0	0	4	0
Seneca Army Depot Activity		of Of	- Arcenauces	0 (	00	0 (	0	0 0	0 0	0 (	0	0	0 0	00	0	0 0	0	0	00	0	00	0	0	0 0	0	0	00	0	0	00	<b>&gt;</b> C	0	0		0
Sei		Criteria	, and	Ś	2 -	5	0.04	0.0006	9.0		n m		v	80	80	v	ν,	80	v r	Ś	6.4	1	2	5			so s	'n	2	<b>د</b> ٠ د	n v	0.4	2	2	5
מ			1	GA	§ §	GA	§ §	Q G	S S	GA G	5 S		8 8	WCL 5	MCL	Š	G G	MCL	8 8 8	GA	<b>∀</b> 8	,	GA	GA			<b>₹</b> 8	S S	GA	8 8	5 &	GA	GA	GA	GA
		rrequency of Detection	Total	%	%%	%29	%%	%0	%%	17%	17%	25%	%0	%0	%0	17%	%0	%0	%%	33%	% %	%	%0	%0	%0	%0	17%	%	%0	%%	%0	%	%0	%19	%0
		Maximum Velue	AME	0 (	00	4.3 3	0	0 0	0	0.4 3	0	8.43	0 0	00	0	9.0	0	0	00		00	0	0 (	0	0	0 '	٦ ،	0	0	00	<b>&gt;</b> C	0	0	2.3 3	0
	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample Date QC Code	Tinits	2000	UG/L	UG/L UG/L	UGA	UG/L	UG/L	UG/L	UG/L	UGL	UG/L	1.00T	UGA	UG/L	UG/L	UG/L	UG/L	UG/L	UGA	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	197	UG/L	UG/L	NG/L	T/S/I
	Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Cample Sample Date	Paramoter	Volatile Organic Compounds	1,1,1-Trichloroethane	1,1,2,2-1 etrachloroethane 1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dibromo-3-chloropropane	1,2-Dibromoethane	1,2-Dichloroethane	1,2-Dichloropropane	1,4-Dichlorobenzene	Acetone	Benzene	Bromodichloromethane	Bromoform	Carbon disulfide	Chlorobenzene	Chlorodibromomethane	Chloroform	Cis-1,2-Dichloroethene	Cis-1,3-Dichloropropene Ethyl benzene	Meta/Para Xylene	Methyl bromide	Methyl butyl ketone Methyl chloride	Methyl ethyl ketone	Methyl isobutyl ketone	Methylene chloride	Styrene	Tetrachloroethene	Toluene Total School	Lotal Xylenes Trans-1.2-Dichloroethene	Trans-1,3-Dichloropropene	Trichloroethene	Vinyl chloride	1,2,4-Trichlorobenzene

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SEAD-121C and SEAD-121I RI REPORT GROUNDWATER SAMPLE RESULTS **BUILDING 360 (SEAD-27)** Table C-6

Seneca Army Depot Activity

	Facility								Building 360	Building 360	Building 360	Building 360	Building 360
3	Location ID								MW-1	MW-1	MW-1	MW-1	MW-2
	Matrix								МĐ	ΜĎ	ΜS	δW	ΜS
S	Sample ID								DRMO-2005	ā	DR	121C-2019	DRMO-2006
Sample Depth to Top of Sample	of Sample								16.5			16.6	16.7
Sample Depth to Bottom of Sample	of Sample								16.5			16.6	16.7
Sar	Sample Date								4/4/2003			5/9/2003	4/3/2003
	OC Code								SA			SA	SA
	Study ID		Frequency			Number	Number	Number	PID-RI			PID-RI	PID-RI
		Maximum	Jo	Criteria Criteria	Criteria	Jo	of Times	Jo	2	2		3	2
Parameter	Units	Value	Detection	Type 1	_	Exceedances	Detected	Analyses 2	Value (Q)		Value (Q)	Value (Q)	Value (Q)
Aroclor-1254	T/S/I	0	%0	GA	60.0	0	0	9	0.051 U			0.051 U	0.052 U
Aroclor-1260	UG/L	0	%0	GA	0.09	0	0	9	0.01 U			0.01 UJ	0.01 U
Metals and Cyanide													
Aluminum	NG/L	105	21%	SEC	20	4	4	7	150 U	28.3 J	32 U	32 U	654 J
Antimony	NG/L	0	%0	СA	60	o	0	7	3.8 U	3.8 U	7.5 U	7.5 U	3.8 U
Arsenic	UG/L	4.73	14%	MCL	10	0	-	7	4.5 U	4.5 U	7.1	4.5 U	4.5 U
Barium	T/D/I	141	100%	GA	1000	0	7	7	135	147	113	113	120
Beryllium	UG/L	0	%0	MCL	4	0	0	7	0.1 U	0.1 U	U 6:0	U 6.0	0.1 U
Cadmium	UG/L	3.9	14%	Ρ	2	0	1	7	0.8 U	0.8 U	0.8 U	0.8 U	O.8 U
Calcium	UG/L	119149.797	100%			0	7	7	88700	00696	84200	87100	109000
Chromium	NG/L	84	71%	GA	20	-	S	7	1.4 U	1.4 U	1.4 U	1.4 U	27.5
Cobalt	UG/L	7.4	43%			0	٣	7	0.7 U	0.7 U	2.3 U	2.3 U	0.85 J
Copper	UG/L	167	43%	GA	200	0	ы	7	3.6 U	3.6 U	2 U	2 U	3.6 U
Cyanide	UG/L	0	43%			0	0	0					
Cyanide, Amenable	MG/L	0	%0			0	0	9	0.01 U				
Cyanide, Total	MG/L	0	%0			0	0	0					
Iron	NG/L	255000	100%	GA	300	4	7	7	3780 J	3290 J	3810	3510	251 J
Lead	UG/L	204	78%	MCL	15	7	7	7	3 U	3 U	3 U	3 U	3 U
Magnesium	UG/L	27400	100%			0	7	7	11400	12500	11000	11400	25300
Manganese	UG/L	16453	100%	SEC	20	7	7	7	1580	1710	1140	1180	347
Mercury	UG/L	0.28	73%	GA	0.7	0	7	7	0.2 U				
Nickel	UG/L	38.8	%98	GA	100	0	9	7	3 J	3.8 J	2 U	2 U	23.6
Potassium	UG/L	12300	100%			0	7	7	9450 J	10600 J	8820	9430	2460
Selenium	T/50	7.5	21%	GA	10	0	4	7	4.2 J	3.3 J	1.3 U	3.2 J	3.4 J
Silver	UG/L	8.6	14%	GA	20	0		7	3.7 U				
Sodium	NG/L	428503	100%	GA	20000	7	7	7	40400	45300	41100	44000	37700
Thallium	UG/L	3.3 3	14%	MCL	2		~	7	5.3 U	5.3 U	4.4 J	4.2 U	5.3 U
Vanadium	UG/L	4.4	14%			0	-	7	1.4 U	1.4 U	2.5 U	2.5 U	1.4 U
Zinc	NG/L	5740	100%	SEC	2000	7	7	7	7.1 J	7.1 J	14.4 J	17 J	10 4
Other							,	,	;	;	:	:	
Total Petroleum Hydrocarbons	MG/L	1.52	33%			0	7	9	1 U	1 O	n n	1 U	0 1

NOTES:

1. GA = NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998)

MCL = Maximum Contaminant Level - Drinking Water Standards and Health Advisory (EPA 822-B-00-001)

SEC = Secondary Drinking Water Regulations - Drinking Water Standards and Health Advisory (EPA 82-B-00-001)

2) Sample-duplicate pairs were averaged and the average results were used in the summary statistic presented in this table.

3) The maximum detected concentration was obtained from the average of the sample and its duplicate pairs:

DRMO-2005/DRMO-2008 collected April 2003 from MW-1 and DRMO-2013/DRMO-2019 collected May 2003 from MW-1.

 $U={\rm compound}$  was not detected  $J={\rm the}$  reported value is an estimated concentration  $UJ={\rm the}$  compound was not detected, the associated reporting limit is approximate R = the data was rejected in the data validating process

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Table C-6
GROUNDWATER SAMPLE RESULTS
BUILDING 360 (SEAD-27)
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

	Facility								Building 360	Building 360	Building 360	Building 360	Building 360
	Location ID								MW-1	MW-1	I-WM	I-WW	MW-2
	Sample ID								DRMO-2005	DRMO-2008	DRMO-2013	121C-2019	DRMO-2006
Sample Depth to Top of Sample	p of Sample								16.5	16.5	16.6	16.6	16.7
Sample Depth to Bottom of Sample	n of Sample								16.5	16.5	16.6	16.6	16.7
<i>4</i> 1	Sample Date								4/4/2003	4/4/2003	5/9/2003	5/9/2003	4/3/2003
	QC Code		Programme			Number	Number	Number	SA PID.PI	SA PID-RI	SA PID-RI	SA PITI-RI	SA PID-RI
	ound to	Maximum		Criteria Criteria	Criteria	Jo	of Times	Jo	7 7	2 2	3	3	2
Parameter	Units	Value	Detection	Type 1	Value	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Diethyl phthalate	UG/L	0	%0			0	0	9	1 UJ	1 UJ	1 U	1 U	I UI
Dimethylphthalate	UG/L	0	%0			0	0	9	1 UJ	1 UI	1 U	1 U	I UI
Fluoranthene	UG/L	0	%0			0	0	9	I UI	1 UJ	1 U	1 U	1 UJ
Fluorene	UG/L	0	%			0	0	9	1.1	1.1 U	1.1 U	1.1 U	II II
Hexachlorobenzene	UG/L	0 (	% ?	g G	0.04	0 0	0 0	9 (		U. 1. 1. U. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	0 1:1	0 1:1	U I.1 UI
Mexachlorogualonemediana	750		% %	5 6	ر د	> 0	> <	٥ «	1.6 0.1	11.0 %	1.30	0 0 0	11 65
Hexachloroethane	1001	0 0	8 %	5 8		0 0	0 0	n vo		13 E	1.1 U	1.1 U	1.1
Indeno(1,2,3-cd)pyrene	UG/L	0	%	5		0	0	9	U.7 U.	1.6 UJ	1.6 UJ	1.6 UJ	1.6 UJ
Isophorone	UG/L	0	%			0	0	9	1 U	1 UI	1 U	1 U	ı uı
N-Nitrosodiphenylamine	UG/L	0	%0			0	0	9	2.1 UJ	2 UJ	2 U	2 U	2 UJ
N-Nitrosodipropylamine	UG/L	0	%			0	0	9	D :	5:	D:	D :	
Naphthalene	UG/L	0	%0			0	0	9	1.2 UJ	1.2 01	1.2 U	1.2 U	 
Nitrobenzene	UG/L	0	%	GA G	4.0	0	0 (	9 0	5 6	D :	0:0		
Pentachlorophenol	UG/L	0	%0	CA	_	0 (	0 (	w '	2 K	N 6.1	0 6.1	0 6.1	N 6.1
Phenanthrene	UG/L	0 (	%%	ć		0 (	0 0	۰ م	3 .		)		5 -
Phenol	7/00.F	0 (	%0	e S	-	0 (	0 (	n \	4:	4 :			4 .
Participe PCB	7/50	0	%0			>	0	o	5	5	-	-	5
4 4'-DDD	116/1	c	%0	Ą	0 3	c	c	9	11 100	11 100	0.01 111	U 100	0.01 U
4,-DDE	100	o c	%	5 G	0.0	o c	o c	9 10	0.000	0.005 U	0.005 U	0.005 U	0.005 U
4.4'-DDT	OG/L	0	%	e e	0.2	. 0	0	9	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Aldrin	UG/L	0	%	Ą	0	0	0	9	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 U
Alpha-BHC	UG/L	0	%0	GA	0.01	0	0	9	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Alpha-Chlordane	UG/L	0	%0			0	0	9	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 U
Beta-BHC	UG/L	0	%0	GA	0.04	0	0	9	0.01 U	O.01 U	0.01 U	0.01 U	0.01 U
Chlordane	UG/L	0	%0			0	0	3	0.14 U	0.14 U			0.14 U
Delta-BHC	UG/L	0	%0	P.	0.04	0	0	9	0.004 UJ	0.004 UJ	0.004 UJ	0.004 UJ	0.004 UJ
Dieldrin	UG/L	0 (	%0	В	0.004	0 (	0 (	۰ م	0.009 U	0.009 U	0.009 U	0.009 0	0.009
Endosulfan I	7,501	> <	%5			> <	> 0	0 4	0.02 0	0.02 0	0.02 0.0	0.01	0.02 0
Endosulfan sulfate	UG/L	0	%0			0	0	9	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin	UGA	0	%0	GA	0	0	0	0	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin aldehyde	UG/L	0	%0	GA	5	0	0	9	0.02 U	0.02 U	0,02 U	0.02 U	0.02 U
Endrin ketone	UG/L	0	%	ď	5	0	0	9	0.009 U	0.009 U	0.009 UI	U 600.0	O 600'0
Garrma-BHC/Lindane	UG/L	0	%	ВĄ	0.05	0	0	9	O.009 U	O.009 U	0.009 UJ	U 600.0	O 600.0
Gamma-Chlordane	UG/L	0	%			0	0	9	0.01 UJ	0.01 UJ	0.01 U	0.01 U	0.01 UJ
Heptachlor	UG/L	0	%0	GA	0.04	0	0	9	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U
Heptachlor epoxide	UG/L	0	%0	A G	0.03	0	0 (	9	O 600:0	0.000 U	0.009 U	0.008 U	0.009 0
Methoxychlor	UG/L	0	%0	g G	35	0 (	0 (	9 \	0.008 UJ	0.008 UJ	0.008 U	0.008 U	0.008 UJ
Toxaphene	UGL	0	%	g G	90.0	0	0 (	9 1	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Arocior-1016	UG/L	0	%0	GA (	0.09	0 0	0 (	9 \	0.24 UJ	0.25 UJ	0.25 UJ	0.24 0.0	U. CZ.U
Aroclor-1221	TSI.	0 0	%%	g G	0.00	0 0	0 0	φ <b>v</b>	0.082 U	0.082 U	0.083 U	0.081 U	0.082 U
Arocior-1232	100	> 0	%0	5 6	0.0	0 0		<b>y</b> (	0.080.0	111 080 0	0.054 03	0.081	0.082 111
Arctor-1242	100	o c	P %	5 &	0.0		· c	o vo	0.082 03	0.12 11	0.12.11	0.12 U	0.12 U
2441-1010012	) )	>	>	5	)	,	>	>		1		1	

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## Table C-6 GROUNDWATER SAMPLE RESULTS BUILDING 360 (SEAD-27) SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility								Building 360	Building 360	Building 360	Building 360	Building 360
	Matrix								M.S.	MS Own	W.B.	MS OW	M.S.
	Sample ID								DRMO-2005	DRMO-2008	DRMO-2013	121C-2019	DRMO-2006
Sample Depth to Top of Sample	op of Sample								16.5	16.5	9.91	16.6	16.7
Sample Depth to Bottom of Sample	om of Sample								16.5	16.5	16.6	16.6	16.7
	Sample Date								4/4/2003	4/4/2003	5/9/2003	2/9/2003	4/3/2003 SA
	Study ID		Frequency			Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum		Criteria Criteria		Jo	of Times	Jo	2	2	6	٣	2
Parameter	Units	Value	Detection	Type 1	Value	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,2-Dichlorobenzene	UG/L	0	%0	GA	3	0	0	9	.1 UJ	ı Uı	1 U	n I	1 UJ
1,3-Dichlorobenzene	UG/L	0	%0	GA	3	0	0	9	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 UJ
1,4-Dichlorobenzene	UG/L	0	%0	GA	3	0	0	9	1 U	1 UJ	1 U	ות	ı UJ
2,4,5-Trichlorophenol	UG/L	0	%0	GA	-	0	0	3	I R	1 R	1 U	חו	- B
2,4,6-Trichlorophenol	UG/L	0	%0	GA	_	0	0	9	1 U	1 U	1 U	1 U	n r
2,4-Dichlorophenol	NG/L	0	%	GA	2	0	0	3	1.4 R	1.3 R	1.3 U	1.3 U	3
2,4-Dimethyiphenol	1.67L	<b>&gt;</b> •	% 6			0 0	0 0	m (	2.4 K	2.3 K	2.3 U	2.3 U	2.3 K
2.4-Dinitrotolnene	1.67	0 0	% %	S.	٧-	0 0	o c	י ר	11 11	111 111	1111	7 11	111 111
2,6-Dinitrotoluene	UG/L	0	%	Y Y	۰ ۷	0	0	9	5 5	5 5	) D	2 -	5 -
2-Chloronaphthalene	NG/L	0	%			0	0	9	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 UJ
2-Chlorophenol	NG/L	0	%0			0	0	3	1.1 R	1.1 R	1.1 U	U.1 U	1.1 R
2-Methylnaphthalene	UG/L	0	%0			0	0	9	1.2 UJ	1.2 UI	1.2 U	1.2 U	1.2 UJ
2-Methylphenol	NG/L	0	%0			0	0	3	I R	1 R	1 U	1 U	1 R
2-Nitroaniline	NG/L	0	%0	ВA	2	0	0	9	1 03	1 03	1 U	1 U	1 01
2-Nitrophenol	JON .	0 0	% ?	₽ i	<u></u> .	0 (	0 (	m (	1.1 R	1.1 R	1.1 U	1.1 U	1.1 R
3 or 4-Methylphenol	7/5/1	<b>&gt;</b> 0	%0	<u>\$</u> 6	u	0 (	0 0	o v					111.
2 Niteronillan	7,50	> 0	%0	5 6	n 4	> 0	0	0 V	5 :	110			
A 6. Dinitro 2 methylphenol	7/501	0 0	200	5 6	n -	> 0	0	٥ ،	1.2 0.1	0 7 1	0.7.1	11.2 02	4 6 6
4-Bromonhenyi phenyi ether	7/5/1	0 0	%0	5	-	0 0	0 0	n vo	1.2 K		1.2 0	13.1	1.2 K
4-Chloro-3-methylphenol	OG/L	0	%	QA	-	0	0	o m	1.1 R	1.1.1.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2	0 11	0 1 1	Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z
4-Chloroaniline	UG/L	0	%0	δA	۰ ۷	0	0	۳.	1.2 R	1.2 R	1.2 UI	1.2 UJ	1.2 R
4-Chlorophenyl phenyl ether	NG/L	0	%0			0	0	9	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 UJ
4-Methylphenol	NG/L	0	%0			0	0	3	1.9 R	1.8 R	1.8 U	1.8 ∪	1.8 R
4-Nitroaniline	NG/L	0	%0	ВA	2	0	0	9	2.5 UJ	2.4 UJ	2.4 UJ	2.4 UJ	2.4 UJ
4-Nitrophenol	UG/L	0	%0	ВA		0	0	ω,	1.1 R	1.1 R	1.1 U	D 1.1	1 R
Acenaphthene	1,501	0 0	%0			0 (	0 0	φ \	m :	5 :	0:	0::	TO 1
Anthracene	1000	0 0	%%			0 0	0 0	0 4	1.2 0.1	0 7:1	1.2 0	1.2 0	13.11
Benzo(a)anthracene	NG/L	0	%0			0	0	9	în 1	D 1	0 -		in 1
Benzo(a)pyrene	NG/L	0	%0	GA	0	0	0	9	1.6 UJ	1.5 UJ	1.5 U	1.5 U	I.5 UJ
Benzo(b)fluoranthene	T/90	0	%0			0	0	9	, 1 UJ	1 UJ	1 U	U I	ı uı
Benzo(ghi)perylene	UG/L	0	%0			0	0	9	1.4 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ
Benzo(k)fluoranthene	NG/L	0	%0			0	0	9	2.7 UJ	2.7 UI	2.6 U	2.7 U	2.7 UJ
Bis(2-Chloroethoxy)methane	UG/L	0 (	%0	ĕ (	vo ·	0	0	9	0 :	D :	D :	0 .	D :
Bis(2-Chloroethyl)ether	1,57	0 0	%0	g d	<b>L</b>	0 0	0 0	9 4	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Bis(2-Cito) Obopropyt/citier	7,511	, ,	17%	5 6	n v	0 0	> -	0 4	5 -	3 :			3 :
Buryhenadahthalate	50.5	} <	7,70	5	n	o c	٠ ,	<b>y</b>	o E	o E		-	
Carbazole	UG/L	0	%			» o	. 0	9	0.43 UJ	0.42 UJ	0.42 U	0.42 U	0.42 UJ
Chrysene	UGL	0	%0			0	0	9	1.7 UJ	1.6 UJ	1.6 U	1.6 U	1.6 UI
Di-n-butylphthalate	UG/L	0	%0	ΑĐ	20	0	0	9	1.2 UJ	1.2 UJ	1.2 U	1.2 U	1.2 UJ
Di-n-octylphthalate	UG/L	0	%0			0	0	9	1.6 UJ	1.5 UJ	1.5 U	1.5 U	1.5 UJ
Dibenz(a,h)anthracene	T/90	0	%0			0	0	9	1.6 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ
Dibenzofuran	UG/L	0	%0			0	0	9	1 UJ	I UI	1 U	1 U	ı UJ

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Table C-6
GROUNDWATER SAMPLE RESULTS
BUILDING 360 (SEAD-27)
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

Buildir DRMO			2000		s UI	) 5 U			) 5 U	5 U			5 R	) S U	11.5	1 2 2	5 111															U S U			11.5	0:	30	5 U		J 1.2 UJ
Building 360 MW-1 GW 121C-2019 16.6 5/9/2003 SA PID-13	Value (Q)	0.41	0.3 U	0.3 U	4.3	0.3 U			0.3 U	0.5 J			8.4 3	0.3 U	1 70	0.40	0.3 U	0.4 U	0.4 U	0.4 U	0.4 [	0.4 U	0.4 )	0.4 U	0.8 U	0.4 U	2.8 (	7 4.6	2.5 U	1 J	0.4 U	0.3 U	0.5 U	0.4	1 7 0	7 6 6	0.3 D 4.0	1.3		1.2 U
Building 360 MW-1 GW DRMO-2013 16.6 5/9/2003 SA PID-RI	Value (Q)	0 4 1)	0,3 U	0.3 U	4.3	0.3 U			0.3 U	0.4 U			5.8 R	0.3 U	11 70	0.40		0.4 U		0.4 U	0.4 U	0.4 U	0.3 0	0.4 U	0.8 U	0.4 U	2.8 0		2.5 U	1 1			0.5 U	0.4 0	11 70	0.4.0	0.4 U	1,4		1.2 U
Building 360 MW-1 GW DRMO-2008 16.5 16.5 4/4/2003 PID-RI 2	Value (Q)	1 5	o s	S U	4.4 J	o s			5 U	5 U			5 R	s u	11 \$	0.5	s U	SU	D S	5 U	s ur	D 5	0 0	D S	5 U	S UJ	0 %	10.5	S U S	s UJ	O S	S U	5 0.7	00	11.5	) : n •	200	2.4 J		1.2 UJ
Building 360 MW-1 GW DRMO-2005 16.5 4/4/2003 SA PID-RI	Value (Q)	11 5	200	3 0	s un	S U			5 U	5 U			5 R	s U	11.5	5 5	s UI	5 0	S U	2 U	s UJ	D 5	0 0 0	S U S	5 U	S UJ	0 5		50	s UI	o s	5 U	s on	0 0		) t	0 %	2.2 J		1.2 UJ
Number	Analyses 2	9	9	9	9	9	0 0	0	9	9	0	0	4	9 0	o vo	o vo	9	9	9	9	9	9 4	0 4	9	9	9	9 4	~ د	9	9	9	9 '	۰ م	0 0	o v	<b>5</b> 4	0 40	9		9
Number of Times	Detected	0	0	0	4	0	0 0	0	0		0	0		0 0	o c	0	-	0	0	0	O	0 6	7 C	0	0	0	0 0	0 0	0	-	0	0 (	0 0	0 0	o c	0 0	0	4		0
Number of	Exceedances	o	0	0	0	0 (	o c	0	0	0	0	0	0	0 0	o c	, 0	0	0	0	0	0	0 0	o c	0	0	0 1	<b>&gt;</b>	0	0	0	0	0 (	0 0	> 0	o c	0 0	00	_		0
Criteria Criteria	Value	v	· v	-	5	5	0.04	3	9.0	-	٣	m		4	۰ <u>چ</u>	80	3	2	2	80	S	r v	0 0	'n		S	v	1		2	ς,	Ś	n 4	n 4	o V	, 5	ς. 4. ν	7		5
	Type 1	GA	S S	GA	GA	₽ G	\$ &	S S	GA	GA	QA.	QA OA		g :	5 5	WCL		GA	Ğ	MCL	₽ S	S o	§ 6	Ϋ́S		Ğ	ć	5		GA	Ğ	g d	5 8	5 6	5 8	5 6	S S	GA		GA GA
Frequency	Detection	%0	%	%0	%19	%	% &	%	%0	17%	17%	17%	25%	% 8	%%	%	17%	%0	%	%0	%	33%	%55	%	%0	%	% &	%	%	17%	%	% 8	% è	% o	8 %	200	%	%19		%0
Maximum	Value	0	0	0	4.3 3	0 (	<b>&gt;</b> c	0	0	0.43	0	0	8.43	0 0	0 0	0	9.0	0	0	0	0 1	0 -	- c	0	0	0 (	<b>&gt;</b> C	0	0	1 3	0	0 0	0 0	> 0	0 0	> 0	00	2.3 3		0
Facility Location ID Matrix Sample ID op of Sample On of Sample Sample Date QC Code Study ID	Units	UG/L	UG/L	UG/L	UG/L	UG/L	1001	7/50	UG/L	UG/L	UG/L	UG/L	UG/L	7,57	100	UG/L	NG/L	UG/L	NG/L	UG/L	767	7/5/I	100	UG/L	UG/L	UG/L	7 5	UG/L	UG/L	UG/L	NG/L	UG/L	7,5	7,511	100	100	UG/L	UG/L		UG/L
Facility Location 1D Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Date QC Code	Parameter	Volatile Organic Compounds 1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Acetone	Bromochlosometras	Bromodichloromethane	Вготобот	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Cis. 1 2. Dichloroethers	Cis-1,3-Dichloropropene	Ethyl benzene	Meta/Para Xylene	Methyl bromide	Methyl chloride	Methyl ethyl ketone	Methyl isobutyl ketone	Methylene chloride	Ortho Xylene	Styrene	1 etrachioroethene	Total Valence	Trans-1.2-Dichloroethene	Trans 1.1 Dichlorograms	Trichloroethene	Vinyl chloride	Semivolatile Organic Compounds	1,2,4-Trichlorobenzene

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Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Cample Depth to Bottom of Sample Oct Code	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample OC Code							SEAD-121C SWDRMO-1 SW DRMO-3000 0 N/A 11/5/2002	SEAD-121C SWDRMO-10 SW DRMO-3010 0 N/A 11/5/2002	SEAD-121C SWDRMO-2 SW SW DRMO-3001 0 N/A 11/5/2002	SEAD-121C SWDRMO-3 SW DRMO-3002 0 N/A 11/5/2002	SEAD-121C SWDRMO-4 SW DRMO-3003 0 N/A 11/5/2002	SEAD-121C SWDRMO-5 SW DRMO-3004 0 N/A 11/5/2002
		Махітит	Frequency	Criteria	Number	Number of Times	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
rameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (0)	Value (O)
olatile Organic Compounds		,			0								
1,1-1 nchloroethane	7/5/1	0 0	%0		0 0	0 0	0 9	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	
1,2-Trichloroethane	UGAL	0	%0		0 0	0 0	2 0	0.7.0	0.7.0	0.70		0 / 0	0.7.0
1-Dichloroethane	UG/L	0	%		0	0	2 0	0.66 U	O 25.0	0.28.0 U.66.U		0.56 U	0.66 U
1-Dichloroethene	UG/L	0	%0		0	0	10	O 69.0	O 69:0	U 69.0	0.69 U	U 69.0	U 69.0
2-Dichloroethane	UG/L	0 0	%%		0 (	0 (	2 9	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
etone	UG/L	0	%%		o c	<b>&gt;</b> C	0 0	3 5 111	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U
nzene	UG/L	0	%0		0	0	0 01	0.71 U	0.71 U	0.71 U	0.71 U	0.71 U	0.71 17
omodichloromethane	UG/L	0	%0		0	0	10	0.73 U	0.73 U		0.73 U	0.73 U	0.73 U
omotorm observation (Section)	UG/L	0 0	% %		0 (	0 (	01	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
rbon tetrachloride	1.001	00	%0		0 0	0 0	0 5	0.72 UJ	0.72 U	0.72 UJ	0.72 UJ	0.72 UJ	
lorobenzene	UG/L	0	%%	8	0	0	2 0	0.78 U	0.78 U	0.47 0	0.47 0	0.47 0	0.47 0
ilorodibromomethane	UG/L	0	%0		0	0	10	0.66 U		0.66 U	0.66 U	0.66 U	0.66 U
loroethane	UG/L	0	%0		0	0	10	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	
iloroiorm	7/5/5	0 0	%		0 (	0 (	01	0.61 U	0.61 U	0.61 U	0.61 U	0 61 U	0 61 U
s-1,2-Dichloroproper	7/5/1	<b>&gt;</b>	% %		0 0	0 0	0 9	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	
hyl benzene	UG/L	0	%%		0 0	o c	2 2	0.00 0	0.66 U	0.66 U	0.66 U	0 990	D 990
eta/Para Xylene	NG/L	0	%0		0	0	10	1.5 U	1.5 U	1.5 U	U.S.U	1.5 U	1 5 U
ethyl bromide	UG/L	0	%0		0	0	10	0.38 U	0.38 UJ	0.38 U	0 38 U	0.38 U	0 38 U
etnyl butyl ketone	1,00T	0 0	%0		0 (	0 (	10	0.6 U	0.6 U	U 9.0	O.6 U	U 9:0	
ethyl ethyl ketone	1/0/1	<b>&gt;</b> c	%0		0 0	0 0	0 0	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	
ethyl isobutyl ketone	T/S/n	0	%		0	0	2 01	0.81	0.8.1	0.5.0	0.3 U	0.5.0	2.3 U
ethylene chloride	UG/L	0	%0		0	0	01	1.8 U	1.8 U	1.8 U	1.8 U	1 8 1	
tho Xylene	UG/L	0 0	%0		0 (	0	10	0.72 U	0.72 U	0.72 U	0.72 U		
trachloroethene	7/00/1	0 0	%%		0 0	0 0	0 9	0.92 U	0.92 U	0.92 U	0.92 U	0.92 U	0 92 U
luene	T/DO	0	%0	0009	0	0	2 9	0.71 U	0.71	0.7.0	0.7.0	0.7 0.0	0.7 0
ans-1,2-Dichloroethene	UG/L	0	%0		0	0	10	0.81 UJ	0.81 U	0.81 UJ	0.81 UJ	0.81 UJ	
ans-1,3-Dichloropropene	UG/L	0	%0		0	0	10	0.66 U			0.66 U	U 66 U	0.66 U
ichloroethene	UG/L	0 0	%0	40	0	0	10				0.72 U		
nyi chionde mivolatile Organic Compounds	7/5/0	0	%0		0 0	0	0.	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U
2,4-Trichlorobenzene	nG/L	0	%0	v	0 0	c	01	10 11	-			-	
-Dichlorobenzene	T/S/n	0	%0	· <b>v</b> 1	0	o 0	10	10 01		0 01	0 0 0	0 01	
3-Dichlorobenzene	UG/L	0	%0	\$	0	0	10		D 01			D 01	
f-Dichlorobenzene	UG/L	0	%0	\$	0	0	10		10 U			D 01	
,5-Trichlorophenol	UG/L	0	%0		0	0	10		10 U			U 01	
,6-Trichlorophenol	UG/L	0 0	%0		0	0	01		10 U	10 U	D 01	10 U	10 U
-Dieniorophenol	30.5	0 0	% %	1	0 (	0 (	10		D 01	10 U		10 U	
-Dinitronbenol	7/5/2	> 0	% &	1000	0 0	0 0	0 0		O 01	10 U	10 U	10 U	10 U
	5	>	0,70	400	Þ	>	01	10 01	10 OI	10 U		10 U	10 UJ

s\SENECAPID Area\Report\Draft Final\Risk Assessment\data\S121C-SW.x\s\DRMO SW B&S

### Table C-7 SURFACE WATER SAMPLE RESULTS SEAD-121C SEAD-121C and SEAD-121 BI REPORT

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

National Colored   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber   Namber		Facility Location ID						The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of th	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
Column		Matrix						,	WS SW	WS SW	WS SW	WS SW	SW SW	WS
Column	Sample Depth to	Top of Sample							0 0	DKMO-3010	DKMO-3001	DKMO-3002	DKMO-3003	DRMO-3004
Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Success   Succ	Sample Depth to Bot	tom of Sample Sample Date							N/A 11/5/2002	N/A 2000/2/11	N/A 21/5/2002	N/A 11/5/2002	N/A 21/5/2002	N/A
Maintain		QC Code		5		;			SA	SA	SA	SA	SA	SA
Utility   Wilshe   Direction   Visite   Colored   Analyses   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Colored   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite   Visite		orday ID			Criteria	Number	Number of Times	Number	PID-RI	PID-RI	PID-KI	PID-RI	PID-RI	PID-RI
	arameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (O)	Value (O				
1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001   1001	,4-Dinitrotoluene	UG/L	0	%0		0	0	10	10 U	10 U				
100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100	,6-Dinitrotoluene	UG/L	0	%0		0	0	10	10 U	10 U				
the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the c	Chloronaphthalene	UGAL	0 0	%0		0 (	0	0 :	10 U	10 0	10 U	10 U	10 U	10 U
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UG/L         0         0%         0         10         10 U	Diethyl phthalate	UG/L	0	%0		0	0	10	10 UJ	10 U	10 U	10 U	10 O	10 U
UG/L         0         0         10         10 U         10 U <td>Dimethylphthalate</td> <td>UGAL</td> <td>0</td> <td>%0</td> <td></td> <td>0</td> <td>0</td> <td>10</td> <td>10 U</td> <td>10 U</td> <td>10 U</td> <td>10 U</td> <td>10 U</td> <td>10 U</td>	Dimethylphthalate	UGAL	0	%0		0	0	10	10 U	10 U				
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iene UG/L 0 0% 0.45 0 0 10 10 10 10 10 10 10 10 10 10 10 10	Texachlorobutadiana	1/5/1	0 0	%0	0.00003	0 0	0 0	0 9	5000	10 01	000	0 0 0	10 CI	10 O.
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UGI UGI UGI UGI UGI UGI UGI UGI UGI UGI	[exachloroethane	116/1	0 0	%0	90	0 0	0 0	2 5	20 2		10 01	5 5	0 0 0	
	ideno(1,2,3-cd)pyrene	UG/L	0	%0	9	0	0	2 0		11 01	10 01		111 01	0 0

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### Table C-7 SURFACE WATER SAMPLE RESULTS SEAD-121C

SEAD-121C SWDRMO-5 SEAD-121C SWDRMO-4 SEAD-121C SWDRMO-3 SEAD-121C SWDRMO-2 SEAD-121C SWDRMO-10 SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

SEAD-121C SEAD-1
SWDRMO-1 SWDRMO Facility Location ID Matrix

	Matrix							W.S.	SW	SW	W.S.	W.S.	SW
6	Sample ID							DRMO-3000	DRMO-3010	DRMO-3001	DRMO-3002	DRMO-3003	DRMO-3004
Sample Depth to 1 op of Sample	or Sample							0	0	0	0	0	0
Sample Depth to Bottom of Sample	Somile Date							N/A	A/N	A/N	A/N	A/N	A/N
ã	OC Code							11/5/2002	11/5/2002	11/5/2002	11/5/2002	11/5/2002	11/5/2002
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum	Jo	Criteria	Jo	of Times	Jo	-			-	-	-
rameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (
phorone	UG/L	0	%0		0	0	10	10 U	10 U	10 D	10 U	10 U	10 L
Nitrosodiphenylamine	UG/L	0	%0		0	0	10	10 U	10 U	10 U	10 UJ	10 D	10 L
Nitrosodipropylamine	UG/L	0	%0		0	0	10		10 U	IO 01		10 U	10 L
phthalene	UG/L	0	%0		0	0	10	10 U	10 U	10 U		10 U	10 L
trobenzene	UG/L	0	%0		0	0	10	10 U	10 L				
ntachlorophenol	UG/L	0	%0		0	0	10	10 UJ	10 UJ	10 U	10 U	10 UJ	10 6
enanthrene	UG/L	0	%0		0	0	10	10 U	10 U		10 U	10 U	10 L
enol	UG/L	0	%0	2	0	0	10		10 U		10 U	10 U	101
rene sticides/PCBs	7/50	0	%0		00	0	10	10 UI	10 UJ	10 U	10 U	10 UJ	10 L
t-DDD	UG/L	0	%0	0.00008	» o	0	10	0.01 11	0.01 17	0.01	11 10 0	11 100	1 100
t-DDE	NG/L	0	%0	0.000007	0	0	10	0 005 1	0.005 17	0 000 11	0 000 11	0.000	1 5000
t-DDT	UG/L	0	%0	0.00001	0	0	10		0.01 UJ	0.01 UJ		U 10.0	1 10.0
drin	NG/L	0	%0	0.001	0	0	10	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 1
pha-BHC	UG/L	0	%0		0	0	10	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01
pha-Chlordane	UG/L	0	%0		0	0	10	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02
ta-BHC	NG/L	0	%0		0	0	10	0.01 U	U 10'0	0.01 U	0.01 U	0.01 U	0.01
lordane	NG/L	0	%0		0	0	10	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 L
ita-BHC	UG/L	0	%0		0	0	10	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004
eldrin	DG/L	0 0	%0	0.0000000	0	0	10	0.009 UJ	0.009 U	0.009 UJ	U 600.0	0.009 UJ	0.009
docuter I	7/50	0 0	%0	0.009	0 0	0 (	0 .	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01
dosultan sulfate	100	o c	%0	600.0	0 0	0	2 9	0.01 0.0	0.01	0.01 UJ	0.01 UJ	0.01 UJ	0.03 L
drin	UG/L	0	%0	0.002	0	0 0	2 0	0.02 0	0.02 0	0.02 U	0.02 0	0.02 0	0.02
drin aldehyde	NG/L	0	%0		0	0	01	0.02 U	0.02 U	0.02 0	0.02 0	0.02 0	0.02
drin ketone	NG/L	0	%0		0	0	10	0.009 U	U 600.0	U 600,0	O 6000	11 600.0	1 600 0
unma-BHC/Lindane	UG/L	0	%0		0	0	10	U 6000	U 6000	0.009 U	0.009 U	U 600.0	1 600 0
mma-Chlordane	NG/L	0	%0		0	0	10	0.01 U	0.01 U	0.01 U	0.01 U	U 10.0	0.01
ptachlor	UG/L	0	%0	0.0002	0	0	10	0.007 U	U 700.0	0.007 U	0.007 U	0.007 U	0 007 L
ptachlor epoxide	UG/L	0 0	%0	0.0003	0 (	0	01	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 L
kanhene	110-1	o c	%0	0.00	<b>&gt;</b>	0 0	0 9	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 L
oclor-1016	UG/L	0	%0	0.000001	0 0	o c	2 5	0.12 0	0.12 0	0.12 0	0.12 0	0 12 0	0.12 0
oclor-1221	UG/L	0	%0	0.000001	0	0	01	0.08 U	0.08 U	0.08 11	0.08 11	0.08 11	1 800
oclor-1232	UG/L	0	%0	0.000001	0	0	10	0.09 UJ	0.09 UJ	IU 60.0	U 60'0	I/1 60:0	1 60 0
oclor-1242	UG/L	0	%0		0	0	10	0.08 UJ	0.08 UJ	0.08 UJ	0.08 UJ	0.08 UJ	1 80.0
oclor-1248	NG/L	0	%0	0.000001	S	0	10	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 [
oclor-1254	UG/L	0	%0	0.000001	0	0	10			0.05 U	0.05 U	0.05 U	0.05 L
ocior-1260 etals and Cvanide	T/90	0	%0	0.000001	0 0	0	10	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 L
uminum .	UG/L	8760	100%	100	0	10	10	146	219	8760	4500	39	524
ıtimony	$\Omega G/\Gamma$	0	%0		7	0	10	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 1
senic	UG/L	50.3	10%	150	0	_	10	2.8 U	2.8 U	50.3	2.8 U	2.8 U	2.8 ℃
mnu.	1/5/1 1/5/1	423	100%		0 (	10	10	53.7	75.9	423	149	49.5	72.5
dmium	1,5/1	10.80	90% 40%	3.84	7 6	D =	0 5	0.1.0	0.16 J	0.86 J	0.52 J	0.12 J	0.16
	5	17.0	40.70	7.04	7	1	01	0.4.0	0.4.0	19.5	4.5	0.4 U	1.4

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### SURFACE WATER SAMPLE RESULTS SEAD-121C and SEAD-121I RI REPORT SEAD-121C Table C-7

Seneca Army Depot Activity

Fa	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
T restree I	, E							SWDPMO-1	SWDRMO-10	SWDRMO-2	SWDRMO-3	SWDRMO-4	SWDRMO-5
TOCALIN.	Matric							ms cm	w's	MS	MS	MS	MS
	ALI IX									1000 03144	2002 07144	2001 07140	2007 0000
Sample II	e ID							DRMO-3000	DRMO-3010	DKMO-3001	DKMO-3002	DKMO-3003	DKMO-3004
Sample Depth to Top of Sample	mple							0	0	0	0	0	0
Sample Depth to Bottom of Sample	mple							N/A	N/A	N/A	N/A	N/A	N/A
Sample	Date							11/5/2002	11/5/2002	11/5/2002	11/5/2002	11/5/2002	11/5/2002
500	Code							SA	SA	SA	SA	SA	SA
Study ID	V ID	Fre	Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
	-	Kaximum	Jo	Criteria	Jo	of Times	Jo	-		1	_	1	1
arameter U	Units Value		Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)		Value (Q)	Value (Q)
			%001		0	10	10	73800	115000	150000	166000	00/99	92600
=	UG/L 12		%08	139.45	0	00	10	1.8	1.9	129		0.69	2.2
		47 7	%02	2	2	7	10	2.2	0.6 U	47		0.6 U	3
			100%	17.32	10	10	10	4	3.8	1160		2.3	12.3
vanide, Amenable M			%0		0	0	10	0.01 U	0.01 U	0.01 U		0.01 U	0.01 U
			%0		0	0	10	0.01 U	0.01 U	0.01 U		0.01 U	0.01 U
	UG/L 1100	110000	%08	300	2	00	10	1460	421	110000		105	2020
ad U		_	100%	.4624632	_	10	10	6.5 J	8 J	839		5.9 J	16.1
			%00		0	10	10	12200	16100	26200		11400	12300
			%00		0	10	10	315	55.2	2380		37.4	235
			50%	0.0007	2	2	10	0.2 U	0.2 U	2.1		0.2 U	0.2 U
			30%	99.92	0	3	10	1.8 U	1.8 U	154		1.8 U	10.6
			%00		0	10	10	3420 J	2310 J	2580 J		3440 J	3720 J
elenium U			10%	4.6	7	-	10	3 U	3 U	4.6 J		3 U	3 U
			20%	0.1	7	2	10	1 U	1 U	00		1 0	1 U
			%00		0	10	10	123000 J	73900 J	71500 J		117000 J	70400 J
			20%	00		2	10	5.5 J	5.4 U	5.4 U		6.3	5.4 U
			20%	14		5	10	1.2	0.7 U	233		0.7 U	2.1
		6910 1	%001	159.25		10	01	19.6	19.7	0169		16.4	102
ther													
otal Petroleum Hydrocarbons M	MG/L 8.(	8.08	11%			_	6	1 U	1 N	8.08	O I	1 O	1 0

OYES:
Action Levels are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
Sample-duplicate pair (DRMO-3008/DRMO-3005) collected from SWDRMO-8 was averaged and the average results were used in the summary statistic presented in this table.

ecompound was not detected
 the reported value is an estimated concentration
 the compound was not detected; the associated reporting limit is approximate

Table C-7
SURFACE WATER SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

Lo	Facility Location ID						ı	SEAD-121C SWDRMO-6	SEAD-121C SWDRMO-7	SEAD-121C SWDRMO-8	SEAD-121C SWDRMO-8	SEAD-121C SWDRMO-9
Matrix Sample Denth to Ton of Sample	Matrix Sample ID							SW DRMO-3006	SW DRMO-3007	SW DRMO-3008	SW DRMO-3005	DRMO-3009
Sample Depth to Bottom of Sample	of Sample							N/A	N/A	N/X	× × ×	Y X
San	Sample Date OC Code							11/5/2002 SA	11/5/2002 SA	11/5/2002 SA	11/5/2002 SA	11/5/2002 SA
		Maximum	Frequency	Criteria	Number	Number of Times	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
Parameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)
Volatile Organic Compounds					0							
1,1,1-Trichloroethane	UG/L	0	%0		0	0	10	0.75 U				
1, 1, 2, 2-T etrachloroethane	UG/L	0	%0		0	0	0 !	0.7 U				
1,1,2-1 richloroethane	7/50	0 0	%0		0 0	0 0	10	0.62 U				
1,1-Dichloroethene	1.50	o c	% %		0 0	o c	2 2	0.66 U	0.66 0	0.00 0	0.66 0	0 99 0
1,2-Dichloroethane	UG/L	0	%%		0	0	2 2	0.56 U				
1,2-Dichloropropane	UG/L	0	%0		0	0	10	0.73 U				
Acetone	UG/L	0	%0		0	0	10	3.5 UJ				
Benzene	UG/L	0 (	%0		0	0	10	0.71 U	0.71 U	0.71 U	0.71 U	
Bromodichloromethane	7/5/1	0 0	%0		0 0	0 (	0 9	0.73 U				
Carbon disulfide	1001	0 0	%0		0 0	<b>&gt;</b> C	2 2	0.49 U	0.440	0.49 U	0.49 U	0.49 U
Carbon tetrachloride	UG/L	0	%		0 0	o c	2 2	0.47 11	0.47	0.47	0.72.0	
Chlorobenzene	UG/L	0	%0	S	0	0	01	0.78 U				
Chlorodibromomethane	UG/L	0	%0		0	0	10	0.66 U				
Chloroethane	NG/L	0	%0		0	0	10	2.4 U				
Chloroform	UG/L	0	%0		0	0	10	0.61 U	0.61 U	0.61 U	0.61 U	0 61 U
Cis-1,2-Dichloroethene	UG/L	0 (	%		0	0	0	0.62 U				
Cis-1,3-Dichloropropene	7/5/1	0 6	% %		0 0	0 0	0 5	0.66 U	0.66 U	0.66 U	0.66 U	D 99:0
Meta/Para Xylene	UG/L	00	%0		o ¢	0 0	2 2	151	151	151	1.51	151
Methyl bromide	UG/L	0	%0		0	0	2 2	0.38 U	0.38 U	0.38 UJ	0.38 UJ	0.38 UJ
Methyl butyl ketone	UG/L	0	%0	•	0	0	10	0.6 U				
Methyl chloride	UG/L	0	%0		0	0	10	0.51 U				
Methyl ethyl ketone	UG/L	0	%0		0	0	10	2.3 U				
Methyl isobutyl ketone	1/5/1	0 0	%		0 (	0 (	0 :	0.81 U	0.81 U	0.81 UJ	0.81 UJ	UN 18.0
Ortho Xviene	1001	0 0	%0		0 0	> 0	2 2	1.8 U	1.8 U	1.8 U	0.8.0	1.8 0
Styrene	T/S/n	0	%0		0	0	2 2	0.92 U		0.92 U	0.72 U	0.72 U
Tetrachloroethene	UG/L	0	%0		0	0	10	0.7 UJ	U 1.0	0.7 UJ	0.7 UJ	0.7 UJ
Toluene	UG/L	0 0	%	0009	0	0	2	0.71 U				
Trans-1,2-Dichloroethene	1/5/1	> 0	% %		0 (	0 (	0 ;	0.81 UJ	0.81	0.81	0.81 U	
Trichlorosthere	1/5/1	> <	%%	ç	0 0	0 0	2 9	0.66 U	0.66 U	0.66 U	0.66 U	
Vinvl chloride	1.001	0 0	%0	7	0 0	0 0	2 5	0.72 0	0.72 0	0.72 U	0.70	0.72 0
Semivolatile Organic Compounds		•	2		0	>	2					0 6.70
1,2,4-Trichlorobenzene	UG/L	0	%0	5	0	0	10	10 U			10 01	10 U
1,2-Dichlorobenzene	UG/L	0	%0	S	0	0	10	10 U		10 U		10 U
1,3-Dichlorobenzene	UG/L	0	%0	2	0	0	10	10 U	10 U			10 U
1,4-Dichlorobenzene	UG/L	0	%	2	0	0	10	10 U	10 U		10 U	10 U
2,4,5-I richlorophenol	UG/L	0 0	% ?		0 (	0	10	10 OI	10 O		10 U	10 O
2,4,6-1 nchlorophenoi	1/5/1	0 0	% %		0 0	0 0	2 2	10 U		10 0	D 01	D 01
2,4-Dimethylphenol	1.6/1	> c	% % 5 °C	1000	> c	> c	2 5	5 5	0 0 1		10 0	1001
2.4-Dinitrophenol	116/1	0	%%	400	0 0	0 0	2 2	11 01				111 01
•	1					,	:					;

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Table C-7
SURFACE WATER SAMPLE RESULTS
SEAD-121C
SEAD-121C and SEAD-121I RI REPORT
Seneca Army Depot Activity

SEAD-121C SWDRMO-9 SW DRMO-3009 0 N/A 11/5/2002 SA PID-RI	Val	20:			· - :	0 0	U 10 UJ	0 01 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	D:	10 O 10 O 10 O 10 O 10 O 10 O 10 O 10 O		0 01 00 01 00 01 01 01 01 01 01 01 01 01		10 0.0	U 0 U 0 U 0 U 0 U 0 U 0 U 0 U 0 U 0 U 0	_	D:	D 01		10 0.0			o:	100		Ω	D:	0.01	
SEAD-121C SWDRMO-8 SW DRMO-300 0 N/A 11/5/202 SA PID-RI	Val		10 10	1000	01 9	10	J J 10	J 10	10								- ,	01											
SEAD-121C SWDRMO-8 SW DRMO-3008 0 N/A 11/5/2002 SA PID-41	Val	D 01	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		101		10 U	101		10 U	D 01	0 0	U 01	0 01	U 01	U 01	D 01	10 O	10 U	0 0 0	10	1 01	U 01	10 0			0 :	0 01	
SEAD-121C SWDRMO-7 SW DRMO-3007 0 N/A 111/5/2002 SA PID-RI	Value (Q) 10 U 10 U	D 01	10 U 10 U	10 U	0 0 0	10 01 10 01	10 U 10 U	10 U	U 01	10 01 10 01	10 01	10 U	10 U	0 01	U 01	D 01	10 U	0 01	10 U	10 O	10 O	10 U	10 U	10 01	10 U	10 U	U 01		0 0 0
SEAD-121C SWDRMO-6 SW DRMO-3006 0 N/A 11/5/2002 SA PID-RI	Valu	U 01	10 0 0 10 0 0	10 U	001	15 OI	10 U 10 U	10 U	10 U	10 01 10 01	D 01	10 01	10 U	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	U 01	D 01	U 01	10 01	U 01	10 O	2 01	10 U	D 01	10 01	10 U	10 U	U 01	10 01	D 00
Number of	Analyses 1 10 10	10	0 0 9	2 2 2	2 2 3	10	10	10	10	0 0	0 9	2 2	01	2 2	0 9	2 0	0 5	2 2	01	2 2	2 2	10	2 :	2 5	2 2	10	2 5	2 2	2 2 2
Number of Times	Detected 0	001	000	> o c	000	00	00	00	0	0 0	0	0 0	0 (	<b>&gt;</b> 0	00	0 0	٥.	- 0	0	0 0	0	0	0 (	<b>&gt;</b> c	0	0	0 (	o c	
Number of	Exceedances 0 0	000	000	000	000	00	00	00	0	00	0	00	0 (	00	0 (	o	0 (	0	0	0 0	0	0	0 (	<b>&gt;</b> c	0	0	0 (	> c	, 0 0
Criteria	Value 1	,	4.7			,											Š	9.0									0.00003	0.01	9.0
Frequency	Detection 0% 0%	%%	%%%	%%%	%	%%	%%	%%	%0	%%	%0	%%	%0	%%	%	%%	%0	%)I %)	%0	%0	%0	%0	%0	%%	%0	%0	%	% %	%%
Maximum	Value 0	001	000	000	000	00	00	00	0	0 0	0	0 0	0 (	0	00	0	0 ;	0.4	0	00	0	0	0 (	<b>&gt;</b> c	0	0	0 0	o e	
	Units UG/L UG/L	7,00 1,00/L	7,00 1,00 1,00 1,00 1,00 1,00 1,00 1,00	UGL	T/Sn	UG/L UG/L	UG/L UG/L	UG/L	UG/L	T/S/O	T/S/n	T/90 OG/F	T/S/n	T DO		T/S/O	T/S/I	0.6/L	UG/L	UG/L	1,50	UG/L	UG/L	7,50	T/S/I	UG/L	UG/L	750	TON
Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Dete QC Code	Parameter 2,4-Dinitrotoluene 2,6-Dinitrotoluene	2-Chloronaphthalene 2-Chlorophenol	2-Methylnaphthalene 2-Methylphenol 2-Nitrografia	2-Nitroantine 2-Nitrophenol 3 or 4-Methylphenol	3,3'-Dichlorobenzidine	3-ivitroaniine 4,6-Dinitro-2-methylphenol	4-Bromophenyl phenyl ether 4-Chloro-3-methylphenol	4-Chloroaniline 4-Chlorophenyl obenyl ether	4-Nitroaniline	4-Nitrophenol Acenaphthene	Acenaphthylene	Anthracene Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene Benzo(ghi)perylene	Benzo(k)fluoranthene	Dis(2-Chloroethyl)ether Bis(2-Chloroethyl)ether	Bis(2-Chloroisopropyl)ether	Bis(2-Ethylhexy))phthalate Butvibenzylohthalate	Carbazole	Chrysene Din histolohekolota	Di-n-octylphthalate	Dibenz(a,h)anthracene	Dibenzofuran	Dietnyi patnalate Dimethylahthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene Hexachlorocyclonentadiene	Hexachloroethane Indeno(1,2,3-cd)pvrene

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## Table C-7 SURFACE WATER SAMPLE RESULTS SEAD-121C SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

SEAD-121C SWDRMO-9 SW DRMO-3009 0 N/A 11/5/2002 SA PID-RI	Value (Q)	10 U 0000 U 0002 U 0001 U 0001 U 0001 U 0001 U	0 000 0 0 000 0 0 000 0 0 0 0 0 0 0 0	0 0008 U 0 0008 U 0 008 U 0 008 U 0 008 U 0 008 U 0 009 U 0 005 U	19.4 4.7 U 2.8 U 37.2 0.14
SEAD-121C S SWDRMO-8 S'S SWDRMO-30 DRMO-3005 D 0 N/A 11/5/2002 SA PID-RI	O O O O O O O O O O O O O O O O O O O		0.009 U 0.009 U 0.001 UJ 0.001 UJ 0.002 U 0.002 U 0.002 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.00	0.008 U 0.008 U 0.12 U 0.24 UJ 0.08 UJ 0.09 UJ 0.12 U 0.05 UJ 0.05 UJ	23.4 4.7 U 2.8 U 47.4 0.12
SEAD-121C SWDRMO-8 SW DRMO-3008 11/5/2002 SA PID-RI PID-RI	Value (Q)	0.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 00	0.008 U 0.008 U 0.008 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000 U 0.000	23.9 4.7 U 2.8 U 43.7 0.14
SEAD-121C SWDRMO-7 SW DRMO-3007 0 N/A 11/5/2002 SA PID-RI	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	000 00 00 00 00 00 00 00 00 00 00 00 00	0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000 U 0,000	0.008 U 0.008 U 0.008 U 0.008 U 0.008 U 0.008 U 0.008 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009	14.4 4.7 U 2.8 U 54 0.16
SEAD-121C SWDRMO-6 SW SW DRMO-3006 0 N/A 11/5/2002 SA PID-RI	Value (Q) 10 U 10 U 10 U 10 U 10 U 10 U 10 U	000 000 000 000 000 000 000 000 000 00	0,000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0000 U 0	0.008 U 0.008 U 0.008 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009 U 0.009	27.5 4.7 U 2.8 U 50.4 0.16
Number of	Analyses 10 10 10 10 10 10	22 2222222	<u> </u>	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0 0 0 0 0
Number of Times	Defected	000000000	0000000000		0 0 - 0 6
Number	Exceedances		0000000000	> o o o o o o o o o o	3 N O O N
Criteria		0.00008 0.000007 0.0001 0.001	0.000	0.0000 0.000000 0.000000 0.000000 0.000000	150
Frequency	0% 0% 0% 0% 0% 0%		% % % % % % % % % % % % % % % % % % %	% % % % % % % % % % % % % % % % % % %	100% 10% 100% 90%
Махітит			0000000000	200000000	8760 0 50.3 423 0.86
Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Date QC Code Study ID	TYON TYON TYON TYON TYON TYON	750 1750 1750 1750 1750 1750 1750 1750 1	TON TON TON TON TON TON TON TON TON TON	760 760 760 760 760 760 760 760	700 700 700 700
Sample Dept Sample Depth to	Isophorone N-Nitrosodiphenylamine N-Nitrosodiphenylamine N-Nitrosodipropylamine Naphthalene Nitrobenzene Pentachlorophenol Phenanthrene	Friends Pyrend Pyrend Pyrend 4,4'-DDD 4,4'-DDE 4,4'-DDT Aidrin Alpha-BHC Alpha-BHC Chlordane Beta-BHC Chlordane Beta-BHC Chlordane Pri-aid-BHC Chlordane	Dieldrin Endosulfan I Endosulfan II Endosulfan II Endosulfan suifate Endrin Endrin aldebyde Endrin retone Garma-BHC/Lindane Garma-Chlordane Heptachlor enoxide	Arcelor-1224 Arcelor-1221 Arcelor-1222 Arcelor-1242 Arcelor-1248 Arcelor-1248 Arcelor-1248 Arcelor-1248 Arcelor-1254 Arcelor-1260 Arcelor-1248 Arcelor-1260 Arcelor-1260 Arcelor-1260 Arcelor-1260 Arcelor-1260 Arcelor-1260	Autimony Arsenic Barium Beryllium

NSENECAPID Area/Report/Draft Final/Risk Assessment/data/S121C-SW.xls/DRMO SW B&S

Table C-7 SURFACE WATER SAMPLE RESULTS SEAD-121C and SEAD-121I RI REPORT SEAD-121C

					Sen	ca Army	Seneca Army Depot Activity	cuvity				
	Facility							SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
	Location ID							SWDRMO-6	SWDRMO-7	SWDRMO-8	SWDRMO-8	SWDRMO-9
	Matrix							SW	SW	SW	SW	SW
	Sample ID							DRMO-3006	DRMO-3007	DRMO-3008	DRMO-3005	DRMO-3009
Sample Depth to To	op of Sample							0	0	0	0	0
Sample Depth to Botto	m of Sample							N/A	N/A	N/A	N/A	A/N
Sample Date	Sample Date							11/5/2002	11/5/2002	11/5/2002	11/5/2002	11/5/2002
	OC Code							SA	SA	SA	SA	SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum		Criteria	jo	of Times	Jo	-	_	-		
arameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q
Salcium	UG/L	166000	100%		0	01	10	72300	91700	00/19	72200	84100
Chromium	UG/L	129	80%	139.45	0	œ	10	U 9.0	0.89	0.6 U	O 9 0	1.9

		Maximum	Jo	Criteria	jo	of Times	jo	_	_	-		
Parameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Calcium	UG/L	166000	100%		0	01	10	72300	91700	67700	72200	84100
Chromium	UG/L	129	80%	139.45	0	00	10	0.6 U	68.0	0.6 U	0.6 U	6:1
Cobalt	UG/L	47	70%	5	50	7	10		0.6 U	9.0	9.0	0.91
Copper	NG/L	1160	100%	17.32	10	10	10	2.6	1.7	1.8	2.1	6.7
Cyanide, Amenable	MG/L	0	%0		0	0	10	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cyanide, Total	MG/L	0	%0		0	0	10	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Iron	UG/L	110000	%08	300	7	00	10	601	17.3 U	19 J	34.2 J	17.3 U
Lead	UG/L	839	100%	1.4624632	_	10	10	6.8 J	7.7 3	3.7	5.1 J	5.7 J
Magnesium	UG/L	26200	100%		0	10	10	12000	12400	11600	12300	11100
Manganese	UG/L	2380	100%		0	10	10	45.7	20.7	11.6	26.1	3.2
Mercury	UG/L	2.1	20%	0.0007	2	2	10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	UG/L	154	30%	99.92	0	٣	10	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Potassium	UG/L	5350	100%		0	10	10	3860 J	2070 J	3450 J	3660 J	4380 J
Selenium	UG/L	4.6	10%	4.6	2		01	3 U	3 U	3 U	3 U	3 U
Silver	NG/L	00	20%	0.1	2	2	10	1 U	1 U	1 U	1 0	1 U
Sodium	NG/L	123000	100%		0	10	10	113000 J	34800 J	102000 J	108000 J	4490
Thallium	NG/L	6.3	20%	00		2	10	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U
Vanadium	UG/L	233	20%	14		5	10	0.89	0.7 U	0.7 U	0.7 U	0.7 U
Zinc	UG/L	6910	100%	159.25		10	10	17.8	15.9	13.9	16.8	42.7
Other												
Total Petroleum Hydrocarbons	MG/L	8.08	11%				σ	1 U	1 U	1 0	1 0	

NOTES:

1) Action Levels are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
2) Sample-duplicate pair (DRMO-3008/DRMO-3005) collected from SWDRMO-8 was averaged and the average results were used in the surrmary statistic presented in this table.

 $U=compound\ was\ not\ detected$   $J=the\ reported\ value\ is\ an\ estimated\ concentration$   $UJ=the\ compound\ was\ not\ detected;\ the\ associated\ reporting\ limit\ is\ approximate$ 

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Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample Depth Sample D		Maximum	Frequency	Criteria	Number of	Number of Times		SEAD-1211 SB1211-1 SB1211-1 SOLL 1211-1040 0 2 10/24/2002 SA PID-RI	SEAD-1211 SB1211-2 SOIL 1211-1043 0 10/24/202 SA PID-RI	SEAD-1211 SB1211-2 SOIL 1211-1044 0 2 10/24/2002 SA PID-RI	SEAD-1211 SB1211-3 SOIL 1211-1047 0 2 10/24/2002 SA PID-RI	SEAD-1211 SB1211-4 SOIL. 1211-1050 0 10/24/2002 SA PID-RI	SEAD-1211 SB1211-5 SOIL SOIL 1211-1053 0 1024/202 SA PID-RI	SEAD-121 SS1211- SOI EB14 0, 3/10/199 S, EB
Proposition Commonweal	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Valu
chloroethane	UG/KG	0	%0	800	0	0	45	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
etrachloroethane	UG/KG	0	%0	009	0	0	45	2.9 UJ		2.8 UJ	2.9 UJ		3.2 UJ	
thloroethane	UG/KG	0	%0		0	0	45	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
oroethane	UG/KG	0 0	%%	200	0 (	0 (	45	2.9 UJ		2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
oroethane	UG/KG	00	%%	001	0 0	0 0	4 4 5 4	2.9 U]	3.1 0	2.8 UJ 2.8 UJ	2.9 UJ	3.1 03	3.2 UJ	
oropropane	UG/KG	0	%0		0	0	45	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
	UG/KG	150	%08	200	0	36	45	11 UJ	110 U	33 UJ	7.3 UJ		to 71	
horomorphy	UG/KG	41 ک	20%	09	0 0	0 0	45	2.9 UJ	6.6 J	10 J	2.9 UJ		3.2 UJ	
TILD COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECTION OF THE COLLECT	110/KG	o c	% %		> <	> 0	4 45	2.9 0.5	3.10	2.8 00	2.9 UU	3.1 00	3.2 00	
sulfide	UG/KG	0	%	2700	0	0	5 4	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 0	3.2 00	
trachloride	UG/KG	0	%0	009	0	0	45	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
nzene	UG/KG	0 0	% %	1700	0 (	0	45	2.9 UI	3.1 U	2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
oromorrane nane	00/80	> 0	% %	1000	0 0	0 0	45	2.9 UJ	3.1 U	2.8 01	2.9 UI		3.2 UJ	
E F	UG/KG	0	%%	300	0	> 0	. 4 . 5	2.9 UI	31.0	2.8 0.1	2.9 UJ	3.1.0	3.2 00	
ichloroethene	UG/KG	0	%0		0	0	45	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 03	3.2 UJ	
ichloropropene	UG/KG	0	%0		0	0	45	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
zene	UG/KG	7.8	13%	2500	0	9	45	2.9 UJ	2 J	3.5 J	2.9 UJ	3.1 UJ	3.2 UJ	
a Xylene	UG/KG	6.3 3	13%		0	9	45	2.9 UJ	2.2 J	3.4 J	2.9 UJ	3.1 UJ	3.2 UJ	
orniae styl ketone	0.G/KG	0 0	%%		0 0	0 0	24 24 24 24 24 24 24 24 24 24 24 24 24 2	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
loride	UG/KG	0	%		0	0	5 4	2.9 UI	3.1 U	2.8 11	2.9 0.1	3.1 01	3.2 0)	
hyl ketone	UG/KG	78	24%	300	0	Ξ	45	2.9 UJ	55	27 J	2.9 UJ	3.1 UJ	3.2 UJ	
obutyl ketone	UG/KG	0 %	%6	1000	0 (	0 (	45	2.9 UJ	3.1 U	2.8 U	2.9 UJ	3.1 UJ	3.2 UJ	
s cnionae	00000	2.8	%07	100	o (	э. ·	5 ;	1.8 J			1.6 J	2.8 J	2.4 J	
Ichc	11G/KG	0.0	13%		0 0	φ c	45	2.9 UJ	1.1 5	2 J	2.9 UJ	3.1 UJ	3.2 UJ	
roethene	UG/KG	0	%	1400	0	0	45	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
	UG/KG	313	18%	1500	0	80	45	2.9 UJ	6.9	11 J	2.9 UJ	3.1 UJ	3.2 UJ	
-Dichloroethene	UG/KG	0 (	%0	300	0	0	45	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 UJ	3.2 UJ	
-Dichloropropene ethene	11G/KG	0 0	%%	700	0 0	0 0	24 8	2.9 UJ	3.1 U	2.8 UJ	2.9 UJ	3.1 UI	3.2 UJ	
pride	UG/KG	0 0	%	200	0 0	o c	5.4	2.9 (1)	3.1.0	2.8 UJ	2.9 0.1	3.1 0.0	3.2 00	
tile Organic Compounds		•		2	>	>	f			5.8 O	0.6.7		3.2	
chlorobenzene	UG/KG	0	%0	3400	0	0	51	390 U	390 U	390 U	360 U	380 U	390 U	47
probenzene	UG/KG	0	%0	2006	0	0	51	390 U	390 U	390 U	360 U	380 U	390 U	47
orobenzene	UG/KG	0 (	%0	1600	0	0	51	390 U	390 U	390 U	360 U	380 U	390 U	47
propenzene thlorophenol	00/KG	0 0	% 6	8200	0 0	0 0	51	390 U	390 U	390 U	360 U	380 U	390 U	4
chlorophenol	110/80	<b>&gt;</b> c	%0	100	o c	o c	12	970 U	970 U	980 U	000 D	950 U	066 U	110
prophenol	11G/KG	o c	3 %	400	o c	o c		390 11	390 0	190 0	360 0	380 0	390 0	4 4
thylphenol	UG/KG	0	%	2	0	0	51	390 U	390 U	390 11	360 11	380 11	390 11	4 47
							1			*		,	j ; h	

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Facility Location ID Matrix Sample Depth to Top of Sample	Facility Location ID Matrix Sample ID p of Sample							SEAD-1211 SB1211-1 SOIL 1211-1040	SEAD-121I SB121I-2 SOIL 121I-1043	SEAD-1211 SB1211-2 SOIL 1211-1044	SEAD-1211 SB1211-3 SOIL 1211-1047	SEAD-1211 SB1211-4 SOIL 1211-1050	SEAD-1211 SB1211-5 SOIL 1211-1053	SEAD-12 SS1211 SO EB14
Sample Depth to Bottom of Sample Sample Date	om of Sample Sample Date							10/24/2002	2 10/24/2002	2 10/24/2002	2 10/24/2002	2 10/24/2002	2 10/24/2002	3/10/19
	Study ID		Frequency		Number	Number	Number	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI	E
1	47	Maximum		Crite		of Times	of	(0)	(6)	(0)	(0)	(0)	(C) surph	1/2
ronhenol	Units	value	Detection 0%	Value	Exceedances	Defected	Analyses	value (Q)	value (Q)	value (Q)	value (Q)	value (Q)	value (Q)	v ai
trotoluene	UG/KG	0	%	007	0	0	7 17	390 U	390 U	390 U	360 U	380 U	390 U	.4
trotoluene	UG/KG		%0	1000	0	0	51	390 U	390 U	390 U	360 U	380 U	390 U	4.
onaphthalene	UG/KG	0 0	% &	0	0 0	0 0	12.5	390 U	390 U	390 U	360 U	380 U	390 U	4 4
phenoi Inaphthalene	UG/KG	7 7 7 8	%°01	36400	0	<b>5</b> 40	2 2	390 U	390 U	390 C	360 U	380 U	390 U	1 4
iphenol	UG/KG		%0	100	0	0	51	390 U	390 U	390 U	360 U	380 U	390 U	4
uiline	UG/KG	0 0	% %	430	0 0	0 0	52	970 U	970 U	D 086	D 006	950 U	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11
fethyiphenol	UG/KG		88	055	0	<b>&gt;</b>	45	390 U	0 068 0 068	390 U	360 U	380 U	390 U	‡
hlorobenzidine	UG/KG	3153	7%		0		47	390 U	390 UJ	390 U	360 U	380 U	390 U	4
niline	UG/KG		%	200	0	0	15	D 076	U 076	D 086	D 006	950 U	D 066	Ē:
tro-2-methylphenol	0.6/KG	<b>&gt;</b> c	%000		<b>&gt;</b>	<b>&gt;</b> C	2 &	970 U	0 0 0 6	390 UJ	360 UJ	950 0	390 03	11
5-3-methylphenol	UG/KG		%	240	0	0	21 22	390 U	390 U	390 U	360 U	380 U	D 066	4
oaniline .	UG/KG		%0	220	0	0	51	390 U	390 U	390 U	360 U	380 U	390 U	4
ophenyl phenyl ether	UG/KG		%		0 1	0 (	51	390 U	390 U	390 U	360 U	380 U	390 U	4 .
/lphenoi	UG/KG		%	900	0 (	0 0	φ;	11	11 000	,	11 000	11 090	11 000	4 -
miline	5 KG	<b>&gt;</b> C	% %	5	<b>&gt;</b> c	<b>&gt;</b> C	17 17	0.0/6	0.076	0.086	0 006	950 0	0 066	= =
thene	UG/KG	9	51%	20000	0	, 92 92	. 15	390 U	390 U	390 U	360 U	380 U	390 U	
uthylene	UG/KG		12%	41000	0	9	51	390 U	390 U	390 U	360 U	380 U	390 U	4
ene	UG/KG		%85	20000	0	53	20	390 U	89 J	74 J	360 U	380 U	390 U	;
)anthracene	UG/KG		%06	224	78	46	15 2	67 J	350 J	350 J	100 J	380 U	43 J	14
Jpyrene Afluoranthene	04/50 110/40		94%	1100		C 4 C 84	2 2	140 1	590 J	620 1	150 1	380 111		15
hi)perylene	UG/KG		82%	20000		45	51	390 U	220 J	140 J	73 J	380 UJ	390 U	00
() fluoranthene	UG/KG		74%	1100	14	37	20	390 UJ	300 J	360 J	100 J	380 UJ	390 UJ	15
nloroethoxy)methane	0G/KG	00	% %		0 6	0 6	5 12	390 U	390 O	390 0	360 U	380 U	390 1	4 4
hloroisopropyl)ether	UG/KG		%.		0	0	21 25	390 U	390 U	390 U	360 U	380 U	390 U	4
thylhexyl)phthalate	UG/KG		33%	20000	0	17	51	58 J	78 J	390 U	38 J	380 U	390 U	
nzylphthalate	UG/KG		%9	20000	0	e	48	130 J	390 UJ	390 U	360 U	380 U	390 U	4
e.	UG/KG	0899	27%	9	0 %	53	[5]	390 U	56 J	67 J	360 U	380 U	390 U	ν. ř.
e tyfphthalate	UG/KG		2%	8100		‡ -	ر ا	390 U	390 U	390 U	360 U	380 U	390 U	7.7
tylphthalate	UG/KG		7%	20000	0	-	47	390 U	390 UJ	390 U	360 U	380 U	390 U	4
a,h)anthracene	UG/KG		34%	14		21 2	4 2	390 U	390 UJ	390 U	360 U	380 UJ	390 U	m
nutan Shthelete	02/01/		200	100		ţ	5 7	1000	12 096	200 5	260 5	380 11	300 11	•
riphthalate	UG/KG		%%	2000	0	- 0	. 15	390 U	390 C	390 U	360 U	380 U	390 U	4
hene	UG/KG	62000	94%	20000		48	51	170 J	720	920	210 J	380 U	120 J	32
•	UG/KG	4200	43%	20000	0 (	22	51	390 U	390 U	390 U	360 U	380 U	390 U	•
orobenzene orobutadiene	UG/KG UG/KG	00	%%	410	> 0	<b>&gt;</b> 0	5 2	390 UJ	390 U 390 UJ.	390 U	360 U	380 U	390 UJ	4

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Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Date	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample Date							SEAD-1211 SB1211-1 SOIL 1211-1040 0 10/24/2002	SEAD-1211 SB1211-2 SOIL 1211-1043 0 10/24/2002	SEAD-1211 SB1211-2 SOIL 1211-1044 0 10/24/2002	SEAD-1211 SB1211-3 SOIL 1211-1047 0 10/24/2002	SEAD-1211 SB1211-4 SOIL 1211-1050 0 10/24/2002	SEAD-1211 SB1211-5 SOIL 1211-1053 0 10724/2002	SEAD-121 SS1211- SOII EB14' 0.3
	QC Code Study ID	Merimin	Frequency	4	Number	Number	Number	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI	PID-RI	EB
L	Linite	Value	Ŋ	Value 1	Exceedances		Analyses 2	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Valu
rocyclopentadiene	UG/KG	0	%0		0		51	390 U	390 U	390 U	360 U	380 U	390 U	47
roethane	UG/KG	0	%0		0	0	51	390 U	390 U	390 U	360 U	380 U	390 U	47
,2,3-cd)pyrene	UG/KG	12000	71%	3200	3	35	49	390 UJ	63 J	79 J	360 UJ	380 U	390 UJ	76
ne ne	UG/KG	3153	2%	4400	0	-	51	390 UJ	390 UJ	390 UJ	360 UJ	380 UJ	390 UJ	47
odiphenylamine	UG/KG	0	%0		0 (	0 (	20	390 U	390 U	390 U	360 U	380 U	390 U	74
odipropylamine ene	UG/KG	630	14%	13000	00	0 1	5 12	390 U	390 U 390 U	390 U	360 U	380 U	390 U	47
sene	UG/KG	3153	2%	200	_	_	51	390 UJ	390 UJ	390 UJ	360 UJ	380 UJ	390 UJ	47
prophenol	UG/KG	0	%0	1000	0	0	20	970 U	D 079	O 086	D 006	950 U	D 066	110
rene	UG/KG	52000	84%	20000	-	8	51	69 J	450	440	110 J	380 U	53 J	120
	UG/KG	315 3	2%	30		1 48	51	390 U	390 U	390 U	360 U	380 UJ 380 U	390 U 72 I	270
s/PCBs	0400	200	74.70	00000	-	o F	5	6 071	5021	8			1	1
	UG/KG	0	%0	2900	0	0	45	2 UJ		2 UJ	1.8 UJ	I.9 UJ	2 UJ	
	UG/KG	34	11%	2100	0	2	45	2 U	2 U	2 U	1.8 U	U 6.1	2 U	
	UG/KG	36	%	2100	0 (	7	44	2 U		2 U	1.8 C	0 6.1	200	
ç	UG/KG		% &	14:	0 (	4 (	45	202	202		0 8.1	0 6.1	2 0	
1C	10/KG	0 0	% %	110	> <	> <	45	2 OJ	2 0 2	7 0	3 1 8 1	5 5	2 0.7	
C	119/89	0 0	8 %	200	o c	0 0	45	0 4 6	2 11		D 8:1	0 61	2 0	
) U	UG/KG	0	%		0	0	45	20 U	20 U	20 U	18 0	U 61	20 U	
C	UG/KG		%0	300	0	0	45	2 UJ	2 UJ	2 UJ	1.8 UJ	L9 UJ	2 UJ	
	UG/KG	34	4%	44	0	2	45	2 UJ	2 UJ	. 2 UJ	1.8 UJ	LO 6.1	2 UJ	
an I	UG/KG		29%	006	0 (	24	4 ;		L 1.	6.9 J	U.8.U	U 6.1		
an II	0.6/KG	0 0	%0	906	0 0	0 0	\$ ¥	7 5	7 5	7 0	1.8	0 6.1	) r	
on surrance	UG/KG		% %	001	0	2 0	45	2 C	0 7 7 7 N	2 C	1.8 U	D 6.1	2 C	
dehyde	UG/KG		%0		0	0	45	2 U	2 U		1.8 U	U 6:1	2 U	
tone	UG/KG	0	%0		0	0	45		2 U	2 U	1.8 U	1.9 ∪	2 U	
SHC/Lindane Chlordane	UG/KG	0 0	%%	09	0 0	0 0	45	2 C	7 F	2 5 2 1 C	1.8 U	D 6:1	1 C	
OF CALLS	UG/KG		%0	100	0	0	45		2 U		D 8:1	U 6.1	2 O	
or epoxide	UG/KG		21%	20	3	00	39			2 U	1.8 U	U 6.1	2 U	
chlor	UG/KG		%0		0	0	45	2 U	2 U	2 U		U.9.U	2 U	
ne Je	UG/KG		%0		0	0 (	45	20 U	20 U	20 U	0 81	0 61	20 0	
1016	UG/KG	0 0	%%		0 0	0 0	45	20 U	20 O	20 C	0 81	0 61	20 C	
1232	UG/KG		%0		0	0	45	20 U	20 U	20 U		D 61	20 C	
1242	UG/KG		%0		0	0	45	20 U	20 U	20 U	18 U	19 U	20 U	
1248	UG/KG		%0		0	0	45	20 U	20 U	20 U	18 U	N 61	20 U	
1254 1260	UG/KG	67	% %	10000	00	01 m	45	20 UJ	20 UJ 20 UJ	20 UJ 20 UJ	18 UJ 18 UJ	U) 61	20 UJ 20 UJ	
nd Cyanide										;	į	4		
Fs	MG/KG MG/KG	13200	31%	19300	0 -	145	45 45	4400 3.8 J	9700	9020 8.6	5510	13000 1 U	13200 1.1 U	

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### SURFACE SOIL AND DITCH SOIL SAMPLE RESULTS **SEAD-1211** Table C-8

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Dett Sample Dett Sumple Date QC Code QC Code	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample Date QC Code Study ID	_	Frequency		Number	Number	Number	SEAD-1211 SB1211-1 SOIL 1211-1040 0 2 10/24/2002 SA PID-RJ	SEAD-1211 SB1211-2 SOIL 1211-1043 0 10/24/2002 SA FID-RI	SEAD-1211 SB1211-2 SOIL 1211-1044 0 2 10/24/2002 SA PID-RI	SEAD-1211 SB1211-3 SOIL. 1211-1047 0 2 10/24/2002 SA FID-R1	SEAD-1211 SB1211-4 SOIL. 1211-1050 0 0 10/24/2002 SA FID-RI	SEAD-1211 SB1211-5 SOIL 1211-1053 0 0 10/24/2002 SA FID-RI	SEAD-121 SS1211- SOI EB14 0. 3/10/199 S,
ļ		Maximum	Jo	Criteria	Jo C		Jo	(O) supply	Velice (O	(O) 5:14-74	(0)	Volus (O)	Volue	Vel
	MG/KG		100%	1	Exceeuances 8	- 1	34	value (V)	21.2 J ·	43 J	5.4 J	7.3 J	11.5 J	v dit
	MG/KG	207	100%	300	0	45	45	105 J	74.3 J	83.6 J	67.3 J	102 J	91.3 J	
	MG/KG	89:0	%86	1.1	0	4	45	0.27	0.49	0.46	0.31	0.67	0,68	
C	MG/KG	9'9	31%	2.3	3	14	45	0.53	0.14 U	0.14 U	9.9	0.14 U	0.14 U	
	MG/KG	298000	100%	121000	18	45	45	171000	30900	27800	121000	10300	18800	
E	MG/KG	439 3	100%	29.6	9	45	45	11.2 J	25.9 J	50 J	14.1 J	22 J	22.6 J	
	MG/KG	2063	100%	30	4	45	45	6.9 J	23.9 J	40.6 J	12.4 J	18 J	13.7 J	
	MG/KG	2093	100%	33	10	40	40	21 R	37.5 R	66.1 R	20.6 R	24.4 R	27.6 R	
Amenable	MG/KG	0	%		0	0	45	0.59 U	0.59 U	O 9.0	0.55 U	0.58 U	0.6 U	
Total	MG/KG	2.00 3	2%		0	33	45	0.592 U	0.592 U	0.595 U	0.552 U	U 575 U	0.602 U	
	MG/KG	58400 3	100%	36500	2	45	45	11500	27100	31500	15400	30400	30200	
	MG/KG	122	100%	24.8	22	45	45	15.7	31.3	42.1	20.3	13.7	12.8	
	MG/KG	22300	100%	21500	-	45	45	18800	6110	4240	12000	5240	2980	
se	MG/KG	3105003	100%	1060	15	45	45	474 J	33200 J	57800 J	534 J	1420 J	1010 J	
	MG/KG	0.18	%86	0.1		44	45	0.07	0.04	0.05	0.03	0.05	0.05	
	MG/KG	342 3	100%	49	7	45	45	53.6 J	38.9 J	46.3 J	26.7 J	37.4 J	33.3 J	
E	MG/KG	1450	100%	2380	. 0	45	45	1080 J	859 J	929 J	950 J	1090 J	949 J	
	MG/KG	1463	47%	2	5	21	45	0.65 J	5.1 J	17.9 J	0.46 UJ	1.4 J	1.4 J	
	MG/KG	10.5	18%	0.75	4	9	34	0.31 UJ	1.9 J	4.2 J	0.29	0.3 UI	0.32 UJ	
	MG/KG	372	87%	172	24	37	45	372	118 U	115 U	207	113 U	118 U	
	MG/KG	163 3	20%	0.7	2	6	45	0.36 U	8	14.4	0.34 U	0.35 U	0.5 J	
E	MG/KG	1823	100%	150	-	45	45	8.3 J	22.6 J	31.6 J	11.4 J	24.3 J	21 J	
	MG/KG	532	100%	110	14	45	45	176 J	85.1 J	82 J	70.7 J	92.1 J	93.9 J	
ganic Carbon	MG/KG	8900	100%		0	45	45	5400	2600	0899	6500	7100	9029	
troleum Hydrocarbons	MG/KG	2200	33%		0	15	45	47 U	47 U	48 U	44 U	46 U	48 U	

iteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, cd January 24, 1994.

e-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. aximum detected concentration was obtained from the average of the sample and its duplicate.

pound was not detected portration ported value is an estimated concentration compound was not detected; the associated reporting limit is approximate lata was rejected in the data validating process pound was "tentatively identified" and the associated numerical value is approximate pound was "tentatively identified" and the associated numerical value is

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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

								•						
	Facility Location ID Matrix							SEAD-1211 SS1211-10 SOIL	SEAD-1211 SS1211-10 SOIL	SEAD-1211 SS1211-11 SOIL	SEAD-1211 SS1211-12 SOIL	SEAD-1211 SS1211-13 SOIL	SEAD-1211 SS1211-14 SOIL	SEAD-121 SS1211-1 SOI SOI
Sample Depth to Top of Sample	of Sample							0	0	0	0	0	0 0	
Sample Depth to Bottom of Sample Sample Date	om of Sample Sample Date							0.2 10/22/2002	0.2 10/22/2002	0.2 10/22/2002	0.2	0.2	10/23/2002	0. 10/23/200
	QC Code Study ID	Marimim	Frequency	Criteria	Number	Number of Times	Number	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI	S. PID-F
er	Units	Value	De	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Valu					
Organic Compounds	02/011		700	000	c	c	46	3 5 11	23.11	3111	2 8 11	7611	11 1	2
chlorocthane	UG/KG	0	%%	009	0	0	54	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 0	2
chloroethane	UG/KG	0	%0		0	0	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U		2
loroethane	UG/KG	0 (	%0	200	0 (	0 (	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 0	7.5
loroethane	UG/KG	00	%%	100	0	00	4 4 5 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2.5 UJ	2.2 O	3.1 UJ	2.8 UJ	2.6 UJ		4 74
loropropane	UG/KG	0	%0		0	0	45	2.5 U	2.2 U	3.1 U	2.8 U	9	3 U	2 :
	UG/KG	150	%08	200	0	36	45	4.5 J	2.2 U	15 J	12 J	30 J		=
	UG/KG	413	20%	09	0 (	6 6	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 C	(4 (
chloromethane	UG/KG	0 0	%0		0 0	0 0	45	2.5 U	2.2 0	3.1 0	2.8 U	2.6 U	0 0 0	2 2
isulfide	UG/KG	0	%%	2700	0	0	4 4	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 0	2 2
etrachloride	UG/KG	0	%0	009	0	0	45	2.5 UJ	2.2 U	3.1 UJ	2.8 UJ	2.6 UJ	3 UJ	2
nzenc	UG/KG	0	%0	1700	0 (	0	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3.0	7 7
bromomethane hane	10/AG	0 0	%0	1000	<b>&gt;</b> C	<b>&gt;</b> C	0 4 4	2.5 U	2.2 0	3.1 0	7.8 0	2.6 U	) C	7 0
	UG/KG	0	%	300	0	0	2 4	n vo	2.2 C	3.1 U	2.8 U	2.6 U	3 0	1 74
Dichloroethene	UG/KG		%		0	0	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 U	2
Dichloropropene	UG/KG		%0		0	0	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 U	2
zene	UG/KG	7.8	13%	2500	0	9	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 U	7
ra Xylene	UG/KG		13%		0	9	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U		\$
romide	UG/KG		% %		0 (	0 0	45	2.5 UJ	2.2 U	3.1 01	2.8 UJ	2.6 UJ		2.0
utyi ketone hloride	UG/KG		%%		0 0	0 0	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U		4 64
thy! ketone	UG/KG		24%	300	0	=	45	2.5 U	2.2 U	3.1 U	2.8 U	2		•
sobutyl ketone	UG/KG		%0	1000	0	0	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 U	2
e chloride	UG/KG		20%	100	0	6	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U		2
ylene	UG/KG		13%		0 0	9 0	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 0	m
proethene	UG/KG	00	%%	1400		0	2 4 45	2.5 U	2.2 O	3.1 U	2.8 C	2.6 U		4 (4
	UG/KG		18%	1500	0	00	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 U	
2-Dichloroethene	UG/KG		%0	300	0	0	45	2.5 U	2.2 U	3.1 U	2.8 U	9	3 U	2
3-Dichloropropene	UG/KG		%0		0	0	45	2.5 U	2.2 U		2.8 U		3 U	77
oethene oeide	UG/KG	0 0	%%	700	0 0	0 0	45	2.5 U	2.2 U	3.1 U	2.8 U	2.6 U	3 0	7
atile Organic Compounds					>	>	}	) i	O a a		) i		)	•
chlorobenzene	_		%0	3400	0	0	51	360 U	360 U	370 U	370 U	1800 U	390 U	3
lorobenzene	UG/KG		%0	2000	0	0	51	360 U		370 U	370 U	1800 U	390 U	3
lorobenzene	UG/KG		%0	1600	0 (	0 (	51	360 U	360 U	370 U	370 U	1800 U	390 U	9.03
lorobenzene	UG/KG		%0	8200	0 (	0 0	2 2	360 U	360 U	3/0 U	370 U	1800 U	390 U	m 0
chlorophenol	UG/KG	0 0	% %	201	00	> 0	7 5	360 U	360 U	370 U	370 U		390 U	, eo
lorophenol	UG/KG		%0	400	» o	, 0	. 5	360 U	360 U	370 U	370 U	1800 U	390 U	
ethylphenol	UG/KG	0	%0		0	0	51	360 U	360 U	370 U	370 U	1800 U	390 U	3

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	:							,					1101 0140	21 44
	Facility Location ID							SEAD-1211 SS1211-10	SEAD-1211 SS1211-10	SS121I-11	SS1211-12	SS1211-13	SS1211-14	SS1211-1
	Matrix Sample ID							SOIL 1211-1006	SOIL 1211-1031	SOIL 1211-1007	SOIL 1211-1008	SOIL 1211-1009	SOIL 1211-1010	SOI 1211-10
Sample Depth to Top of Sample	op of Sample							0 (	0 (	0 (	0 (	0 (	0 0	c
Sample Depth to Bottom of Sample Date	Sample Date							10/22/2002	10/22/2002	10/22/2002	10/22/2002	10/22/2002	10/23/2002	10/23/200
	Study ID		Fre		Number	Number	Number	PID-RI	SA PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-I
		Maximum		es	Jo	of Times	o ,	;	;				;	
ter	Units	Value	Detection	١,	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Val
trophenoi trotoluene	UG/KG	00	%%	200	0	00	51	360 U	360 U	370 U	370 U	1800 U	390 U	3
trotoluene	UG/KG	0	%	1000	0	0	51	360 U	360 U	370 U	370 U	1800 U	390 U	39
onaphthalene	UG/KG	0	%0		0	0	51	360 U	360 U	370 U	370 U	1800 U	390 U	36
ophenol	UG/KG	0 %	%0	800	00	0 4	51	360 U	360 U	370 U 370 H	370 U 370 U	1800 U	390 U	
lphenol	UG/KG	0	%0	100	• •	0	51	360 U	360 U	370 U	370 U	1800 U	390 U	36
niline	UG/KG		%0	430	0	0	51	910 U	U 016	930 UJ	920 U	4500 UJ	10 086	9.
henol	UG/KG		%0	330	0 (	0 0	51	360 U	360 U	370 U	370 U	1800 U	390 U	. W
retnyipnenoi	DAWG.	0 0	%0		o (	· ·		300 1	360 0	370 11	370 111	1800 1	300 111	9 6
norobenzamie	UG/KG		%%	500	0 0	- 0	÷ 5	910 13	910 11	930 13	970 U	4500 U	70 066 U 086	i b
tro-2-methylphenol	UG/KG		%	8	0	0	. 8	910 UJ	910 UJ	930 U	920 UJ	4500 UJ	D 086	9
ophenyl phenyl ether	UG/KG		%0		0	0	50	360 U	360 U	370 U	370 U	1800 U	390 U	33
5-3-methylphenol	UG/KG		%	240	0	0	51	360 U	360 U	370 U	370 U	1800 U	390 U	. e
Saniline Lead to the total	UG/KG	0 0	% 8	220	0 0	0 0		360 UJ	360 U	370 U	370 UJ 370 UJ	1800 0	390 U	
opnenyi pnenyi etner riphenol	UG/KG		% %	006	0 0	0 0	9	300 0	300 0	3/6 0	0 000	1900 0	0 066	n'
niline	UG/KG		%	2	0	. 0	51	910 U	910 U	930 U	920 U	4500 U	980 U	9
phenol	UG/KG		%0	100	0	0	51	910 U	910 U	930 U	920 U	4500 U	O 086	6
ithene	UG/KG	_	%15	20000	0	56	51	360 U	360 U	370 U	370 U	1800 U	53 J	
ıthylene	UG/KG		12%	41000	0 (	9 9	51	360 U	360 U	370 U	370 U	1800 U	390 U	
ene Janthrogene	UG/KG	12000	28%	20000	o %	67	8 5	360 0	360 U	370 0	3/0 0	0 0081	270 1	
)pyrene	UG/KG		%% 8	<del>577</del>	o 4 4	45	51	66 J	60 9	75 J	180 J	1100 J	290 J	
(fluoranthene	UG/KG		94%	1100	14	48	51	53 J	51 J	100 J	160 J	920 J	280 J	1
thi)perylene	UG/KG		82%	20000	0	42	51	67 J	63 J	70 J	160 J	840 J	290 J	
() fluoranthene	UG/KG	53	74%	1100	4 0	37	20	360 U	360 U	110 J	150 J	980 J	280 J 300 II	7 6
noroemoxy)memane hioroethyilether	UG/KG		%%		0	0 0	51	360 U	360 U	370 U	370 U	1800 U	390 U	ıκı
hloroisopropyl)ether	UG/KG	0	%0		0	0	51	360 U	360 U	370 U	370 U	1800 U	390 U	3
thylhexyl)phthalate	UG/KG		33%	20000	0	17	51	360 UJ	360 U	370 UJ	370 UJ	1800 U	390 UJ	3
nzylphthalatc	UG/KG		%9	20000	0	6	48	360 U	360 U	370 UJ	370 UJ	1800 U		3
je J	UG/KG	32000	57%	90	0 %	29	51	360 U	360 U	370 U	370 U	1800 0	300 1	
tylphthalate	UG/KG		2%	8100	3 0	<b>.</b>	20 50	360 U	360 U	370 U	370 U	1800 U	390 U	. 60
tylphthalate	UG/KG	4203	2%	20000	0		47	360 U	360 U	370 UJ	370 UJ	1800 U	390 UJ	3
a,h)anthracene	UG/KG		34%	14	15	15	44	360 U	360 UJ	370 R	370 UJ	1800 UJ	390 U	<i>c</i> 0 <i>c</i>
huran	UG/KG		27%	9200	0	14	21	360 U	360 U	370 U	370 U	1800 U	390 U	n .
phthalate	UG/KG	640	%%	7100	0 0	- <	51	360 U	360 U	370 U	370 U	1800 0	390 U	. r
thene	UG/KG	9	94%	20002	- 0	48	51	100 J	78 J	130 J	220 J	1200 J	570	4
	UG/KG	4	43%	20000	0	22	51	360 U	360 U	370 U	370 U	1800 U	390 U	
orobenzene	UG/KG	0 0	%0	410	0 0	0 0	50	360 U	360 U	370 U	370 U	1800 U	390 U	r r
OFOURIBUICING	7450		9/0		٥	>	รี			2	>	,	)	

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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

,	Facility Location ID Matrix Sample ID							SEAD-1211 SS1211-10 SOIL 1211-1006	SEAD-1211 SS121I-10 SOIL 1211-1031	SEAD-1211 SS1211-11 SOIL 1211-1007	SEAD-1211 SS121I-12 SOIL 121I-1008	SEAD-1211 SS1211-13 SOIL 1211-1009	SEAD-1211 SS1211-14 SOIL 1211-1010	SEAD-121 SS1211-1: SOII 1211-101
Sample Depth to Top of Sample Sample Depth to Bottom of Sample	Cop of Sample om of Sample							0 0	0.2	0.2	0 0	0.0	0 0	0.0
	Sample Date							10/22/2002	10/22/2002	10/22/2002	10/22/2002	10/22/2002	10/23/2002	10/23/200
	Study ID	Morimum	Frequency	, in	Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-R
L.	Unite	Value	De		Exceedances		Analyses 2	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Valu
rocyclopentadiene	UG/KG	0	%0	1	0	1	51	360 U	360 U	370 U	370 U	1800 U	390 U	39
roethane	UG/KG	0	%0		0	0	51	360 U	360 U	370 U	370 U	1800 U	390 U	39
2,3-cd)pyrene	UG/KG	12000	71%	3200	6	35	49	83 J	74 J	370 UJ	250 J	440 ]	290 J	6
	UG/KG	315	2%	4400	0		51	360 U	360 U	370 U	370 U	1800 U	390 U	39
odiphenylamine	UG/KG	0 0	% %		0 0	00	5 50	360 U	360 U	370 U 370 III	370 U	1800 U	390 U	39
ene ene	UG/KG	630	14%	13000	0	۰ ۲	2 15	360 U	360 U ·	370 U	370 U	1800 U	390 U	39
cene	UG/KG	3153	2%	200	_	-	51	360 U	360 U	370 U	370 U	1800 U	390 U	39
rophenol	UG/KG	0	%0	1000	0	0	20	010 U	910 U	930 U	920 U	4500 U	D 086	62
rene	UG/KG	52000	%4%	20000		80	21	60 J	56 J	70 J	170 J	760 J	400	43
	UG/KG	3157	2%	30		1 48	5 15	360 0	360 U	370 U	370 U	1800 U	390 0	39
s/PCBs						2	í				1			
	UG/KG	0	%	2900	0	0	45	1.9 UJ		1.9 UJ	1.9 UJ	1.8 UJ	2 UJ	
	UG/KG	34	11%	2100	0 (	v,	45	1.9 U	1.8 U	U 6:1	1.9 U	1.8 U	2 U	
	0 K/C	39	%%	2100	0 0	71 7	44	1.9 (1)	1.8	1.9 UJ	1.9 0.1	1.8 0	7 07	
Į.	119/89	7 0	%0	110	0 0	rc	45	11.61	18.1	11 61	119 01	11 8 1	2 11 2	
lordane	UG/KG	0	%0		0	0	. 4	ID 61	1.8 U	ID 6:1	ID 6.1	1.8 UJ	2 UJ	
O	UG/KG	0	%	200	0	0	45	1.9 U	1.8 U	1.9 U	U 6.1	1.8 U	2 U	
	UG/KG	0	%0		0	0	45	D 61	18 U	19 U	19 U	18 U	20 U	2
C	UG/KG	0	%0	300	0	0	45	L9 UJ	1.8 UJ	U 6.1	IJ 6.1	1.8 UJ	2 UJ	
	UG/KG		4%	44	0	7	45	1.9 UJ	. LU 8.1	1.9 UJ	1.9 UJ	1.8 UJ	16 )	
In I	UG/KG		%%	006	0 0	24	41	3.7 J	4.2 J	6.4	5,4	12	7.4 J	
an sulfare	11G/KG	0 0	%0	1000	o c	0 0	4.4	1.90	1.80	1.9.0	0 6 1	0 8.1	2 10	
	UG/KG	30	%	100	0	5	45	U 6:1	1.8 UJ	LO 6:1	1.9 UI	1.8 UJ	2 U	
dehyde	UG/KG	0	%0		0	0	45	U 6:1	1.8 U	U 6.1	1.9 U	1.8 U	2 U	
tone	UG/KG	0 0	%0	5	0 0	0 0	45	1.9 U	1.8 U	U 6:1	1.9 U	1.8 U	2 2	
Chlordane	11G/KG		%%	540	o c	<b>-</b> C	45	10 61	1.8 1.	U 6.1	5 5 6 5	1.8 0	2 0 2	
J.C	UG/KG	0	%	100	0	0	45	1.9 U	1.8 U	1.9 U	U 6.1	U.8.1	2 C	
or epoxide	UG/KG		21%	20	3	<b>00</b>	39	1.9 U	1.8 U	1.9 U	1.9 U	6.1	4.1 R	
chlor	UG/KG		%0		0	0	45	1.9 U	1.8 ℃	1.9 U	1.9 U	1.8 U	2 UJ	
je 1017	UG/KG	0 0	%0		0 (	0 (	45	D 61	18 U	D 61	19 U	D 81	20 U	0.6
1010	0 5/5/C		% %		0	0 0	4. 5.	0 61	U 61	0.61	2 5	0 8 0	20 02	A (
232	119/89		%0		> c	> c	45	19 0		0 61	0 61	0 81	20 07	4.0
1242	UG/KG		%0		0	0	45	11 61	ID 61	U 61	ID 61	18 11	20 13	. (4
1248	UG/KG		%0		0	0	45	D 61	U 61	U 61	D 61	18 U	20 UJ	
1254	UG/KG	29	%	10000	0	2	45	D 61	D 61	ID 6I	19 U	18 U	20 UJ	7
1260	UG/KG	46	%2	10000	0	ы	45		D 61	ID 61		8.3 J	46 J	44
	MG/KG	13200	100%	19300	0	45	45	6480	7510	4290	2050	3380	10700	1060
	MG/KG		31%	5.9	-	14	45	3.4	2.5	1.3	1.8	0.5 U	1.1 0	yeni

SSENECA/PID Area/Report/Draft Final/Risk Assessment/data/S1211-surface-soil+ditch-rev.xls/S1211-SS+Ditch B&S

### SURFACE SOIL AND DITCH SOIL SAMPLE RESULTS SEAD-1211 Table C-8

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Dete Sample Date QC Code	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample Date OC Code Sendy ID	-	Promency		Number	Nimher	N Eil Fah	SEAD-1211 SS1211-10 SOIL 1211-1006 0 10/22/2002 SA PID-RI	SEAD-1211 SS1211-10 SOIL 1211-1031 0 02 10/22/2002 SA PID-SI	SEAD-1211 SS1211-11 SOIL 1211-1007 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-12 SOIL 1211-1008 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-13 SOIL 1211-1009 0 02 10/22/2002 SA PID-RI	SEAD-1211 SS1211-14 SOIL 1211-1010 0 0.2 10/23/2002 SA PID-NI	SEAD-12; SS1211-1 SOI 1211-101 0 10/23/200 SI PID-F
		E	Jo	Criteria	Jo .	of Times	of			100	(O)	(O) 1- 1A	(c) artist	1/41
ler	Units MG/KG	Value	Detection 100%	Value 8 2	Exceedances	Detected 34	Analyses 34	Value (Q)	Value (Q)	value (Q)	Varue (Q)	value (Q)	value (Q)	vall 67
	MG/KG	207	100%	300	0	45	45	116	119	142	81.8	167	81.4 J	ω.
ш	MG/KG	0.68	%86	1.1	0	44	45	0.38 J	0.43 J	0.36 J	0.32	0.27	19:0	0.5
E E	MG/KG	9.9	31%	2.3	€0 5	14	45	5	4.1	0.55 U	0.17 J	0.54 U	0.2	0.1
E	MG/KG	4393	100%	29.6	8 6	45	45	14.3	145000	8.7	12.3	15.8	39.7	24
	MG/KG	2063	100%	30	4	45	45	8.4	8.9	8.9	7.4	7.9	12.5 J	99
	MG/KG	209 3	100%	33	10	40	40	24.5 J	22.6 J	18.9 J	19.4 J	21.4 J	25	10
Amenable	MG/KG	0	%0		0	0	45	0.56 UJ	0.55 UJ	0.56 UJ	0.56 UJ	0.55 UJ	0.59 U	0.5
Total	MG/KG	2.00 3	7%		0	33	45	0.556 UJ	U 155.0	0.56 UJ	0.559 UJ	0.546 UJ	0.595 U	0.58
	MG/KG	58400 3	100%	36500	7	45	45	17100	17600	12600	13900	12500	26100	398(
	MG/KG	122	100%	24.8	22	45	45	61	16.3	22.5	21.9	22.3	45.8 J	27
шп		22300	100%	21500	- 1	45	45	13500	9040	5410	16200	16300	4980	210
ese		310500	100%	1060	15	45	45	786	822	1120	709	2650 J	2340	9310
	MG/KG	3.47 3	100%	0.1		44	45	0.03	0.03	0.02	21.1	23	6611	2
æ	MG/KG	1450	100%	2380	. 0	45	45	786	1150	819	956	806	1040 J	6
	MG/KG	146 3	47%	7	\$	21	45	0.87	0.8	0.55 U	1.1	0.54 U	1.4 J	37
	MG/KG	10.5	18%	0.75	4	9	34	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.32 R	9
	MG/KG	372	85%	172	24	37	45	210	188	263	238	309	145	17
	MG/KG	1633	20%	0.7	5	6	45	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.37 UJ	37
Е	MG/KG	182 3	100%	150	-	45	45	11.6	13.2	10.7	6.6	10.8	20.5 J	Ĭ
	MG/KG	532	100%	110	14	45	45	84 J	67.9 J	55.5 J	57.7 J	88.1 J	I 601	1.
ganic Carbon	MG/KG	8900	100%		0	45	45	2600	4500	5400	4400	3700	4800	50
troleum Hydrocarbons	MG/KG	2200	33%		0	15	45	44 UJ	44 UJ	45 UJ	45 UJ	1200 J	48 U	•

riteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, ed January 24, 1994.

le-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. aximum detected concentration was obtained from the average of the sample and its duplicate.

pound was not detected concentration compound is an estimated concentration compound was not detected; the associated reporting limit is approximate also was rejected in the data validating process mound was "tentatively identified" and the associated numerical value is approximate

Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Date QC Code Study ID er Units	Facility Location ID Matrix Sample ID op of Sample om of Sample Date QC Code Study ID Units	Maximum Value	Frequency of Detection	Criteria Value	Number of	Number of Times	Number of Analyses <sup>2</sup>	SEAD-1211 SS1211-16 SOIL 1211-1012 0 0.2 10/23/2002 SA PID-RI	SEAD-1211 SS1211-17 SOIL 1211-1013 0 0 0.2 10723/2002 SA PID-RJ	SEAD-1211 SS1211-18 SOIL 1211-1014 0 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-19 SOIL 1211-1015 0 0 10722/2002 SA PID-RI	SEAD-1211 SS1211-2 SOIL EB150 0 3/10/1998 SA EBS	SEAD-1211 SS1211-20 SOIL 1211-1016 0 0 10/22/2002 SA PID-RI	SEAD-121 SS1211-2 SOI 1211-101 0. 10/22/200 FID-F
Organic Compounds  Abloroethane  chiloroethane  chrochane  chromomethane  mm  chromomethane  bronnomethane  chrochane   100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG 100KG	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	03% 03% 03% 03% 03% 03% 03% 03% 03% 03%	800 800 800 800 900 900 1700 1900 1900 1900 1900 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000	000000000000000000000000000000000000000		\$ 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
into Organic Compount of ploroberizene foroberizene foroberizene foroberizene foroberizene foroberizene forophenol forophenol forophenol forophenol	UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG	0000000	%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%	3400 7900 1600 8500 100	0000000	0000000	25 25 25 25 25 25 25 25 25 25 25 25 25 2	360 U 360 U 360 U 360 U 890 U 360 U 360 U 360 U	380 U 380 U 380 U 380 U 950 U 380 U 380 U	360 U 360 U 360 U 360 U 360 U 360 U 360 U	370 U 370 U 370 U 370 U 920 U 370 U 370 U	7400 UJ 7400 UJ 7400 UJ 7400 UJ 1800 UJ 7400 UJ	1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 1800 U 18	180 180 180 180 180 180

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# Table C-8 SURFACE SOIL AND DITCH SOIL SAMPLE RESULTS SEAD-1211 SEAD-121C and SEAD-121I RI REPORT

Seneca Army Depot Activity

Facility  Location ID  Matrix Sample ID  Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth Sample Depth Sample Depth Tricts	Facility Location ID Matrix Sample Top of Sample tom of Sample Date QC Code Study ID	Σ	***	Criteria Value	Number	L 9 7	Number of	SEAD-1211 SS1211-16 SOIL. 1211-1012 0 0.2 10/23/2002 SA PID-RI	SEAD-1211 SS1211-17 SOIL 1211-1013 0 0.2 10723/2002 SA PID-RI	SEAD-1211 SS1211-18 SOIL 1211-1014 0 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-19 SOIL 1211-1015 0 0.2 1072/2002 SA PID-RI	SEAD-1211 SS1211-2 SOIL EB150 0 0 0.2 3/10/1998 SA EBS	SEAD-1211 SS1211-20 SOIL 1211-1016 0 0,2 107222002 SA PID-RI	SEAD-121 SS1211-2 SOI 1211-101 0. 10/22/200 S. PID-F
er	Units	Value	Detection	.	Exceedances	Detected	Analyses -	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Valu
rophenol	UG/KG	0 0	%6	200	0 (	0 (	21	890 UJ	950 UJ	0.006	920 U	18000 UJ	1800 1	180
rotoluene	UG/KG	<b>&gt;</b>	%		0 (	<b>o</b> (	12	360 U	380 0	380 0	3/0 0	7400 00	1800 0	180
rotoluene	UG/KG		% 6	1000	<b>o</b> (	<b>o</b> (	<u>.</u>	360 0	380 0	380 0	3/0 0	7400 00	1800	180
napntnalene shanol	00/KG	> 0	%	0	> 0	5 0		360 0	380 0	360 0	370 0	7400 03	1800 0	180
pnenoi	UG/KG	~	10%	36400	0	o vo	21.5	360 U	380 U	360 U	370 U	7400 UJ	260 J	180
phenol	UG/KG		%	100	0	0	51	360 U	380 U	360 U	370 U	7400 UJ	1800 U	180
niline	UG/KG		%0	430	0	0	51	IU 068	950 UJ	D 006	920 UJ	18000 UJ	4600 U	440
henol	UG/KG	0 0	% ?	330	0 (	0 (	51	360 U	380 U	360 U	370 U	7400 UJ	1800 U	180
etnyiphenoi	DG/KG		%		Э 1	o ·	V :	390 0	380 0	380 0	3/0 0	:	1800	181
Horobenzidine	09/KG	315	7%	900	0 0		7 4 7	360 U	380 U 950 III	360 01	370 UJ 920 II	7400 U	1800 UJ 4600 II	880
ro-2-methylphenol	UG/KG	0	%	8	. 0	. 0	. જ	fn 068	55 CO	D 006	920 O	18000 UJ	4600 U	440
phenyl phenyl ether	UG/KG		%		0	0	20	360 U	380 U	360 U	370 U	7400 UJ	1800 U	180
-3-methylphenol	UG/KG		%0	240	0	0	51	360 U	380 U	360 U	370 U	7400 UJ	1800 U	180
aniline	UG/KG		% ;	220	0 (	0 (	51	360 U	380 U	360 UJ	370 U	7400 UJ	1800 UJ	180
phenyl phenyl ether	110/KG	<b>&gt;</b> C	% &	000	0 0	<b>&gt;</b>	15 9	390 0	380 0	360 0	3.00	7400 UJ	0 0081	180
pilenoi	04/50 04/50		% %	8	0 0	o c	· 5	111 068	111 050	11 000	11 026	18000 1	4600 11	440
penol	UG/KG	0	%	100	. 0	0	51	D 068	0 050 0 050	D 006	920 O	18000 UJ	4600 U	440
thene	UG/KG	9	51%	20000	0	56	51	360 U	380 U	54 J	90 J	1900 J	0019	140
thylene	UG/KG		12%	41000	0	9	51	360 U	380 U	360 U	370 U	7400 U	1800 U	56
ne	UG/KG	12000	28%	20000	0 ;	53	20	360 U	380 U	94 J	150 J	2600 J	12000	220
anthracene	UG/KG		%06	224	78	46	51	58 ]	110 J	470 J	009	13000 1	28000 J	919
pyrene	0.6/80	29000	%2%	1001	4 -	. 4 . 8	Y 2	74 7	1011	580 1	1 079	12000 1	29000	57(
hi)perylene	UG/KG		82%	20000	. 0	24	5 5	360 UJ	56 J	300 J	490 J	8100 J	29000 J	500
fluoranthene	UG/KG	71	74%	1100	14	37	20	360 U	140 J	760 J	540 J	15000 J	21000 J	710
loroethoxy)methane	UG/KG		%		0	0 1	51	360 U	380 U	360 U	370 U	7400 UJ	1800 U	180
loroethyljether Joroisopropyljether	0.6/KG	o c	% &		<b>&gt;</b> c	<b>&gt;</b> c	Y &	360 U	380 U	360 U	370 U	7400 00	1800 0	180
hylhexyl)phthalate	UG/KG	_	33%	20000		17	3 55	360 UJ	380 UJ	360 UJ	370 UJ	7400 UJ	1800 UJ	88(
zylphthalate	UG/KG		%9	20000	0	٣	48	360 UJ	380 UJ	360 UJ	370 UJ	7400 UJ	1800 UJ	88(
<u>u</u>	UG/KG		21%		0	29	51	360 UJ	380 UJ	· 120 J	140 J	3100 J	0089	190
	UG/KG	3	%98	400	25	4	51	83 J	120 J	740 J	740 J	16000 J	32000 J	850
yiphthalate	UG/KG		7%	8100	0	_	00	360 0	380 U	360 U	370 U	/400 01	1800 0	187
ylphthalate	UG/KG	420 3	7%	20000	0 :	;	47	360 U	380 U	360 UJ	370 UJ	7400 UJ	1800 UJ	88(
Lingui acene furan	119/89		24%	6200	2 c	. 4	‡ 5	360 U	380 U	360 U	370 U	440 1	2000	, ,
hthalate	TIG/RG		700	100	, ,	; -	: 5	360 11	11 082	3 770	17075	7400 111	1800 11	180
lohthalate	UG/KG		%	2000	0	۰ ۰	51	360 U	380 U	360 U	370 U	7400 UJ	1800 U	18
hene	UG/KG	-	94%	20000	-	48	51	170 J	240 J	1100	1400	35000 J	62000	130
	UG/KG	4	43%	20000	0	22	51	360 U	380 U	360 U	55 J	1100 J	4200	10
probenzene	UG/KG	0 (	% 8	410	0 (	0 0	જ ર	360 U	380 U	360 U	370 U	7400 UJ	1800 U	18
probutadiene	OG/KG		0%0		>	>	10	300 0	280 0	0 000	0 0/0	20 004/	1000	01

s\SENECA\PID Area\Repor\Draft Final\Risk Assessmen\data\S1211-surface-soil+ditch-rev.xls\S1211-SS+Ditch B&S

Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Depth to Code	Facility Location ID Matrix Sample ID op of Sample om of Sample Om of Sample Om of Sample							SEAD-1211 SS1211-16 SOIL 1211-1012 0 0.2 10/23/2002 SA	SEAD-1211 SS1211-17 SOIL 1211-1013 0 0 0.2 10/23/2002 SA	SEAD-1211 SS1211-18 SOIL 1211-1014 0 0 0.2 10/22/2002 SA	SEAD-1211 SS1211-19 SOIL 1211-1015 0 0 0.2 10/22/2002 SA	SEAD-1211 SS1211-2 SOIL EB150 0 0 0 02 3/10/1998 SA	SEAD-1211 SS1211-20 SOIL 1211-1016 0 0 10/22/2002 SA	SEAD-12 SS1211-3 SO 1211-10 0 10/22/20
	Study ID	Maximum	Frequency of	Criteria	Number of	Number of Times	Number of	PID-RI	PID-RI	PID-RI	PID-RI	EBS	PID-RI	PID-I
ter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Val
orocyclopentadiene	UG/KG	0	%0		0	0	51	360 U	380 U	360 U	370 U	7400 UJ	1800 U	180
oroethane	UG/KG	0	%0		0	0 !	51	360 U	380 U	360 U	370 U	7400 UJ	1800 U	180
(,2,3-cd)pyrene	UG/KG	12000	71%	3200	м	35	46	360 UJ	61 J	170 J	390 J	8000 J	8100 J	23
one	UG/KG	315 3	2%	4400	0	- (	51	360 U	380 U	360 U	370 U	7400 UJ	1800 U	180
sodipropylamine	UG/KG	÷ c	%0		00	0 0	S &	360 U	380 U	360 U	370 U	7400 UJ	1800 U	8 18
lene	UG/KG	630	14%	13000	0	, ,	. 12	360 U	380 U	360 U	370 U	7400 UJ	480 J	9
ızene	UG/KG	3153	2%	200	_	-	51	360 U	380 U	360 U	370 U	7400 UJ	1800 U	18
orophenol	UG/KG	0	%0	1000	0	0	20	068	950 U	D 006	920 U	18000 UJ	4600 U	44
nrene	UG/KG	52000	94%	20000	_	8	21	140 J	170 J	650	006	15000 J	52000	140
	UG/KG	315 7	2%	30		1 48	5 12	360 U	380 U	360 U	370 U	7400 UJ 23000	1800 U 44000 I	130
es/PCBs			2			ř	5	2	200					
Q	UG/KG	0	%0	2900	0	0	45	1.8 UJ	.to 0.1	1.9 UJ	I.9 UJ		U 6:1	1
ш	NG/KG	34	11%	2100	0	S	45	1.8 U	1.9 U	1.9 U	1.9 U		1.9 U	
i a	UG/KG	39	%%	2100	0 0	7 7	4 ;	1.8 UJ	U 6.1	1.9 U	D 6:1		1.9 00	
JH	10/20	7 0	%60	14.	0 0	4 C	Q 4 4	1:8 0	1.9 0	1.9 0.1	12 01		71	-
hlordane	UG/KG	0	%0	011	0	00	£ 4	81	10 61	E 19 E 1	111 61		10 61	
C	UG/KG	0	%0	200	0	0	45	1.8 U	U 6.1	1.9 U	U 6:1		U 6:1	
ne	UG/KG	0	%0		0	0	45	18 U	U 61	U 61	U 61		19 U	
HC	UG/KG	0 ;	%0	300	0	0	45	1.8 UJ	1.9 UI	I.9 U.	1.9 UJ		U 6.1	-
	UG/KG	34	4%	4 8	0 (	7 7	45	1.8 UJ	1.9 U	1.9 UJ	1.9 UJ		1.9 U	
fan I	11G/KG	£ 0	%60	000	0 0	4 c	4 4 2 4 5 4 5 4 1	1.8 0	0 6.1	18	13		19.5	
fan sulfate	UG/KG	0	%0	1000	0	0	45		1.9 U	U 6.1	U 6.1		1.9 U	
	UG/KG	30	4%	100	0	2	45	1.8 U	1.9 U	1.9 U	U 6.1		1.9 UJ	
ldehyde	UG/KG	0	%0		0	0	45		1.9 U	1.9 U	1.9 U		1.9 U	
etone .BHC/Lindane	UG/KG	0 0	%0	09	00	0 0	4 4 8 4	D 8: 4	0.6.1	1.9 0	1.9 U		1.9 0	
Chlordane	UG/KG	0	%0	240	0	0	45	1.8 U	U 6:1	U 61	1.9 U		U 61	
lor	UG/KG	0	%0	100	0	0	45	1.8 U	U 6:1	U 6:1	1.9 U		U 6 I	
lor epoxide	UG/KG	55	21%	20	3	00	39		U 6.1	13	6.5		U 6.1	
ychlor	UG/KG	0 0	% &		0 (	0 0	84.	1.8 U	ID 6:1				U 6 I	
1016	00/80	> <	% %		0 0	0 0	C 4	180	0 5	2 2	0 1		0 6	
1221	UG/KG		%		0	0	5 4	18 17	19 GI				11 61	
.1232	UG/KG		%0 .		0	0	45	18 UJ	I) U)	18 U	U 61		U 61	
1242	UG/KG	0	%0		0	0	45	18 UJ	ID 61	U 81	D 61		U 61	
.1248	UG/KG	0	%0			0	45		IO 61		19 U			
1254	UG/KG	67	% %	10000	00	۲۱ ۲۹	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	18 U	U 61	18 U	19 UI		ID 61	
and Cyanide		ř	2	00001		n	ř		6	5	5			
m	MG/KG	-	100%	19300	0	45	45	10900	10300	5810	7410		7590	28
Á	MG/KG	5.7	31%	y.	_	4	45	0.96 U	, 0 <b>1</b>	0.5 U	6.7 U		0.6 U	Ö

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### SURFACE SOIL AND DITCH SOIL SAMPLE RESULTS **SEAD-1211** Table C-8

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility  Location D  MARTIX SARTIX SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SARTIPLE SAR	Facility Location ID Matrix Sample ID op of Sample Sample Date QC Code Study ID	_	Frequency		Number	Number	Number	SEAD-1211 SS1211-16 SOIL 1211-1012 0 02 10/23/2002 SA PID-RI	SEAD-1211 SS1211-17 SOIL. 1211-1013 0 10,23/2002 SA PID-RJ	SEAD-1211 SS1211-18 SOIL 1211-1014 0 0.2 10/22/2002 SA PID-RJ	SEAD-1211 SS1211-19 SOIL 1211-1015 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-2 SOIL EB150 0 0.2 3/10/1998 SA EBS	SEAD-1211 SS1211-20 SOIL 1211-1016 0 0.2 10/22/202 SA PID-RI	SEAD-12 SS1211-2 SOI 1211-10 0 16/22/200 S PID-1
ter	Units	Maximum Value	of Detection	Criteria Value	of Exceedances	of Times Detected	of Analyses <sup>2</sup>	Value (O)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Val
	MG/KG			8.2	8	34	34	6 R	10.4 R	4.5	5.9		8.9	7
	MG/KG	207	%001	300	0	45	45	61.8 J	75 J	74.4	92		Ξ	Ĭ.
E	MG/KG	0.68	%86	= ;	0	44	45	0.55	0.54	0.35	0.46 J		0.56	0.0
E	MG/KG MG/KG	6.6	31% 100%	2.3	38	14 45	84 84 85	0.13 U 5370 J	0.14 U 15800 J	0.54 U 143000	0.56 U 132000		0.55 U 67500	2020(
m m	MG/KG	439 3	100%	29.6	9	45	45	19.6	17.9	10.7	11.9		16.4	12
	MG/KG	2063	100%	30	4	45	45	11.2 J	14.1 J	6.1	6.6		12.3	
	MG/KG	209 3	100%	33	10	40	40	17.6	32.2	12.8 J	14.3 J		44.1 J	29
, Amenable	MG/KG	0	%0		0	0	45	0.54 U	0.58 U	0.55 UJ	0.56 UJ		0.56 UJ	0.:
, Total	MG/KG	2.003	7%		0	3	45	0.543 U	0.578 U	1.1 J	0.565 UJ		0.558 UJ	0.5
	MG/KG	58400 <sup>3</sup>	100%	36500	2	45	45	24400	23900	14000	16900		19400	1410
	MG/KG	122	100%	24.8	22	45	45	8.6 J	15.3 3	21.5	14.8		48.8	8
		22300	100%	21500		45	45	4630 J	6270 J	7180	5810		6470	109
ese		310500	100%	1060	15	45	45	442	6560	648	854		779	δ (
	MG/KG	0.18	%86	0.1	_	44	45	0.03	0.04	0.02	0.03		0.03	0.0
	MG/KG	342	100%	49	۲ ،	45	45	29.9 J	31.8 J	16.4	21		30.7	17
111	DA ON	1453	100%	7967	> 4	7 -	} *	131	506	0.54 11	11 950		220	
	MO/NO	10.5	18%	200	) 4	17	7 4	0.00	48.0	1111	0 1		2	5 -
	MG/KG	372	82%	172	. 7	37	45	106 U	122	209	154		161	2
	MG/KG	163 3	20%	0.7	S	o,	45	0.33 UJ	0.35 UJ	1.1 U	1.1 U		1.1 U	-
E	MG/KG	182 3	100%	150	-	45	45	17.4 J	20.4 J	10.5	13.2		17.1	14
	MG/KG	532	100%	110	14	45	45	70.8 J	75.4 J	53.5 J	55.1 J		145 J	1
rganic Carbon	MG/KG	8900	100%		0	45	45	0009	8100	3300	5700		6200	30
stroleum Hydrocarbons	MG/KG	2200	33%		0	15	45	43 U	46 U	100 J	45 UJ		810 J	00

riteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, ted January 24, 1994.

Inducate pairs were averaged and the average results was used in the summary statistic presented in this table. Inaximum detected concentration was obtained from the average of the sample and its duplicate.

pound was not detected concentration compound is an estimated concentration compound was not detected; the associated reporting limit is approximate data was rejected in the data validating process rejected in the data validating process repeated was "tentatively identified" and the associated numerical value is approximate

Facility Location ID Matrix Sarmple Depth to Top of Sample Sarmple Depth to Bottom of Sample Sarmple Depth to Bottom of Sample Sarmple Date QC Code Study ID		Maximum	Frequency	Criteria	Number of	Number of Times	Number of	SEAD-1211 SS1211-22 SOIL 1211-1018 0 0.2 10/23/2002 SA PID-RI	SEAD-1211 SS1211-23 SOIL 1211-1019 0 0 10/22/2002 SA PID-RI	SEAD-1211 SS1211:24 SOIL 1211-1020 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-25 SOIL 1211-1021 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-26 SOIL 1211-1022 0 0.2 10/23/2002 SA PID-RI	SEAD-1211 SS1211-27 SOIL 1211-1023 0 0.2 10/23/2002 SA PID-RI	SEAD-121 SS1211-22 SOII 1211-102-0 10/22/200 S,
14	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Valu
Organic Compounds	02/011	c	700	000	c	c	74		, 111 > 0	1111	11 9 0	111 6 6	111 00	,
etrachlocoethane	110/80	o c	%0	800	o c	0 0	2 4		2.5 03	23 1	2.6 11	2.7 UI	2.9 UI	2
chloroethane	UG/KG	0	%0	3	0	0	45	2.7 U	2.5 UJ		2.6 U		2.9 UJ	2
oroethane	UG/KG	0	%0	200	0	0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2.
oroethene	UG/KG	0	%0	400	0	0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2
oroethane	UG/KG	0 0	%%	100	0 0	0 0	45	2.7 UJ	2.5 UJ	2.3 UJ	2.6 UJ	2.7 UJ	2.9 UJ	2 0
oroproparie	UG/KG	150	80%	200	0	36	4 45	0 4.4	3.8 UJ	2.2 J	5.1 J	5.6 1	45 UJ	
	UG/KG	413	20%	09	0	6	45	2.7 U	2.5 UJ	2.3 U	2.6 U		4.6 J	2.
chloromethane	UG/KG	0	%0		0	0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2.
E	UG/KG	0 0	%0	6	0 0	0 0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UI	2, 0
sulfide	0.0% 0.0% 0.0% 0.0% 0.0%	0 0	% %	2700	0 0	0 0	45 54	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 03	29 03	
nzene	UG/KG	0	%0	1700	0	0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	1 6
promonethane	UG/KG		%0		0	0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2.
hane	UG/KG	0	%0	1900	0	0	45		2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2.
Œ.	UG/KG		%0	300	0	0 (	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UI	2, 0
Vichloroethene	UG/KG	0 0	%%		0 (	0 0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2 6
vicnioropropene zene	UG/KG	2 %	13%	2500	0	o 90	45	2.7 U	n v	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2
a Xvlenc	UG/KG	-	13%		0	9	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2.
romide	UG/KG		%0		0	0	45	2.7 UJ	2.5 UJ	2.3 UJ	2.6 UJ	2.7 UJ	2.9 UJ	2
utyl ketone	UG/KG	0	%0		0	0	45	2.7 UJ	2.5 UJ	2.3 UJ	2.6 UJ	2.7 UJ	2.9 UI	2.
nloride	UG/KG		%6	9	0 0	0:	24.5	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2 6
obutyl ketone	UG/KG	° 0	%47	1000	0 0	; 0	45		2.5 UI	2.3 U	2.6 U	2.7 UJ	2.9 UJ	4 6
e chloride	UG/KG	2.8	20%	100	0	6	45	2 J	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2.
lene	UG/KG	3.63	13%		0	9	45	2.7 U	2	2.3 U	2.6 U	7	2 9 UJ	2
	UG/KG	0 0	%	7	0 0	0 0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UI	2 7
roemene	54.50	,	%0	994	0 (	> 0	, ,	2.7 00	2.5 0	2.5 0	2.0 0	- 1	10 67	4 (
-Dicklorosthese	0.0/RG		18%	300	0 0	ю с	0 4 k	2.7 0	2.5 00	2.3 0	2.6 U	27 111	2.8 J	2
-Dichloropropene	UG/KG		%%	200	0	0	4 4	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 U	2 6
ethene	UG/KG		%0	700	0	0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UJ	2
oride		0	%	200	0	0	45	2.7 U	2.5 UJ	2.3 U	2.6 U	2.7 UJ	2.9 UI	2
tile Organic Compounds	110/KG		%0	3400	c	c	V	360 11	140 11	350 11		11 025	11 002	36
orobenzene	11G/KG		%	7900	0	0 0	. 5	360 U		350 U	350 11		390 U	36
lorobenzene	UG/KG	0	%0	1600	0	0	515	360 U	340 U	350 U	350 U	370 U	390 U	36
lorobenzene	UG/KG		%0	8500	0	0	51	360 U	340 U	350 U	350 U	370 U	390 U	30
chlorophenol	UG/KG	0 (	%0	100	0 (	0 0	25	910 U	870 U	N 088	D 068	940 U	970 UJ	80 6
chlorophenol	UG/KG		%°	400	0 0	0 0	22.5	360 U	340 U	350 U	350 U	370 U	390 11	ž č
thylphenol	UG/KG	0	%	2	> 0	> 0	51	360 U	340 U	350 U	350 U	370 U	390 U	3

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Facility  Location ID  Matrix Sample ID  Sample Depth to Top of Sample Sample Detector of Sample Sample Date QC Code Study ID		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of	SEAD-1211 SS1211-22 SOIL 1211-1018 0 0 10/23/2002 SA PID-RI	SEAD-1211 SS1211-23 SOIL 1211-1019 0 10722/2002 SA PID-R1	SEAD-1211 SS1211-24 SOIL 1211-1020 0 10722/2002 SA PID-RI	SEAD-1211 SS1211-25 SOIL 1211-1021 0 10722/2002 SA PID-RI	SEAD-1211 SS1211-26 SOIL 1211-1022 0 0 10/23/2002 SA PID-RI	SEAD-1211 SS1211-27 SOIL 1211-1023 0 0 10723/2002 SA PID-RI	SEAD-12 SS1211-2 SOI 1211-102 10/22/200 8 PID-I
ter			Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Vale
trophenol	UG/KG	0	%0	200	0	0	51	910 UJ	870 UJ	880 UJ	N 068	940 U	UD 076	86
trotoluene	UG/KG	0	%0		0	0	51	360 U	340 U	350 U	350 U	370 U	390 UJ	36
trotoluene	UG/KG	0	%0	1000	0	0	51	360 U	340 U	350 U	350 U	370 U	390 UJ	36
naphthalene	UG/KG	0	%		0	0	51	360 U	340 U	350 U	350 U	370 U	390 U	3
phenol	UG/KG	0 %	%0	800	0 0	0 4	51	360 U	340 U	350 U	350 U	370 U	390 U	36
inhenol	UG/KG	0 0	%0	100	0 0	n 0	1 5	360 U	340 U	350 U	350 U	370 U	390 U	3 8
niline	UG/KG	0	%0	430	0	0	51	910 UJ	870 UJ	880 UJ	U 068	940 UJ	U 076	86
ipenol	UG/KG	0	%0	330	0	0	51	360 U	340 U	350 U	350 U	370 U	390 U	36
[ethylphenol	UG/KG	ຸ ໌	%0		0	0	45	360 U	340 U	350 U	350 U	370 U	390 U	3
hlorobenzidine	UG/KG	315 3	2%		0 (	- 4	47	360 R	340 R	350 UJ	350 UJ	370 UJ	390 UJ	χ 8
niine	UG/KG	0 0	%0	200	0 0	<b>&gt;</b> C	10	910 01	870 0.1	880 07	890 U	940 0	970 079	8
no-z-inclingipilation	11G/KG	0 0	%0		> 0	o c	8 8	360 111	340 111	350 11	350 UJ	370 U	390 R	3,
>-3-methyiphenol	UG/KG	0	%0	240	0	0	51	360 U	340 U	350 U	350 U	370 U	390 U	3(
paniline	UG/KG	0	%0	220	0	0	51	360 U	.340 U	350 U	350 UJ	370 U	390 U	36
ophenyi phenyi ether	UG/KG	0	%0		0	0	51	360 U	340 U	350 U	350 U	370 U	390 UJ	36
iphenol	UG/KG	0	%0	900	0	0	9						,	
niline	UG/KG	0	%0	;	0	0 (	51	910 UJ	870 UJ	280 U	068 0 068	940 U	U 076	80 8
henol	UG/KG	0	%0	100	0 0	0 %	15	910 0	8/0 O	880 0	0 068	940 U	9/0 0.0	9 6
incirc	110/80	260	17%	41000	o c	9 4	1 15	11 09%	340 11	150 11	350 11	370 11	390 111	i m
ene ene	UG/KG	12000	28%	50000	0	29	205	400 J	2100 J	120 J	900 1	110 J	390 R	ñ
)anthracene	UG/KG	28000	%06	224	28	46	, 51	1300 J	9000 3	910 J	5500	f 099	120 J	
)pyrene	UG/KG	23000	%88	19	44	45	51	1400 J	S600 J	880 J	5500	740 J	240 J	
)Iluoranthene	UG/KG	29000	94%	1100	4 0	8 <del>4</del> £	12	1300 J	6300 J	0/0	2000	820 J	140 J	Ì
(Illuoranthene	UG/KG	23000	74%	1100	> 7	37	. S	1600 J	6100 J	650 J	4500	820 J	260 J	3
iloroethoxy)methane	UG/KG	0	%0		0	0	51	360 U	340 U	350 U	350 U	370 U	390 U	3
horoethyl)ether	UG/KG	0 (	%0		0 (	0 0	51	360 U	340 U	350 U	350 U	370 U	390 U	ñ i
horoisopropyi)etner hvlhexvl)phthalate	11G/KG	1600	33%	20000	00	1 0	51	380 O	540 0	39 J	350 UJ	3/0 C 74 J	110 J	n T
zylohthalate	UG/KG	420 3	%9	50000	0	. 60	84	360 R	340 R	350 UJ	350 UJ	370 UJ	390 UJ	
le ,	UG/KG	0089	21%		0	59	51	310 J	830 J	Г 68	1000	110 J	390 UJ	3
C. Jakobalas	UG/KG	32000	%98	400	25	44 -	51	1700 J	14000 J	1200 J	6300	1100 J	220 J 390 B	
yipninalate	5 W 50 C		0,7	2000	o (		٥, ن	360 03	340 07	0.000	250 01	2000	390 K	, ,
rylphthalate	UG/KG	420 2	2%	20000	0 4	ا ٢	47	360 K	340 K	350 UJ	350 03	370 071	390 UJ	٠,
furan	UG/KG	2000	27%	6200	; 0	5 4	21	92 J	220 J	350 U	120 J	370 U	390 UJ	ı w
phthalate	UG/KG	640 3	2%	7100	0	-	51	360 U	340 U	350 U	350 U	370 U	390 UJ	3
fphthalate	UG/KG	0	%0	2000	0	0	51	360 U	340 U	350 U	350 U	370 U	390 UJ	3
thene	UG/KG	62000	94%	50000	- <	48	51	2600 J	27000 J	1500	11000	1500	130 J	,
conhectana	0.9/KG	4700	43%	410	, ,	77 0	105	360 J	340 111	150 11	11 055	370 11	390 CJ	0 60
orobutadiene	UG/KG	0	%	,	, 0	, 0	215	360 U	340 U	350 U	350 U	370 U	390 U	3
														-

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Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Dete OC Code	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample One of Sample OC Code							SEAD-1211 SS1211-22 SOIL 1211-1018 0 0.2 10/23/2002 SA	SEAD-1211 SS1211-23 SOIL 1211-1019 0 0.2 10/22/2002 SA	SEAD-1211 SS1211-24 SOIL 1211-1020 0 0.2 10/22/2002 SA	SEAD-1211 SS1211-25 SOIL 1211-1021 0 0.2 10/22/2002 SA	SEAD-1211 SS1211-26 SOIL 1211-1022 0 0.2 10/23/2002 SA	SEAD-1211 SS1211-27 SOIL 1211-1023 0 0.2 10/23/2002 SA	SEAD-121 SS1211-23 SOII 1211-102- 0.:
	Study ID	Maximum	Frequency of	Criteria	Number of	Number of Times	Number of	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-R
<u>.</u>	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Valu
rocyclopentadiene	UG/KG		%0	1	0		51	360 U	340 U	350 U	350 U	370 U	390 UJ	36
roethane	UG/KG		%0		0	0	51	360 U	340 U	350 U	350 U	370 U	390 U	36
2,3-cd)pyrene	UG/KG		71%	3200	ю	35	49	520 J	2200 J	890 J	1400 J	470 ]	390 UI	36
91	UG/KG	3153	2%	4400	0		51	360 U	340 U	350 U	350 U	370 U	390 U	36
odiphenylamine	UG/KG	0 0	%0		0 0	00	20	360 UJ	340 UJ	350 U	350 UJ	370 U	390 R	36
oupropyianimic ene	UG/KG	v	14%	13000	0 0	7 0	51	67 J	340 CJ 120 J	350 U	350 U	370 U	390 U	36
tene	UG/KG	3153	2%	200	-	1	51	360 U	340 U	350 U	350 U	370 U		36
rophenol	UG/KG		%0	1000	0	0 !	20	910 UJ	870 UJ	088 0	890 UJ	940 U	970 R	89
Lene	UG/KG		94%	20000		84	21	2400 J	12000 J	520	5200	640	150 5	,
	DG/KG	315 7	2%	30		1 48	51	360 U	340 U 64000 I	350 U	350 0	370 U	390 0	36
s/PCBs						2	5							
	UG/KG	0	%0	2900	0	0	45	1.9 U	1.8 UJ	1.8 UJ	1.8 UJ	U 6.1	2 UJ	_
	UG/KG	34	11%	2100	00	v c	\$ 45	2 2 3	34 S	1.8 U	D 8.1	24	2 C	-
	08/00		270	0017	0 0	۷ ۲	4 4 4 4	0.5 K	74.5	50.01	1.8 C	1.9 0.1	7 .	-
ĵ.	110/80	7 0	%0	1 1	o c	4 C	45	10 0.1	18 111	0 8 1	18 111	11911	2 0 7	-
lordane	UG/KG		%0	2	0	0	4 5	1.9 U	1.8 UJ	1.8 UJ	1.8 UJ	1.9 UJ	2 UJ	
()	UG/KG		%0	200	0	0	45	U 6.1	1.8 U	1.8 U	1.8 U	1.9 U	2 U	_
υ :	UG/KG		%0		0	0	45	D 61	18 U	18 U	18 U	19 U	20 U	_
O.	UG/KG		%	300	0 0	0 0	2 4 5	D 6:1	1.8 UJ	1.8 UJ	1.8 U	U. 6.1	2 UJ	
Lus	10/80		20%	900	> 0	2 Z	4 T	1.9 0.0	[.8 U] 63 T	1.8 03	1.8 0.1	20 02	2 6	
II UE	UG/KG	0	%0	906	0	0	45	1.9 U	1.8 U	1.8 U	1.8 U	D 6:1		
an sulfate	UG/KG		%0	1000	0	0	45	1.9 U		1.8 U	1.8 U	1.9 U	2 U	para
146	UG/KG		%%	100	0 0	N (	45	1.9 U	D 8:1	1.8 UJ	6.5 J	J 6.1	2 U	
denyue .	1,6/8.0		% %		> <	o c	0 4 4	0.6.1	0 8 1	0 2 2	1.80	0 6 1	2 6	
3HC/Lindane	UG/KG		%	09	0	0	45	1.9 U	1.8 U	1.8 UJ	1.8 UJ	1.9 U	2 5	
Chlordane	UG/KG	0	%0	540	0	0	45	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U	1
or :	UG/KG		%0	100	0	0	45	1.9 U	1.8 U	1.8 U	1.8 U	1.9 U	2 U	1
or epoxide	5X/50		21%	20	m c	00 C	39	21	0 8 1	0 8.1	0 8:1	I R	2 0	
e.	UG/KG		%0		0	0	4 4	D 61	18 U	D 81	D 8:1	D 61	20 U	-
1016	UG/KG		%0		0	0	45	tU 61	18 UJ	18 UJ	18 UJ	ID 61	20 UJ	
1221	UG/KG		%0		0	0	45	19 UJ	18 UJ	18 U	18 U	ID 61	20 UJ	
232	DG/KG	0 0	%%		0 0	0 0	45	10 61 11 61	ID 81	18 01	18 UJ	ID 61	20 UJ	
1248	UG/KG		%0		0	0 0	5 4 5	(1) 61	50 81 51 81		18 11	FO 61	20 07	
1254	UG/KG		4%	10000	0	, 71	45	30 J	18 UJ	U 81	18 U	ID 61	20 UJ	
1260 nd Cvanide	UG/KG	46	2%	10000	0	٣	48	ID 61	18 UJ	18 U		19 UJ	20 UJ	
i a	MG/KG	13200	100%	19300	0	45	45	4430	1530	1510	1560	1950	4110	231
	MG/KG		31%	5.9	_	14	45	0.98 U	1.7	1.3	6.3 U	0 (	1.1 U	1

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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility  Location ID  Matrix Sample ID  Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Dett Sample Dett Sample Date QC Code QC Code	Facility Location ID Matrix Sample ID op of Sample Om of Sample Sample Date QC Code Study ID		Frequency		Number	Number	Number	SEAD-121I SS1211-22 S01L 1211-1018 0 02 10/23/2002 SA PID-RI	SEAD-1211 SS1211-23 SOIL 1211-1019 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-24 SOIL 1211-1020 0 10/22/2002 SA PID-RI	SEAD-1211 SS1211-25 SOIL 1211-1021 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-26 SOIL 1211-1022 0 0.2 10/23/2002 SA PID-RI	SEAD-1211 SS1211-27 SOIL 1211-1023 0 0.2 10/23/2002 SA PID-RI	SEAD-12; SS1211-2 SOI 1211-102 0 10/22/200 S PID-F
ier	Units	Maximum Value	of Detection	Criteria Value	of Exceedances	of Times Detected	of Analyses <sup>2</sup>	Value (O)	Value (O)	Value (0)	Value (0)	Value (Q)	Value (O)	Valu
	MG/KG	104	100%	8.2	00	ŀ	34	7.7 R	4.4 R	5.7	3.5	5.8 R	9.1 R	3
	MG/KG	207	100%	300	0	45	45	71 J	73.5 J	88.7	74.8	207	97.4 J	11
и	MG/KG	89.0	%86	1.1	0	44	45	0.32	0.2	0.19 J	0.16	0.25	0.32	0.1
u	MG/KG	9.9	31%	2.3	۰.	14	45	0.27	0.33	0.19 J	0,52 U	0.13 U	0.14 U	33000
	MG/KG	298000	100%	121000	81	C. 4	0. 1.	1/000 J	7000697	7 3	3.0	f 000867	107	70007
Ę	MG/KG	459	1000	0.67	0 .	Ç 4	C4 4	10.7	0.1	4. 7	5.5	p. 4.0	10.7	0,4
	MG/KG	2003	%001	33	4 5	t é	t 6	2.10	0.4	5.0	104	14.0	17.9	. 0
Amenable	MG/KG	0	%001 0%	ç,	2 0	2 0	45	0.56 U	0.53 U	0.53 UJ	0.54 UJ	0.57 U	0.59 U	0.5
Total	MG/KG	2.00 3	7%		0	3	45	0.557 U	0.526 U	0.534 UJ	0.538 UJ	0.569 U	0.588 U	0.54
	MG/KG	58400 3	100%	36500	2	45	45	11800	6130	6100	5720	8350	15400	825
	MG/KG	122	100%	24.8	22	45	45	34 J	31 J	19.1	122	16.3 J	11.1 J	32
mn	MG/KG	22300	100%	21500	1	45	45	12500 J	12600 J	15100	16800	5470 J	22300 J	1290
sse	MG/KG	3105003	100%	1060	15	45	45	557	594	406	593	1230	9720	69
	MG/KG	0.18	%86	0.1	1	44	45	0.01	0.02	0.02	0.02	0.01	0.04	0.0
	MG/KG	342 3	100%	49	7	45	45	19 J	11.9 J	17.2	11.1	12.8 J	25.5 J	14
E	MG/KG	1450	100%	2380	0	45	45	941	871	1100	846	747	903	8
	MG/KG	1463	47%	2	5	21	45	0.66 J	0.43 UJ	0.53 U	0.52 U	0.47 UJ	0.86 J	0.5
	MG/KG	10.5	18%	0.75	4	9	34	0.29 R	0.28 R	1.1 U	1 U	0.3 R	0.6 R	1
	MG/KG	372	82%	172	24	37	45	302	324	256	232	365	240	28
	MG/KG	1633	20%	0.7	5	6	45	0.34 UJ	0.32 UJ	1.1 U	1 U	0.35 UJ	0.36 UJ	
ш	MG/KG	1823	100%	150	_	45	45	11.1 J	5.9	7.2	6.3	9.1	29 J	9
	MG/KG	532	100%	110	14	45	45	71.3 J	80.5 J	44.9 J	47.2 J	49.9 J	116	10
ganic Carbon	MG/KG	8900	100%		0	45	45	3600	2000	3900	3500	2600	4600	69
troleum Hydrocarbons	MG/KG	2200	33%		0	15	45	370	470	43 UJ	43 UJ	46 U	2200	•

iteria value source is NYSDEC T<sup>2</sup>chnical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, ed January 24, 1994.

Le-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. aximum detected concentration was obtained from the average of the sample and its duplicate.

pound was not detected concentration compound is an estimated concentration compound was not detected, the associated reporting limit is approximate compound was rejected in the data validating process mound was "tentatively identified" and the associated numerical value is approximate ripound was "tentatively identified" and the associated numerical value is approximate

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

								,						
	Facility Location ID Matrix							SEAD-1211 SS1211-29 SOIL	SEAD-1211 SS1211-29 SOIL	SEAD-1211 SS1211-3 SOIL	SEAD-1211 SS1211-30 SOIL	SEAD-1211 SS1211-31 SOIL	SEAD-1211 SS1211-32 SOIL	SEAD-121 SS1211-3: SOII
Sample Denth to Top of Sample	Sample ID							1211-1025	1211-1030	EB149 0	1211-1026	121I-1027 0	1211-1028 0	1211-1029
Sample Depth to Bottom of Sample	om of Sample							0.2	0.2	0.2	0.2	0.2	0.2	0.000/00/01
	QC Code				N.	N.	1	SA SA OTTE	SA STOP BI	SA	SA	SA	SA	S/S
	T fmnic	Maximum		Criteria	of	of Times	of	2	N-OIL	Section	N-Ora	Non		
11	Units	Value	Detection	Value	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Valu
Organic Compounds	UG/KG	0	%0	800	0	0	45	3.1 U	3.6 UJ		2.8 U	3.4 UJ	2.7 U	2.
etrachloroethane	UG/KG	0	%0	009	0	0	45	3.1 U	3.6 UJ		2.8 U	3.4 U	2.7 U	2.
chloroethane	UG/KG		%0		0	0	45	3.1 U	3.6 UJ		2.8 U	3.4 U	2.7 U	2.
oroethane	UG/KG	0 0	%0	200	0 0	0 0	45	3.1 U	3.6 UJ		2.8 U	3,4 U	2.7 U	2
oroethane	UG/KG		%%	100	0	0	45		3.6 UJ		2.8 UJ	3.4 UJ	2.7 UJ	2 2
oropropane	UG/KG		%0		0	0	45		3.6 UJ		2.8 U	3.4 U	2.7 U	2.
	UG/KG	150	%08	200	0	36	45	3.1 U	3.6 UJ .		8.6	11	5.1	7.
•	UG/KG	4	20%	09	0	6	45		57 J		2.8 U	3.4 U	2.7 U	21.0
chloromethane	08/8G	0 0	%0		0 0	0 0	45	3.1 0	3.6 UJ		2.8	3.4 UJ	2.7 U	2.
sulfide	UG/KG		%	2700	0	0	45		3.6 UJ		2.8 U	3.4 U	2.7 U	2
trachloride	UG/KG		%0	900	0	0	45	3.1 UJ	3.6 UJ		2.8 UJ	3.4 UJ	2.7 UJ	2
nzene	UG/KG		%0	1700	0	0	45	3.1 U	3.6 UJ		2.8 U	3.4 U	2.7 U	. 2
romomethane	UG/KG		% %	000	0 (	0 (	Ç ,	3.1 0	3.6 UJ		2.8 U	3.4 UU	2.7 U	2, 0
lane	10/KG	0 0	% %	300	0 0	o c	45	3.1 03	3.6 0.0		2.8 0	3.4 0)	2.7 U	7 6
ichloroethene	UG/KG		%	3	0	0	45	3.1 U	3.6 UJ		2.8 U	3.4 U	2.7 U	2
ichloropropene	UG/KG		%0		0	0	45	3.1 U	3.6 UJ		2.8 U	3.4 U	2.7 U	2.
zene	UG/KG		13%	2500	0	9	45	4.4	9.5 J		2.8 U	3.4 U	2.7 U	2.
a Xylene	UG/KG	9	13%		0	9	45	3.9	8.7 J		2.8 U	3.4 U	2.7 U	2.
omide	UG/KG	0 0	%0		0 (	0 0	v 4	3.1 03	3.6 UJ		2.8 UJ	3.4 UJ	2.7 UJ	2 5
lty) ketone iloride	UG/KG		% %		0 0	00	45	3.1 0.0	3.6 111		2.8 U)	3.4 U	2.7 U	2.0
hyl ketone	UG/KG		24%	300	0		45	3.1 U	67 J		2.8 U	3.4 U	2.7 U	2.
obutyl ketone	UG/KG		%0	1000	0	0	45	3.1 U	3.6 UJ		2.8 U	3.4 U	2.7 U	2.
e chloride	UG/KG		70%	100	0	0	48	3.1 U	3.6 UJ		2.8 U	3.4 U	2.7 U	2.
lene	UG/KG	3.6	13%		0 0	v c	24.5	2.1 3	5.1 3		2.8 C	3.4 U	2.7 U	2, 1,
roethene	UG/KG		%	1400	0	0	45	3.1 UJ	3.6 UJ		2.8 U	3.4 U	2.7 U	4 74
	UG/KG	313	18%	1500	0	00	45	18	43 J		2.8 U	3.4 U	2.7 U	2
-Dichloroethene	UG/KG		%0	300	0	0	45		3.6 UJ		2.8 U	3.4 U	2.7 U	2.
-Dichloropropene	UG/KG		%	6	0 (	0 0	45		3.6 UI		2.8 U	3.4 U	2.7 U	(1)
ctnone	119/80	<b>o</b> c	% %	000	0 0	0 0	45	3.1 0	3.6 00		2.8 0	3.4 U	2.7 U	. 7
tile Organic Compounds			2	207	>	>	î		50		0 0	2	0	4
chlorobenzene	UG/KG		%0	3400	0	0	51	2100 U	2300 U	J 077	370 U	360 U	380 U	36
orobenzene	UG/KG		%0	7900	0 (	0 (	51	2100 U	2300 U	770 U	370 U	360 U	380 U	36
orobenzene	UG/KG		%0	1600	0 (	0 (	51	2100 U	2300 U ·	770 U	370 U	360 U	380 U	36
orobenzene hlorophenol	119/KG		% %	2000	<b>&gt;</b> C	<b>&gt;</b> C	V &	2100 0	2300 U	0.0//	370 U	390 0	380 U	92
chlorophenol	UG/KG	0	%	2	0	0	5 5	2100 U	2300 U	770 U	370 U	360 U	380 U	36
orophenol	UG/KG		%0	400	0	0	51	2100 U	2300 U	770 U	370 U	360 U	380 U	36
thyiphenol	UG/KG		%0		0	0	51	2100 U	2300 U	770 U	370 U	360 U	380 U	36

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		SE,	AD-121C	and SEAD-1	SEAD-121C and SEAD-1211 RI REPORT	RT		
			Senec	Seneca Army Depot Activity	ot Activity			
				SEAD-1211	SEAD-121I	SEAD-121I	SEAD-1211	SEAD-1211
				SS1211-29	SS1211-29	SS1211-3	SS121I-30	SS1211-31
				NOS	SOIL	SOIL	SOIL	SOIL
				1211-1025	1211-1030	EB149	1211-1026	1211-1027
				0	0	0	0	0
				0.2	0.2	0.2	0.2	0.2
				10/23/2002	10/23/2002	3/10/1998	10/22/2002	10/22/2002
				SA	SA	SA	SA	SA
Description on	Marchan	Munkey Munkey	Number	זמ מזמ	זם עומ	900	ום עום	ום עום

							1		2					
	Facility							SEAD-121I	SEAD-1211	SEAD-121I	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-12
	Location ID							SS1211-29	SS1211-29	SS1211-3	SS1211-30	SS1211-31	SS1211-32	SS1211-
	Matrix							NOS	SOIL	SOIL	SOIL	SOIL	SOIL	SO
Sample ID	Sample ID							121I-1025	1211-1030	EB149	1211-1026	1211-1027	1211-1028	1211-10
Sample Depth to Bottom of Sample	op of Sample							00	0.0	0 0	200	2	000	
and a string	Sample Date							10/23/2002	10/23/2002	3/10/1998	10/22/2002	10/22/2002	10/22/2002	10/22/20
	QC Code							SA	SA	SA	SA	SA	SA	Ψ,
	Study ID	Mortmum	Frequency	100	Number	Number	Number	PID-RI	PID-RI	EBS	PID-RI	PID-RI	PID-RI	PID-
1 9	Traffe	Value		Velue 1	j.	Detected.	4 1 1	(O)	(0)	V-4-17	(A) 1/2/1	1/2 to	Weller (O)	1751
tronhenol	11G/KG	A Mine	Detection 092	200	1	Detected	Analyses	Value (Q)	Value (Q)	value (Q)	Value (Q)	value (Q)	value (Q)	8
motoluene	LIG/KG	o c	%0	8	0 0	0 0	7 5	2100 11	2300 11	17077	170 026	0 060	380 11	λ «
trotoluene	11G/KG	· c	%	1000	o c	0 0		2100 0	2300 11	170 11	170 11	11 096	380 11	י ה
onaphthalene	UG/KG	0 0	%0	2001	o 0	0 0	7 5	2100 11	2300 11	770 11	370 11	360 11	380 11	3 64
ophenol	UG/KG	0	%	800	0	0	51	2100 U	2300 U	770 U	370 U	360 U	380 U	3 60
/inaphthalene	UG/KG	260	10%	36400	0	8	51	2100 U	2300 U	54 J	370 U	360 U	380 U	. 60
lphenol	UG/KG	0	%0	100	0	0	51	2100 U	2300 U	U 077	370 U	360 U	380 U	3
miline	UG/KG	0	%0	430	0	0	51	5200 UJ	5700 UJ	U 0061	920 U	N 068	940 U	Q
phenoi	UG/KG	0	%0	330	0	0	51	2100 U	2300 U	U 077	370 U	360 U	380 U	3
<b>Tethylphenol</b>	UG/KG	0	%0		0	0	45	2100 U	2300 U		370 U	360 U	380 U	60
hlorobenzidine	UG/KG	3153	7%		0	-	47	2100 UJ	2300 R	J 077	370 UJ	360 UJ	380 UJ	3
miline	UG/KG	0	%	200	0	0	51	5200 U	5700 UJ	1900 U	920 U	N 068	940 U	Q
rro-2-methylphenol	UG/KG	0	%		0	0	20	5200 R	\$700 UJ	1900 U	920 UJ	068	940 U	6
ophenyl phenyl ether	UG/KG	0	%		0	0	20	2100 U	2300 U	770 U	370 U	360 U	380 U	3
o-3-methylphenol	UG/KG	0 0	%	240	0 (	0 0	51	2100 U	2300 U	770 D	370 U	360 U	380 U	m (
oanime	DA/SO	0 0	%0	077	o (	o (	7 5	2100 U	2300 0	0.07/	370 UJ	360 UJ	380 03	M (
opnenyi pnenyi etner	DW/SO	> <	% &	000	0 0	0	10	2100 0	2300 O	0 0//	3/0 0	360 0	380 0	2
ripinenos	DW/50	> 0	%5	36	0 0	<b>&gt;</b> <	0 7	11 0003	111 0023	000	11 000	11 000	11 040	
phenol	DA/DO	> <	200	001	0 0	> <	10	2200 0	5700 07	1900	0.000	0.068	040 0	у с
othere	11G/KG	6100	216%	2000	0 0	2 %	5 6	210015	2300 11	140 1	17075	0 069	380 11	h (*
othylene	UG/KG	260	12%	41000	0 0	3 4	15	2100 11	2300 11	770 11	17075	140 11	28.2	) (*)
cile	UG/KG	12000	28%	20000	0	29	20	330 1	2300 U	220 1	370 17	360 11	1 69	. "
s)anthracene	UG/KG	28000	%06	224	28	4	51	700 J	260 J	1600	370 UJ	43 J	190 J	
)pyrene	UG/KG	23000	%88	61	4	45	51	700 J	2300 R	1800	370 U	61 J	290 J	1
)fluoranthene	UG/KG	29000	%46	1100	14	48	51	720 J	2300 R	2100	370 U	67 J	360 J	1
thi)perylene	UG/KG	29000	82%	20000	0	42	51	430 J	2300 R.	1600	370 UJ	SO J	320 J	1
t)fluoranthene	UG/KG	23000	74%	1100	14	37	20	720 J	2300 R	2500	370 U	360 UJ	340 ]	
nioroethoxy)methane	UG/KG	0 0	% &		0 (	0 0	5 51	2100 U	2300 U	770 U	370 U	360 U	380 U	m c
horoisomonthether	11G/KG	0 0	%0		<b>-</b>	> 0	51	2100 11	2300 0	0 0//	370 U	360 0	380 0	9 6
thylhexyl)phthalate	UG/KG	1600	33%	20000	0	17	5.15	2100 U	260 J	230 J	370 UI	1600	380 UJ	n en
nzylphthalate	UG/KG	420 3	%9	20000	0	3	48	2100 U	2300 R	770 U	370 UJ	360 UJ	380 UJ	m
ie.	UG/KG	0089	21%		0	29	51	340 J	2300 UJ	320 J	370 U	360 U	60 J	(r)
v	UG/KG	32000	%98	400	25	44	51	790 J	2300 R	2000	370 UJ	68 J	350 J	
tylphthalate	UG/KG	45	7%	8100	0	-	20	2100 U	2300 U	J 077	370 U	360 U	380 U	m
tylphthalate	UG/KG	420 3	2%	20000	0	-	47	2100 U	2300 R	J 077	370 UJ	360 UJ	380 UJ	63
s,h)anthracene	UG/KG	2000	34%	14	15	15	4	2100 UJ	2300 R	720 J	370 U	360 UJ	380 UJ	63
furan	UG/KG	2000	27%	6200	0	14	51	2100 U	2300 U	42 J	370 U	360 U	380 U	60
phthalate	UG/KG	6403	7%	7100	0	_	51	2100 U	230 J	U 077	370 U	360 U	380 U	(43
hthalate	UG/KG	0	%0	2000	0	0	51	2100 U	2300 U	J 077	370 U	360 U	380 U	(C)
thene	UG/KG	62000	84%	20000	- 1	48	52	2500	490 J	4000	370 U	80 J	200	1
	UG/KG	4200	43%	20000	0 (	77	50	2100 U	2300 U	1 86 7	370 U	360 U	380 U	m (
orobutadiene	119/KG	> 0	% %	410	<b>-</b>	<b>&gt;</b>	8 2	2100 0	2300 U	770 1	370 U	360 U	380 0	*) (*
	2400	>	2/>		>	>	1	2000	2	2	2	2000	2000	1

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Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Date QC Code Study ID	Facility Location ID Matrix Sample ID Op of Sample om of Sample Sample Date QC Code Study ID	N M	Frequency	To To	Number of	Number of Times	Number	SEAD-1211 SS1211-29 SOIL 1211-1025 0 0.2 10/23/2002 SA PID-RJ	SEAD-1211 SS1211-29 SOIL 1211-1030 0 0.2 10/23/2002 SA PID-RI	SEAD-1211 SS1211-3 SOIL EB149 0 0 0.2 3/10/1998 SA EBS	SEAD-1211 SS1211-30 SOIL 1211-1026 0 0.2 10/22/2002 SA PID-RJ	SEAD-1211 SS1211-31 SOIL 1211-1027 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-32 SOIL 1211-1028 0 0.2 10/22/2002 SA PID-RI	SEAD-121 SS1211-3 SOI 1211-102 10/22/200 S. S.
	Linite	Value	Ď	Value 1	Exceedances		Analyses 2	Value (O)	Value (O)	Value (O)	Value (O)	Value (O)	Value (Q)	Valu
rocyclopentadiene	UG/KG	0	%0		0	1	51	2100 UJ	2300 U	770 U	370 U	360 U	380 U	36
roethane	UG/KG	0	%0		0	0	51	2100 U	2300 U	J 077	370 U	360 U	380 U	36
,2,3-сd)рутепе	UG/KG	12000	71%	3200	3	35	49	2100 UJ	2300 R	1600	370 UJ	360 UJ	220 J	-
je je	UG/KG	3153	2%	4400	0		51	2100 U	2300 U	J 077	370 U	360 U	380 U	36
odiphenylamine	UG/KG	0 0	% %		0 0	0 0	05 5	2100 U	2300 U	770 U	370 U	360 U	380 U	36
odipropyiamine ene	UG/KG	630	14%	13000	00	0 1	51	2100 U	2300 U	U 077	370 U	360 U	380 U	36
zene	UG/KG	3153	7%	200	-	_	51	2100 U	2300 U	J 077	370 U	360 U	380 U	36
prophenol	UG/KG	0	%0	1000	0	0	20	5200 UJ	5700 U	1900 U	920 U	N 068	940 U	90
Irene	UG/KG	52000	94%	20000	_	48	21	2200	530 J	1400	370 U	52 J	290 J	J
	UG/KG	315 7	2%	30		T 84	12 12	2100 U	2300 U	3000 U	370 U	360 U	380 U 640 J	36
s/PCBs						2	5							
0	UG/KG	0	%0	2900	0	0	45	2.2 UJ	2.3 UJ		I.9 UJ	1.8 UJ	2 UJ	1
(1)	UG/KG	34	11%	2100	0	2	45	2.2 U	2.3 U		1.9 U	1.8 U	2 U	-
	UG/KG	39	%%	2100	0 0	7 7	44	2.2 UJ	2.3 UJ		1.9 U	1.8 U	2 0	-
CH	08/90		740	1 1	> <	1 0		2.2 0	2.3 0		1101	0 2	3 = 3	
hlordane	UG/KG	0	%0	21	0	0	. 4 	2.2 UJ	2.3 0.1		ID 6:1	1.8 U	2 CI	
O	UG/KG	0	%0	200	0	0	45	2.2 U	2.3 U		U 6.1	1.8 U	2 U	1
ų	UG/KG	0	%0		0	0	45	22 U	23 U		U 61	18 U	20 U	
JC .	UG/KG	0	%0	300	0	0	45	2.2 UJ	2.3 UJ		1.9 UJ	1.8 UJ	2 UJ	1
1	UG/KG		%%	44	0 (	7 7	45	2.2 UJ	2.3 UJ		LD 6.1	1.8 UJ	2 U	Γ
žin II	UG/KG	y 0	%60	006	> 0	<del>1</del> 0	4 4 5	2.2 U	2.3 U		1.91	0 8:1	1.3 2 U	
an sulfate	UG/KG		%0	1000	0	0	45	2.2 U	2.3 U		U 6.1	1.8 U	2 U	-
	UG/KG		4%	100	0	2	45	2.2 U	2.3 U		U 6.1	1.8 U	2 U	-
ldehyde	UG/KG		%0		0	0 (	45	2.2 U	2.3 U		U.9.U	1.8 U	2 U	
etone BHC/1 indane	0.6/KG	<b>&gt;</b>	% %	09	0 0	<b>&gt;</b> C	4. 5.4	2.2 U	2.3 U		0.6.1	1.8 0	2 0 2	
Chlordane	UG/KG		%	240	0	0	45	2.2 U	2.3 U		1.9 U	1.8 U	2 C	
lor	UG/KG	0	%0	100	0	0	45	2.2 U	2.3 U		U 6.1	1.8 U	2 U	_
or epoxide	UG/KG		21%	20	۳.	00	39	17 R	2.3 U		1.9 U	1.8 U	00 (	
chlor	UG/KG		% %		0 (	0 0	45		2.3 UJ		1.9 U	1.8 U	2 C	
1016	09/80 110/80		%0		o c	> <	45	22 0	23 0		1 61	2 80	0 07	
1221	UG/KG	0	%%		0	0	54		23 UJ		D 61	18 U	D 61	
1232	UG/KG		%		0	0	45		23 UJ		U 61	U 81	D 61	
1242	UG/KG		%0		0	0	45		23 UJ		19 U	18 U	U 61	
1248	UG/KG		%0		0	0	45	21 UJ	23 UJ		19 U	18 U	D 61	
1254	UG/KG	67	% %	10000	0 0	7 5	45	21 03	23 UJ		19 UI	D 81	19 UJ	
1200 ind Cyanide	06/80	0	%/	00001	>	า	<del>.</del>		72 OI		10 61		0 61	
ε:	MG/KG	13200	100%	19300	0 -	45	45	3730	2200		7610	4750	7030	24
'n	MUN		D 10	5	*	1	ţ	2	2		)	ř	;	

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### SEAD-121C and SEAD-1211 RI REPORT Seneca Army Depot Activity

	Facility							SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-121I	SEAD-12
አ ያ	Location ID							SS1211-29	SS1211-29	SS1211-3	SS1211-30	SS1211-31	SS1211-32	SS1211-3
	Matrix							TIOS	SOIL	SOIL	TIOS	SOIL	SOIL	50. 101
H. A. Tarack	Sample ID							1211-1025	1211-1030	EB149	9701-1171	7701-1171	0701-1171	1211-10.
Sarmle Denth to Bottom of Sarmle	of Sample							0.50	0.2	0.2	0.0	0.2	0.5	0
San	Sample Date							10/23/2002	10/23/2002	3/10/1998	10/22/2002	10/22/2002	10/22/2002	10/22/20
	OC Code							SA	SA	SA	SA	SA	SA	0)
	Study ID		Frequency		Ź	Number	Number	PID-RI	PID-RI	EBS	PID-RI	PID-RI	PID-RI	PID-
		Maximum	Jo	Criteria	Jo	of Times	Jo							
ter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Val
	MG/KG	104	100%	8.2	00	34	34	349 R	239 R		5.1	6.4	5.8	7
	MG/KG	207	100%	300	0	45	45	87.4 J	84.9 J		48.3	38.2	48.9	1
	MG/KG	89.0	%86	1.1	0	44	45	0.16 U	0.18 U		0.42	0.27	0.43	0
8	MG/KG	9.9	31%	2.3	60	14	45	0.15 U	0.16 U		0.54 U	0.53 U	0.56 U	0
	MG/KG	298000	100%	121000	18	45	45	29900 J	46500 J		20600	52400	40900	2530
mr	MG/KG	439 3	100%	29.6	9	45	45	516	362		14.6	10.5	15.2	10
	MG/KG	206 3	100%	30	4	45	45	237 J	174 J		9.6	9.5	8.9	,-
	MG/KG	209 3	100%	33	10	40	40	243	175		20.7 J	14.2 J	21.3 J	23
, Amenable	MG/KG	0	%0		0	0	45	0.63 U	0.68 U		0.56 UJ	0.54 UJ	0.58 UJ	0.
, Total	MG/KG	2.00 3	1%		0	6	45	1.26	2.73		U 7557 UJ	0.545 UJ	U 772.0	0.5
	MG/KG	58400 3	100%	36500	7	45	45	69400	47400		18100	14500	16900	103
	MG/KG	122	100%	24.8	22	45	45	47.8 J	45.9 J		13.5	23	31.2	
ium	MG/KG	22300	100%	21500	1	45	45	2770 J	6090 J.		12800	4770	5330	188
iese	MG/KG	3105003	100%	1060	15	45	45	349000	272000		412	377	428	00
	MG/KG	0.18	%86	0.1	1	44	45	0.02	0.02		0.02	0.02	0.03	0
	MG/KG	342 3	100%	49	7	45	45	394 J	289 J		25.4	22.3	27.2	60
EF .	MG/KG	1450	100%	2380	0	45	45	959	612		1300	653	835	10
E	MG/KG	1463	47%	7	5	21	45	160 J	131 J		0.54 U	0.53 U	0.56 U	0
	MG/KG	10.5	18%	0.75	4	9	34	24.1 R	18.6 R		1.1 U	1.1 U	1.1 U	0.
	MG/KG	372	82%	172	24	37	45	126 U	135 U		129	138	117	6
u	MG/KG	1633	20%	0.7	5	0,	45	173 J	152 J		1.1 U	1.1 U	1.1 U	0.
EI EI	MG/KG	182 3	100%	150	1	45	45	217 J	147 J		13.6	6.8	13.6	,
	MG/KG	532	100%	110	14	45	45	47.7 J	37.8 J		70.9 J	71.1 J	92.6 J	60
rganic Carbon	MG/KG		100%		0	45	45	7300	4900		0099	4300	0099	36
etroleum Hydrocarbons	MG/KG	2200	33%		0	15	45	240	1600		45 UJ	44 UJ	140 ]	
,,														

riteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, sed January 24, 1994.

Inducioate pairs were averaged and the average results was used in the summary statistic presented in this table. Inaximum detected concentration was obtained from the average of the sample and its duplicate.

pound was not detected concentration protect value is an estimated concentration compound was not detected; the associated reporting limit is approximate data was rejected in the data validating process may be "tentatively identified" and the associated numerical value is approximate impound was "tentatively identified" and the associated numerical value is approximate

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Facility  Location ID  Matrix  Sample ID  Sample Depth to Top of Sample  Sample Depth to Bottom of Sample  Sample Depth  Sample Depth  Sample Depth  Sample Depth  Tr. II	Facility Location ID Matrix Sample ID op of Sample E om of Sample Date QC Code Study ID	Maximum		Criteria	Number of	Number of Times		SEAD-1211 SS1211-34 SOIL 1211-1032 0 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-4 SO11.1-4 SO11.1-6 EB148 0 0 0 3/10/198 SA EBS	SEAD-1211 SS1211-5 SS1211-5 SOIL 1211-1000 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-6 SOIL 1211-1001 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-7 SOIL 1211-1002 0 10/22/2002 SA PID-RI	SEAD-1211 SS1211-8 SOIL 1211-1004 0 02 10/22/2002 SA PID-RI	SEAD-121 SS1211-5 SOII 1211-100: 0 10/22/2007 SA PID-R
Drawnic Compounds	Cuits	v alue	Detection	v alue	Exceedances	Detected	Analyses	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value
hloroethane	UG/KG	0	%0	800	0	0	45	3 UJ		3 UJ	2.8 U	2.8 U	3.3 U	2.5
ctrachloroethane	UG/KG	0	%	009	0	0	45	3 UI		3 UJ	2.8 U	2.8 U	3.3 U	2.9
hloroethane	UG/KG	0 (	%	;	0	0	45	3 UJ		3 UJ	2.8 U	2.8 U	3.3 U	2 9
proethane	0G/KG	0 0	%%	200	0 0	0 0	45	3 UJ		3 0	2.8 U	2.8 U	3.3 U	2.0
proethane	UG/KG	0	%	100	0	0	45	3 0		3 6	2.8 UJ	2.8 UJ	3.3 UJ	2.5
propropane	UG/KG	0	%0		0	0	45	3 UJ		. 3 UJ	2.8 U	2.8 U	3.3 U	2.9
	UG/KG	150	%08	200	0	36	45	9.8 J		3 UJ	7.7	51		20
hiocomethoso	UG/KG	 	70%	09	0 0	0 0	45	3.0		3 CI	2.8 U	9	3.3 U	8.4
TI CONTENIANCE	UG/KG	0	%%		0 0	o c	4 4 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5			3 03	2.8 0	2.8 0	3.3 U	ri c
sulfide	UG/KG	0	%0	2700	0	0	45	3 0		3 03	2.8 U	2.8 C	n m	2.5
trachloride	UG/KG	0	%0	009	0	0	45	3 UJ		3 UJ	2.8 UJ	2.8 UJ	3.3 UJ	2.9
izene romomethane	UG/KG	0 0	% %	1700	0 0	0 0	45	3 C		3 0	2.8 U	2.8 U	3.3 U	2.9
ane	UG/KG	0	%	1900	0	0	c 4 c 8	3 6		5 CO	2.8 0	2.8 U	330	2 6
ш	UG/KG	0	%0	300	0	0	45	3 03		3 01	2.8 U	2.8 U	3.3 U	1 (1
ichloroethene	UG/KG	0	%0		0	0	45	3 UJ		3 UJ	2.8 U	2.8 U	3.3 U	2 9
ichloropropene	UG/KG	0 2 8 7	%0	2500	0 0	0 4	45	3 CI		3 0	2.8 U	2.8 U	3.3 U	2 9
Yvlene	02001	6,3	130/		0 0	o (	) ·	5 :			7.8 0	2.5 3	350	7
omide	UG/KG	0.0	%0		0	0 0	4 4 5 4 5	5 5		3 5 6	2.8 O	2.3 J	330	7 5
tyl ketone	UG/KG	0	%0		0	0	45	3 UJ		3 UJ	2.8 UJ	2.8 UJ		5
loride	UG/KG	0 2	%0	;	0	0	45	3 01		3 UJ	2.8 U	2.8 U	3	2.9
nyi Ketone Apityi ketone	UG/KG		24%	300	0 0	= <	45	3 03		3 03	2.8 U	31	3.3 U	6
chloride	UG/KG	2.8	20%	100	0	0 0	4 45	G G		G G	2.8 U	2.8 C	3.5. U 5.5. U 5.5.	2 2
cne	UG/KG	3.63	13%		0	9	45	3 UJ		3 UI	2.8 ∪	1.4 J	3.3 U	1
coethene	UG/KG	0 0	% %	1400	0 0	00	45 45	3 UJ		3 UJ	2.8 U	2.8 U	3.3 U	7 7
	UG/KG	313	18%	1500	0	- 00	45	3 UJ		3 UJ	2.8 []	0	. "	i v
-Dichloroethene	UG/KG	0	%0	300	0	0	45	3 UJ		3 UJ		2.8 U	3.3 U	2.
-Dichloropropene	UG/KG	0 0	%	c c	0 (	0 (	54.	3 U		3 UI	2.8 U	2.8 U	3.3 U	2.1
culenc cida	24/201	> <	% &	00/	<b>&gt;</b> (	0 (	٠, د ،			3 3	2.8 U	2.8 U	3.3 U	2.
tile Organic Compounds		>	%0	700	>	>	Q 4	3 01		3 03			3.3 U	2
hiorobenzene	UG/KG	0	%0	3400	0	0	51	360 U	550 U	400 U	370 U	390 U	390 U	38
probenzene	UG/KG	0 (	%	7900	0	0	51	360 U	250 U	400 U	370 U	390 U		38
propenzene	54/50 10/4/50	<b>&gt;</b> 0	% 6	1600	0 (	0 (	51	360 U	550 U	400 U	370 U	390 U		38
horophenol	110/KG	00	% %	200	0 0	> <	70.0	360 U	550 U	7 400 T	370 U	390 U	390 U	38
hlorophenol	UG/KG	0	%	>	0	0	51.5	360 U	550 U	400 1	370 U	390 11	390 11	38
prophenol	UG/KG	0	%0	400	0	0	51	360 U	550 U	400 U	370 11			3.8
hylphenol	UG/KG	0	%0		0	0	51	360 U	550 U	400 U	370 U	390 U	390 U	38

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Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Date QC Code Study ID	Facility Location ID Matrix Sample ID Op of Sample om of Sample Date QC Code Study ID	Maximum Value	Frequency of	Criteria Value 1	Number of Freedances	Number of Times	Number of Analyses 2	SEAD-1211 SS1211-34 SOIL 1211-1032 0 10/22/2002 SA PID-RI	SEAD-1211 SS1211-4 SOIL EB148 0 0 3/10/1998 SA EBS	SEAD-1211 SS1211-5 SOIL 1211-1000 0 10722/2002 SA PID-RI	SEAD-1211 SS1211-6 SOIL 1211-1001 0 10,22 10,722/2002 SA PID-RJ	SEAD-1211 SS1211-7 SOIL 1211-1002 0 0 10722/2002 SA PID-RI	SEAD-1211 SS1211-8 SOIL 1211-1004 0 0 10.222002 SA PID-RI	SEAD-12 SS1211 SO 1211-10 10/22/20 PID-
trophenol	UG/KG	0	0%	200	Exceedances 0	Detected	Analyses 51	910 U	1300 UJ	1000 UJ	920 U	980 U	980 UJ	9
trotoluene	UG/KG	0	%0		0	0	51	360 U	550 U		370 U	390 U		3
trotoluene	UG/KG		%0	1000	0	0	21	360 U	250 U	400 U	370 U	390 U	390 U	ε,
onaphthalene	UG/KG		%0	0	00	0 0	ارة ا	360 U	550 U	400 U	370 U	380 0	390 U	. r
opnenoi dnaphthalene	UG/KG		10%	36400		o vo	2 5	360 U	550 U	400 U	370 U	390 U	390 U	n m
lphenol	UG/KG		%0	100	0	0	. 15	360 U	550 U	400 U	370 U	390 U	390 U	3
miline	UG/KG		%0	430	0 (	0 (	15.1	910 UJ	1300 U	1000 UJ	920 U	980 UJ	D 086	ο,
nenol fethylphenol	UG/KG UG/KG	0	%%	330	00	0	1. 45	360 U	0 000	004 004 005 005	370 U	390 U	390 U	n m
hlorobenzidine	UG/KG	(-)	2%		0		47	360 UJ	550 U	400 U	370 U	390 UJ	390 U	Ю
miline	UG/KG		%0	200	0	0	51	910 U	1300 U	1000 U	920 U	086 U	O 086	6
tro-2-methylphenol	UG/KG		% %		0 0	0 0	8	910 U	1300 U	1000 UJ	920 U	086 U	980 UJ	ο ,
opnenyi pnenyi etner o-3-methylphenol	UG/KG	. 0	% %	240		0 0	51	360 U	550 U	0 004 U 004	370 U	390 U	390 U	n m
paniline	UG/KG		%0	220	0	0	515	360 U	250 U	400 U	370 U	390 U	390 U	3
ophenyl phenyl ether	UG/KG		%0	;	0	0	51	360 U	550 U	400 U	370 U	390 U	390 U	9
/iphenol	UG/KG		% &	006	0 (	0 0	φ;	11 010	550 U	11 0001	11 000	11 000	11 000	c
phenol	10/KG	> 0	8 %	100	<b>&gt;</b>	<b>&gt;</b> 0	2 2	910 U	1300 U	D 0001	920 U	O 086	D 086	× 0
hthene	UG/KG	_	21%	20000	0	26	. 12	360 U	320 J	400 U	370 U	65 J	390 U	
hthylene	UG/KG		12%	41000		9	15	360 U	250 U	400 U	370 U	390 U	390 U	6
ene .	UG/KG	12000	28%	20000	0	53	S S	360 U	230 J	400 U	370 U	94 J	390 U	- '
)anthracene	0.6/KG		%06	224	7 58	94 4	Z 5	99 1	1700	[ 69 ·	370 0	360 J	52 J	D V
()fluoranthene	UG/KG		94%	1100		5 4	2 12	130 J	1700	82 J	61 J	360 J	55 J	v
ghi)perylene	UG/KG	29000	82%	20000	0	42	51	90 J	940	85 J	370 U	270 J	78 J	ζ,
c)fluoranthene	UG/KG		74%	1100		37	S 5	120 J	1800	400 U	370 U	470 J	390 U	י יי
hloroethyl)ether	UG/KG		%%		00	0	7 5	360 U	550 U	400 U	370 U	390 U	390 U	n en
hloroisopropyl)ether	UG/KG		%0		0	0	51	360 U	550 U	400 U	370 U	390 U	390 U	m
thylhexyl)phthalate	UG/KG		33%	20000		17	51	360 UJ	47 J	400 U	370 U	390 UJ	390 U	
nzylphthalate	UG/KG		%9	20000	0	6	48	360 UJ	250 U	400 U	370 U	390 UI	390 U	e) .
oje.	UG/KG	0890	27%	9	0 %	53	15 5	360 U	380 J	7 400 C	370 U	110 J	390 U	_ 0
ic tylphthalate	UG/KG		2%	8100	3 0	‡ –	. S	360 U	550 U	400 t	370 U	390 U	390 U	<i>o</i> (*)
rylphthalate	UG/KG	4	5%	20000		_	47	360 UJ	550 UJ	400 U	370 U	390 UJ	390 U	۳1
a,h)anthracene	UG/KG		34%	14		15	44	360 R	420 J	400 UJ	370 U	390 R	390 U	٣)
furan	UG/KG		27%	6200	0	14	51		63 J	400 U	370 U	390 U	390 U	(*)
phthalate	UG/KG	9	7%	7100	0		51		550 U	400 U	370 U	390 U	390 U	
/lphthalatc	UG/KG	0	% &	2000	0 -	0 \$	51	360 U	550 U	400 U	370 U	390 U	390 U	· ·
וופווכ	110/80		43%	20000	- C	2,0	7 15	360 1	160 1	400 1	370 1	43 J	350 U	-
lorobenzene	UG/KG		%	410	0	0	. જ	360 U	550 U	400 U	370 U	390 U	390 U	64
lorobutadiene	UG/KG	0	%0		0	0	15	360 U	250 U	400 U	370 U	390 U	390 U	***

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Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Date QC Code Study ID		Maximum	Frequency	Criteria	Number	Number of Times	Number of	SSEAD-1211 SS1211-34 SOIL 1211-1032 0 0.2 10/22/2002 SA PID-R1	SEAD-1211 SS1211-4 SOIL EB148 0 0 0.2 3/10/1998 SA EBS	SEAD-1211 SS1211-5 SOIL 1211-1000 0 0.2 10/22/2002 SA PID-RI	SEAD-1211 SS1211-6 SOIL 1211-1001 0 0.2 10/22/2002 SA PID-R1	SEAD-1211 SS1211-7 SOIL 1211-1002 0 0.2 1022/2002 SA PID-RI	SEAD-1211 SS1211-8 SOIL 1211-1004 0 0 2 10722/2002 SA PID-RJ	SEAD-121 SS1211- SOI 1211-100 10/22/200 S. PID-F
er	Units	Value	Detection	Value	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Valu
rocyclopentadiene	UG/KG	0	%0		0 (	0 (	51	360 U	550 U	400 U	370 U	390 U	390 U	38
roethane .2.3-cd)pyrene	UG/KG	12000	71%	3200	⊃ ო	35	49	360 U 65 J	950	72 J	370 U	180 J	100 J	8 4
ne	UG/KG	3153	7%	4400	0	-	51	360 U	550 U	400 U	370 U	390 U	390 U	38
odiphenylamine	UG/KG	0 (	%0		0 (	0 (	50	360 U	. D 055	400 U	370 U	390 U	390 U	38
odipropylamine	UG/KG UG/KG	630	14%	13000	00	0 1	51	360 U	530 U	400 U	370 U	390 U	390 U	38
zene	UG/KG	3153	7%	200			51	360 U	250 U	400 U	370 U	390 U	390 U	38
prophenol	UG/KG UG/KG	52000	% % % %	1000	0 -	0 4	50 51	910 U 130 J	1300 U 1800	1000 U 66 J	920 U 76 J	980 U 650	980 U 73 J	97
	UG/KG	3153	2%	30		- %	51	360 U	550 U	400 U	370 U	390 U	390 U 97 I	38
«/PCB«	5460	04000	0,4%	20000	-	0	10	7 007	2500		2021			Ś
	UG/KG	0	%0	2900	0	0	45	U 6.1		2.1 UJ	U 6.1	2 UJ	2 UJ	
m s	UG/KG	34	11%	2100	0 0	so c	848	1.9 U		2.1 U	1.9 U	2 C	2 0	
	UG/KG	12 3	%	41	0	1 4	4.5	U 6.1		2.1 UJ	U 6.1	2 UJ	2 U	3
HC	UG/KG	0	%0	110	0	0	45	U 6.1		2.1 UJ	tO 6.1	2 UJ	2 UJ	
hlordane	UG/KG	0	%0		0 (	0 (	41	1.9 UJ		2.1 UJ	U) 6.1	2 UJ	2 UJ	
O :	UG/KG	0 0	%0	200	0 0	0 0	84 8	0 6:1		2.1 0	1.9 U	2 0 0	2 0	•
JC PC	UG/KG	00	%%	300	00	0	24 4	U 6.1		2.1 UJ	U 6:1	2 0 2	2 OJ	•
	UG/KG	34	4%	44	0	2	45	1.9 UJ		2.1 UJ	1.9 UJ	2 UJ	2 UJ	
an I	UG/KG	95	%65	006	0 0	54	41	4.9 J		4.2	2.6	8.7	4 .	
an sulfate	UG/KG	,	%%	1000	0	0	4 4 S	1.9 U		2.1 U	U 6:1		2 C	
	UG/KG	30	4%	100	0	5	45	1.9 U		2.1 U	U 6.1	2 U		
Idehyde	UG/KG	0 0	%%		0 0	0 0	45	0 6:1 11 <b>0</b> 1		2.1 0	1.9 0	2 0 2	2 0 2	
BHC/Lindane	UG/KG	0	%	09	0	0	45	U 6:1		2.1 UJ	U 6.1		2 UJ	
Chlordane	UG/KG	0 (	%0	540	0 (	0 (	45	U 6.1		2.1 U	U 6.1	2 U	2 U	
lor lor enoxide	11G/KG	o %	21%	9 6	o "	> ∞	0.00	0 6.1		2.1 U	U 61		2 C	
chlor	UG/KG	0	%		0	0	45	U 6.1	•	2.1 U	U 6.1	2 U		
ne	UG/KG	0	%0		0	0	45	19 U		21 U	19 U	20 U	20 U	
1016	UG/KG	0 (	%6		0 0	0 0	45	ID 61	•	21 U	U 61	20 U	20 UJ	
1221	5 N/5 C	> 0	% %		0 0	o c	Q 4 6	10 61 111 01		21 0	0.61	20 07	20 02	
1242	UG/KG	0	%%		0	0	24	ID 61		21 U	IO 61	20 U	20 UJ	
1248	UG/KG	0	%0		0	0	45	IO 61		21 U	D 61	20 U	20 U	
1254	UG/KG	29	4%	10000	0 (	7 0	45	U) 61		21 UJ	U 61	20 UJ	20 U	
1260 ind Cyanide	06/KG	94	%	10000	o	<b>n</b>	04	50 61		71 01	0 61	50 07	0 07	
E	MG/KG	13200	100%	19300	0 -	45	45	5670		0969	10600	7880	7750	72
δ.	MG/KG		31%	5.9	-	14	42	4.1		0.5.7	0.7.0	0.1.7	5.0	,

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### SURFACE SOIL AND DITCH SOIL SAMPLE RESULTS SEAD-1211 Table C-8

### SEAD-121C and SEAD-1211 RI REPORT Seneca Army Depot Activity

Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Poptom of Sample Sample Depty QC Code	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample OC Code							SEAD-1211 SS1211-34 SOIL 1211-1032 0 0.2 10/22/2002 SA	SEAD-1211 SS1211-4 SOIL EB148 0 0 0,2 3/10/1998 SA	SEAD-1211 SS1211-5 SOIL 1211-1000 0 0.2 10/22/2002 SA	SEAD-1211 SS1211-6 SOIL. 1211-1001 0 0.2 10/22/2002 SA SA SA SA SA SA SA SA SA	SEAD-1211 SS1211-7 SOIL 1211-1002 0 0.2 10/22/2002 SA	SEAD-1211 SS1211-8 SOIL 1211-1004 0 0.2 10/22/2002 SA	SEAD-121 SS1211- SOI 1211-100 0.
	Study ID	Maximum	Frequency n of	Criteria	Number of	Number of Times	Number of	PID-RI	EBS	PID-RI	PID-RI	PID-RI	PID-RI	PID-F
er	Units	Value	Detection	- 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Valu
	MG/KG	104	100%	300	∞ c	34 45	34 5	5.7 R 97.2 I	١	3.7	7.2	30	83.5	1 87.
-	MG/KG	0.68	%86		0	4	45	0.38		0.39 J	0.53 J	0.41 J	0.38 J	0.4
-	MG/KG	9.9	31%	2.3	3	14	45	0.17		0.61 U	0.56 U	0.6 U	0.57 U	0.1
	MG/KG	298000	100%	121000	18	45	45	160000 J		37300	36000	30600	62600	3980
E	MG/KG	436 3	100%	29.6	9	45	45	14.2		14.7	19.8	77.1	11.8	m
	MG/KG	2063	100%	30	4	45	45	8.3		11	11.7	26.5	8.1	1
A	MG/KG	209 3	100%	33	0 0	40	40	21		24.1 J	23.1 J	41.8 J	31 J	6
Amenable Total	MG/KG	200	%6		<b>&gt;</b>	) r	4 4 7	0.55.0		0.61 UJ	0.36 0.	0.9 0.0	0.588	0.58
	MG/KG	58400 3	100%	36500	, ,	45	45	14600		15900	24500	25200	15100	22.00
	MG/KG	122	100%	24.8	- 22	45	45	25.9 J		21.4	16	35.6	15.2	4
шт	MG/KG	22300	100%	21500	-	45	45	11800 J		6310	11500	9420	14200	711
Se.	MG/KG	3105003	100%	1060	15	45	45	634		404	880	28100	267	950
	MG/KG	0.18	%86	0.1		44	45	0.03		0.04	0.03	0.04	0.03	0.0
	MG/KG	342 3	100%	49	7	45	45	30.8 J		30.9	30.3	74.8	25.9	34
5	MG/KG	1450	100%	2380	0	45	45	867		1140	1140	696	889	72
	MG/KG	1463	47%	7	8	21	45	0.76 J		0.61 U	1.3	5.5	0.57 U	-
	MG/KG	10.5	18%	0.75	4	9	34	0.29 R		1.2 U	1.1 U	1.8	1.1 U	0.5
	MG/KG	372	82%	172	24	37	45	218	-	132	132	295 U	134	12
	MG/KG	163 3	70%	0.7	5	6	45	0.34 UJ		1.2 U	0.38	6.7	1.1 U	0
E	MG/KG	182 3	100%	150		45	45	11.3 J		11.9	17.3	34.5	13.8	18
	MG/KG	532	100%	110	4,	45	45	78.8 J		S9.7 J	82.6 J	123 J	56.8 J	13
ganic Carbon	MG/KG	8900	100%		0	45	45	4900		4200	8900	0019	4900	900
roleum Hydrocarbons	MG/KG	2200	33%		0	15	45	44 U		410 J	45 UJ	48 UJ	47 UJ	7

iteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, cd January 24, 1994.

e-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. aximum detected concentration was obtained from the average of the sample and its duplicate.

pound was not detected porteration ported value is an estimated concentration compound was not detected; the associated reporting limit is approximate at a was rejected in the data validating process pound was "tentatively identified" and the associated numerical value is approximate

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Facility Location ID Marix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample	Facility Location ID Matrix Sample ID op of Sample om of Sample om of Sample QC Code							SEAD-1211 SD1211-1EBS DITCHSOIL EB151 0 0.2 3/10/198 SA	SEAD-1211 SD1211-2EBS DITCHSOIL . EB152 0 0.2 3/10/1998 SA	SEAD-1211 SD1211-4 DITCHSOIL 1211-4003 0 11/6/2002 SA	SEAD-1211 SD1211-5 DITCHSOIL 1211-4004 0 0 11/6/2002 SA	SEAD-1211 SD1211-7 DITCHSOIL 1211-4005 0 10/26/2002 SA	SEAD-1211 SD1211-6 DITCHSOIL 1211-4006 0 0 11/6/2002 SA	SEAD-12 SD1211 DITCHSO) 1211-400
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of	EBS	EBS	PID-RI I	PID-RI 1	PID-RI 1	PID-RI I	PID-1
L	Units	Value	Detection	Value 1 I	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Val
Organic Compounds	TIGARG	c	%0	008	c	c	45			2.7 []	3.1 U	3.1 UJ	4.4 U	61
etrachloroethane	UG/KG	0	%	009	0	0	45			2.7 UJ	3.1 UJ	3.1 UJ	4.4 UJ	9
chloroethane	UG/KG	0	%0		0	0	45			2.7 U		3.1 UJ	4.4 U	6
proethane	UG/KG	0 0	%%	200	00	00	45			2.7 U 2.7 U	3.1 U	3.1 UI	D 4.4 D 4.4 D D 4.4	(A) (A)
oroethane	UG/KG	0	%0	100	0	0	45			2.7 U		3.1 UJ	4.4 U	. 61
oropropane	UG/KG	0 0 1 20	%0%	200	0 0	0 %	45			. 2.7 U	3.1 U	3.1 UJ 25.1	4 4 U	6.7
	UG/KG	4 1 3 E	20%	09		3 0	2 4 5			2.3 J	3.1 U	3.1 UI	1.2 J	67
hloromethane	UG/KG	. 0	%0	3	0	. 0	45			2.7 U			4 4 U	6.7
E	UG/KG	0 (	%0		0	0	45			2.7 U	3.1 U		4.4 U	es e
isulfide	UG/KG	0 0	%0	2700	0 0	0 0	4 4 N 4			2.7 UJ	3.1 0.1	3.1 0)	0 4 4	-
nzene	UG/KG	0	%0	1700	0	0	5 4			2.7 U	3.1 U	3.1 UJ	4.4 U	. 61
жототеthane	UG/KG	0	%0		0	0	45			2.7 U	3.1 U	3.1 UJ	4.4 U	
lane	UG/KG	0 (	%0	1900	0 (	0 (	45			2.7 UJ	3.1 UJ	3.1 UI	4 4 UJ	
m ichloroethane	UG/KG	0 0	%0	300	0 0	0 0	4 4 0 4			2.7 U	3.10	3.1 03	0 4 4	
ichloropropene	UG/KG	0	%%		0	0	. 4 . 8			2.7 U	3.1 U	3.1 UJ	4.4 U	
zene	UG/KG		13%	5500	0	9	45			2.7 U	3.1 U	3.1 UJ	4.4 U	(*1
a Xylene	UG/KG	9	13%		0	9	45			2.7 U	3.1 U	3.1 UI	4.4 U	
omide	UG/KG		%		0	0 (	45			2.7 U	3.1 U	3.1 UJ	4.4 U	
utyl ketone Joride	UG/KG	00	%%		00	0 0	4 4 5 4			2.7 UJ 2.7 U	3.1 UJ 3.1 U	3.1 UJ	U 4.4	
hyl ketone	UG/KG		24%	300	0	Ξ	45			7.2	3.1 U	3.1 UJ	4.4 U	
obutyl ketone	UG/KG		%0	1000	0 0	0 0	45			2.7 UJ	3.1 UJ	3.1 UJ	4.4 UJ	
e cilioride	04001	2.0	2070	8	> <	h v	7 4			20 7.7	27.10	11.1		
ופוופ	UG/KG		%0		00	00	4 4 5 5			2.7 U	3.1 U	3.1 UJ	4 4 0 4 4	
roethene	UG/KG		%0	1400	0	0	45			2.7 U	3.1 U	3.1 UJ	4,4 U	
	UG/KG	60	18%	1500	0	00	45			1.7 J	3.1 U		4.4 U	
-Dichloroethene	UG/KG	0 0	% %	300	0 0	0 0	45			2.7 UJ	3.1 UJ	3.1.03	4.4 UJ	
Dichioropropene	119/KG		%%	200	> <	0 0	0 4 4			27.7			1.44	
oride	UG/KG	0	%%	200	0	0	4 4			2.7 U			4.4 U	
tile Organic Compounds			ě	•	•	•	į							,
chlorobenzene	UG/KG		% %	3400	<b>&gt;</b> <	<b>&gt;</b> C	Z 2	480 U	4400 O	390 0	410 0	420 O 420 U	530 11	1 4
orobenzene	UG/KG		%0	1600	0	0	51	480 U	4400 U		410 U		530 U	4
orobenzene	UG/KG		%0	8500	0	0	51	480 U	4400 U	390 U	410 U	420 U	530 U	4
chlorophenol	UG/KG	0 0	%0	100	0 (	0 0	51	1200 U		970 U	1000 U		1300 U	= `
chlorophenol	UG/KG		%0	400	0 0	00	51	480 U	4400 U	390 U	410 U	420 U 420 U	530 U	. 4
crophenol	UG/KG	00	%%	3	0	00	51	480 U	4400 C	390 U	410 C	420 U	530 U	7

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	Hawlifty							SPAP-1211	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211	SEAD-12
	Location ID						V	SD1211-1EBS	SD1211-2EBS	SD1211-4	SD1211-5	SD1211-7	SD121I-6	SD121
	Sample ID							DII CHSOIL EB151	DITCHSOIL EB152	121I-4003	121I-4004	1211-4005	1211-4006	1211-40
Sample Depth to Top of Sample	p of Sample							0	0	0	0	0	0	
Sample Depth to Bottom of Sample	m of Sample							0.2	0.2	2	2	2	2	10/26/20
	Sample Date		_					3/10/1998 SA	3/10/1998 SA	11/6/2002 SA	11/6/2002 SA	10/26/2002 SA	11/6/2002 SA	10/20/20
	Study ID		Frequency		Number	Number	Number	EBS	EBS	PID-RI	PID-RI	PID-RI	PID-RI	PID.
		Maximum	Jo	Criteria	Jo	of Times	Jo			1	1	1	-	
ter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Va
trophenol	UG/KG		%0	200	0	0	51	1200 U	11000 U	U 070	1000 U	1100 U	1300 U	11
rotoluene	UG/KG		%0		0	0	51	480 U	4400 U	390 U	410 U	420 U	530 U	4
rotoluene	UG/KG		%0	1000	0	0 0	51	480 U	4400 U	390 U	410 U	420 U	530 U	4
maphthalene	UG/KG		%0		0	0	51	480 U	4400 U	390 U	410 U	420 U	530 U	4
phenol	UG/KG		%0.	800	0 0	0 4	51	480 U	4400 U	390 0	410 U	420 U	530 0	4 .
mapnumenc	110/80	200	700	100	00	n c	1 5	480 11	4400 0	390 11	410 0	420 0	530 11	. 7
niline	11G/KG		%0	430	o c	0 0	2 2	1200 11	1100011	070 U	1000 I	1100 U	1300 U	11
henol	UG/KG	0	%0	330	0	0	51	480 U	4400 U	390 U	410 U	420 U	530 U	7
[ethylpheno]	UG/KG	0	%0		0	0	45			390 U	410 U	420 U	530 U	4
lorobenzidine	UG/KG	3153	2%		0	1	47	480 U	4400 U	390 U	410 U	420 UJ	530 U	4
niline	UG/KG	0	%0	200	0	0	51	1200 U	11000 U	U 076	1000 U	1100 U	1300 U	11
tro-2-methylphenol	UG/KG	0	%0		0	0	50	1200 U	11000 U	070 U	1000 U	1100 U	1300 U	11
ophenyl phenyl ether	UG/KG	0	%0		0	0	20	480 U	4400 U	390 U	410 U	420 U	530 U	4
p-3-methylphenol	UG/KG		%0	240	0	0	51	480 U	4400 U	390 U	410 U	420 U	530 U	4
paniline	UG/KG		%0	220	0	0	51	480 U	4400 U	390 U	410 U	420 U	530 U	4
phenyl phenyl ether	UG/KG		%0		0	0	51	480 U	4400 U	390 U	410 UI	420 U	530 U	,
iphenol	UG/KG		%0	006	0	0	9	480 U	4400 U	1				,
niline	UG/KG		%6		0 (	0 (	51	1200 U	11000 U	0.079	1000 U	1100 0	1300 U	<b>-</b>
nenoi	05/KG	0 00	%0	100	0	0 %	25	1200 0	11000 0	300 0	140 0	1000	1300 0	
rhylene	TIGARG		17%	41000	0 0	9 4		480 11	420 1	83 1	410 11	70 1	530 U	. 4
and and	UG/KG		28%	20000	0	29	20	260 J	1800 J	650	140 J	420 J	110 J	51
)anthracene	UG/KG		%06	224	28	46	51	1300	14000	2900	770	2200 J	270 J	5(
)pyrene	UG/KG		%88	61	44	45	51	1300	16000	2800 J	750 J	2800 J	290 J	55
(fluoranthene	UG/KG		94%	1100	14	48	51	2100	22000	3600 J	1100 J	3600 J	380 J	00
hi)perylene	UG/KG		82%	20000	0	42	51	840	12000	810 J	250 J	1400 J	110 J	3,
()fluoranthene	UG/KG	53	74%	1100	14	37	20	1600	23000	2400 J	710 J	2500 J	140 J	4
loroethoxy)methane	UG/KG	0 0	%0		0 0	0 0	51	480 U	4400 U	390 U	410 U	420 U	530 U	
lonisoponyl)-the	119/80		%0		0 0	0 0	51	480 11	4400 11	390 11	410 11	420 03	530 11	
hylhexyl)phthalate	UG/KG	_	33%	20000	0	17	51	25 J	4400 U	390 U	410 U	75 J	530 U	
zylphthalate	UG/KG		%9	20000	0	6	48	480 U	4400 U	390 U	410 U	420 J	530 U	•
le	UG/KG		21%		0	29	51	410 J	1600 J	510	150 J	440	110 J	1.
U	UG/KG	60	%98	400	25	44	51	1700	25000	3400 J	016	2400 J	340 J	Ś
ylphthalate	UG/KG		2%	8100	0	1	20	480 U	4400 U	390 U	410 U	420 N	530 U	•
ylphthalate	UG/KG		7%	20000	0	1	47	480 U	4400 U	390 U	410 U	420 ]	530 U	
a,h)anthracene	UG/KG		34%	14	15	15	44	400 J	2000 1	86 J	410 UJ	130 J	530 U	
furan	UG/KG		27%	6200	0	14	51	58 J	4400 N	160 J	410 UJ	71 J	530 U	
phthalate	UG/KG	ý	7%	7100	0	-	51	480 U	4400 U	390 U	410 U	420 U	530 U	
iphthalate	UG/KG		%0	2000	0	0	51	480 U	4400 U	390 U	410 U	420 U	530 U	
hene	UG/KG	_	94%	20000	- 0	48	51	3400	24000	5800	1600	4400	089	13
	UG/KG	4	43%	20000	0 0	22	51	130 J	360 J	270 J	170 11	130 1	530 11	•
orobenzene	DA/SO	00	%0	410	000	0 0	00 5	180 0	0 0044	390 0	410 0	420 0	530 11	
orobutadiene	3455		0.20		>	>	7	2004	0 0044	2 060	110	> > 4 -	•	

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### SEAD-121C and SEAD-1211 RI REPORT Seneca Army Depot Activity

Facility Location ID Matrix Sample Depth to Top of Sample	Facility Location ID Matrix Sample ID							SEAD-1211 SD121I-1EBS DITCHSOIL EB151	SEAD-121I SD1211-2EBS DITCHSOIL EB152	SEAD-1211 SD1211-4 DITCHSOIL 1211-4003	SEAD-1211 SD1211-5 DITCHSOIL 1211-4004	SEAD-1211 SD1211-7 DITCHSOIL 1211-4005	SEAD-1211 SD1211-6 DITCHSOIL 1211-4006	SEAD-1211 SD1211-7 DITCHSOIL 1211-4007
ample Depth to Bottom of Sample Sample Date QC Code	om of Sample Sample Date QC Code							0.2 3/10/1998 SA	0.2 3/10/1998 SA	2 11/6/2002 SA	2 11/6/2002 SA	2 10/26/2002 SA	2 11/6/2002 SA	2 10/26/2002 SA
	Study ID	Махітит	Frequency of	Criteria	Number of	Number of Times	Number of	EBS	EBS	PID-RI	PID-RI 1	PID-RI	PID-RI 1	PID-RI
	Units	Value	Detection		Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value
cyclopentadiene	UG/KG	0	%0		0	0	51		4400 U	390 U	410 UJ	420 U	530 U	420
ethane	UG/KG	0	%0		0	0	15	480 U	4400 U	390 U	410 U	420 U	530 U	420
,3-cd)pyrene	UG/KG	12000	71%	3200	en.	35	49	850 J	12000 J	350 J	140 J	400 J	98 1	1300
	UG/KG	315 °	%%	4400	0 (	<	51	480 U	4400 U	390 U	410 U	420 J	530 U	420
ipropylamine	UG/KG	0 0	%%		00	0	51	480 U	4400 O	390 U	410 U	420 U 420 U	530 U	420
	UG/KG	630	14%	13000	0	7	51	480 U	4400 U	390 U	410 U	420 U	530 U	49(
ne	UG/KG	3153	2%	200	-	п	51	480 U	4400 U	390 U	410 U	420 J	530 U	420
ophenol	UG/KG	0 22000	%0	1000	0 -	0 84	00 5	1200 U	13000 U	970 U	1000 U 870	1100 U	1300 U 620	1100
	UG/KG	3153	2%	30	-		. 12	480 1	4400 11	11 066	410 17	420 1	530 11	420
, Bo	UG/KG	64000	94%	20000	-	48	51	2700	17000	8800 J	1500	6500 J	260	17000
S C P S	116/86	C	%0	2000	Ç	c	45			0.24 11	11 300	11 66	0.33.11	, (
	UG/KG	34	11%	2100	0	8	45			0.24 U	0.25 U	14 J	0.33 U	2.2
	UG/KG	39	%5	2100	0	7	44			0.24 UJ	0.25 UJ	2.2 UJ	0.33 UJ	2.2
,	UG/KG	12	%6	41	0	4	45			0.12 U	0.12 U	2.2 U	0.16 U	2.3
	UG/KG	0 0	%	110	0 0	0 (	45			1.4 UJ	1.5 UJ	2.2 U	2 UJ	2.5
rdane	UG/KG	<b>&gt;</b> c	% %	000	0 0	0 0	41			0.35 R	0.38 UJ	2.2 U	0.49 UJ	2.2
	11G/KG	0 0	% %	007	> 0	o c	45			0.12 U	0.12 U	2.2 U	0.16 U	2.4
	UG/KG	0	%	300	0	0	54			0.24 UJ	0.25 UJ	2.2 UJ	0.33 UJ	2.7
	UG/KG	34	4%	44	0	2	45			0.12 UJ	0.12 UJ	2.2 UJ	0 16 UJ	2
п;	UG/KG	95	%65	006	0	24	41			0.59 R	0.62 UJ	2.2 U	0.82 UJ	56
II Sulfate	UG/KG	<b>&gt;</b> C	%%	900	0 0	0 0	45			0.35 U	0.38 U	2.2 U	0 49 U	2.7
	UG/KG	30	% %	100	0	2 0	2 4 4			0.94 U	0 67.50 D 1	2.2 UJ	1.3 U	2.7
hyde	UG/KG	0	%0		0	0	45			0.94 UJ	IO I	2.2 UJ	1.3 UJ	2.3
one	UG/KG	0 (	%	<	0 (	0 (	. , 54			0.12 U	0.12 U	2.2 U	0.16 U	2 ;
10 Lindane	110/KG	<b>&gt;</b> C	% %	\$40	> 0	0 0	4 4 5 4			0.12 UJ	0.12 UJ	2.2 U	0.16 UJ	2.7
	UG/KG	0	%	100	0	0	45			1.2 U	1.2 U	2.2 U	1 6 U	2.7
epoxide	UG/KG	55	21%	20	3	00	39			0.35 R	0.38 U	2.2 U	0 49 U	2
lor	UG/KG	0	%0		0	0	45			0.12 U	0.12 U	2.2 UJ	U 91 0	2 :
71	10/KG	> 0	% 6		0 (	0 (	Q ,			3.8	0 4 U	22 U	5.2 U	5 5
21	UG/KG	00	%%		0	0	0 4 0 8			151	0.3 0	22 0	2 8.5 0 1 5.5 1 1 5.5	21.6
32	UG/KG	0	%0		0	0	45			9.2 11	0 2 11		13 11	
42	UG/KG	0	%		0	0	45			2.5 U	2.7 U	22 U	3.6 U	1 73
48	UG/KG	0	%0		0	0	45			6.3 U	0.7 U	22 U	N 6	2
54	UG/KG	67	% % % % % % % % % % % % % % % % % % % %	10000	00	7 %	24 45			12 U	67	22 U	17 U	2.
1 Cyanide		9	2		•	n	ř				r i		2	-
	MG/KG	13200	100%	19300	0 +	45	45			6270	4740	6950	10300	617
	M. C.	)	277	ì	4	ŗ	ř			3	:	:	3	

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### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Loc	Facility Location ID							SEAD-1211 SD1211-1EBS DITCHSOIL	SEAD-1211 SD1211-2EBS	SEAD-1211 SD1211-4 DITCHSOIL	SEAD-1211 SD1211-5 DITCHSOIL	SEAD-1211 SD1211-7 DITCHSOIL	SEAD-121I SD1211-6 DITCHSOIL	SEAD-12 SD1211 DITCHSOI
Sample Depth to Top of Sample	Sample ID of Sample							EB151	EB152 0	121I-4003 0	1211-4004	1211-4005	1211-4006	1211-400
Sample Depth to Bottom of Sample	om of Sample							0.2 3/10/1998	0.2 3/10/1998	2 11/6/2002	2 11/6/2002	2 10/26/2002	2 11/6/2002	10/26/200
	QC Code							SA	SA	SA	SA	SA	SA	S
		Maximum	Frequency of	Criteria	Number	Number of Times	Number of	EBS	EBS	PID-KI	PID-KI 1	PID-KI 1	riu-ku	PID-I
EL	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Vali
	MG/KG	104	100%	8.2	00	34	34			27.4	4.6	7.8	8.8	9
	MG/KG	207	100%	300	0	45	45			80.5 J	57.7 J	72.2	65 J	58
	MG/KG	89.0	%86	1.1	0	44	45			0.37	0.33	0.48 J	0.66	0.0
	MG/KG	9.9	31%	2.3	٣	14	45			0.14 U	0.15 U	0.83	0.19 U	0.
	MG/KG	298000	100%	121000	18	45	45			30100	72300	145000	39000	11000
ц	MG/KG	4393	100%	29.6	9	45	45			6.6	10.1	14.5	25.5	13
	MG/KG	206 3	100%	30	4	45	45			25.1	6.8	11	12.3	10
	MG/KG	209 3	100%	33	10	40	40			130	20	33.8 J	45.4	34
Amenable	MG/KG	0	%0		0	0	45			0.59 U	0.62 U	0.64 U	0.82 U	0.0
	MG/KG	2.00 3	7%		0	3	45			0.59 U	0.62 U	0.644 U	0.82 U	0.6
	MG/KG	58400 3	100%	36500	2	45	45			21200	11300	15200 J	23800	139
	MG/KG	122	100%	24.8	22	45	45			82.4	42.9	71.2 J	93.3	77
E	MG/KG	22300	100%	21500	1	45	45			5240	11300	11700 J	8050	86
Se	MG/KG	3105003	100%	1060	15	45	45			12300	471	588 J	1290	5.
	MG/KG	0.18	%86	0.1	1	44	45			0.03	0.03	0.12 UJ	90.0	0.
	MG/KG	3423	100%	49	7	45	45			29.8	16.7	27.9 J	33.7	26
и	MG/KG	1450	100%	2380	0	45	45			671	886	1340 J	1450	12.
	MG/KG	1463	47%	2	8	21	45			0.49 U	0.52 U	0.53 U	0.68 U	0.
	MG/KG	10.5	18%	0.75	4	9	34			2.5	0.34 U	0.34 U	0.44 U	0
	MG/KG	372	82%	172	24	37	45			118 U	264	288	185	2
	MG/KG	163 3	20%	0.7	2	0	45			0.36 U	0.39 U	0.71 J	0.5 U	0.
и	MG/KG	182 3	100%	150	-	45	45			25.8	11.4	20.2 J	22.1	18
	MG/KG	532	100%	110	14	45	45			78.6 3	100 J	124 J	532	-
ganic Carbon	MG/KG	8900	100%		0	45	45			3500	0029	5300	5400	45
roleum Hydrocarbons	MG/KG	2200	33%		0	15	45			350	160	1000 J	N 99	9

iteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, ed January 24, 1994.

e-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table. extimum detected concentration was obtained from the average of the sample and its duplicate.

bound was not detected concentration ported value is an estimated concentration compound was not detected; the associated reporting limit is approximate ata was rejected in the data validating process though of was "tentatively identified" and the associated numerical value is approximate upound was "tentatively identified" and the associated numerical value is approximate

#### Table C-8 SURFACE SOIL AND DITCH SOIL SAMPLE RESULTS SEAD-1211

#### SEAD-121C and SEAD-1211 RI REPORT Seneca Army Depot Activity

Facility Location ID Matrix Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample	Facility Location ID Matrix Sample ID op of Sample om of Sample Sample Date							SEAD-1211 SD1211-8 DITCHSOIL 1211-4008 2	SEAD-1211 SD1211-9 DITCHSOIL 1211-4009 0	SEAD-1211 SD1211-10 DITCHSOIL 1211-4010 0 2	SEAD-1211 SD1211-1 DITCHSOIL 1211-4000 0	SEAD-1211 SD1211-2 DITCHSOIL 1211-4001 0	SEAD-1211 SD1211-3 DITCHSOIL 1211-4002 0
3	QC Code Study ID		Frequency		Number	Number	Number	SA PID-RI	SA SA PID-RI	SA SA PID-RI	SA SA PID-RI	SA SA PID-RI	SA PID-RI
		Maximum	o	Criteria	of	of Times	of	1	-	-	1		-
Parameter	Units	Value	Detection	Value 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds 1.1.1-Trichlorethane	119/186	c	%0	008	c	c	75	11 0 6	111 2 2	111	11 0 6		23 11
1,1,2,2-Tetrachloroethane	UG/KG	0	%%	009	0	0	54	2.9 UJ	3.7 UJ	3.2 UJ	3.8 UJ	3.2 UJ	3.3 UJ
1,1,2-Trichloroethane	UG/KG	0	%0		0	0	45	2.9 U	3.7 UI	3.2 UJ	3.8 U	3.2 U	3.3 U
1,1-Dichloroethane	UG/KG	0 0	%0	200	0 (	0	45	2.9 U	3.7 UJ	3.2 UJ	3.8 U	3.2 U	3
1,1-Dichloroethene	0.G/KG	0 0	%0	100	0 0	0 0	45	2.9 U	3.7 UJ	3.2 UJ	3.8 U	3.2 U	33 U
1,2-Dichloropropane	UG/KG	0	%0		0	0	45	2.9 U	3.7 UJ	3.2 UJ	3.80	3.2 U	n m
Acetone	UG/KG	150	%08	200	0	36	45	150	22 J	13 J	30	00	6.6
Benzene	UG/KG	413	20%	09	0	6	45	39	3.7 UJ	3.2 UJ	3.8 U	3.2 U	3.3 U
Bromodichloromethane	UG/KG	0 0	%%		0 (	0 0	45	2.9 U	3.7 UI	3.2 UJ	3.8 U	3.2 U	3.3 U
Carbon disulfide	UG/KG	0 0	%0	2700	0 0	o c	45	2.9 U	3.7 0.0	3.2 UJ	3.8 U	3.2 U	330
Carbon tetrachloride	UG/KG	0	%0	009	0	0	45	2.9 U	3.7 UJ	3.2 UJ	3.8	3.2 11	33.0
Chlorobenzene	UG/KG	0	%0	1700	0	0	45	2.9 U	3.7 UI	3.2 UJ	3.8 U	3.2 UJ	3.3 U
Chlorodibromomethane	UG/KG	0	%0		0	0	45	2.9 U	3.7 UJ	3.2 UJ	3.8 U	3.2 U	3.3 U
Chloroethane	UG/KG	0 0	%%	1900	0 0	0 (	45	2.9 UI	3.7 UI	3.2 UJ	3.8 UJ	3.2 UJ	3.3 UJ
Cite-1 2-Dicklonoethene	00/KG	> <	%0	300	0 0	0 0	45	2.9 U	3.7 UI	3.2 UJ	3.8 C	3.2 U	3.3 U
Cis-1,3-Dichloropropene	UG/KG	0	%0		0	0 0	45	2.9 0.0	3.7 111	3.2 0.1	3.8 0	3.2 0.0	3.3 UJ
Ethyl benzene	UG/KG	7.8	13%	5500	0	9	45	5.2	3.7 UJ	3.2 UJ	3.8 U	3.2 UJ	3.3 U
Meta/Para Xylene	UG/KG	6.33	13%		0	9	45	8.8	3.7 UJ	3.2 UJ	3.8 U	3.2 U	3.3 U
Methyl bromide	UG/KG	0	%0		0	0	45	2.9 U	3.7 UJ	3.2 UJ	3.8 U	3.2 U	3.3 U
Methyl butyl ketone	UG/KG	0	%0		0	0	45	2.9 UI	3.7 UJ	3.2 UI	3.8 UJ	3.2 U	3.3 UJ
Methyl chloride	UG/KG	0 %	%6	000	0 0	0:	45	2.9 U	3.7 UJ	3.2 UJ	3.8 U	3.2 U	3.3 U
Methyl isobutyl ketone	UG/KG	° 0	%67	1000	o c	_ c	45	78	3.7 UJ	3.2 UJ	3.8 U	3.2 U	3.3 U
Methylene chloride	UG/KG	2.8	20%	100	0	6	45	2.9 UJ	3.7 UJ	3.2 UJ	3.8 UJ	3.2 UJ	3.3 UJ
Ortho Xylene	UG/KG	3.63	13%		0	9	45	3	· 3.7 UJ	3.2 UJ	3.8 U	3.2 U	3.3 U
Styrene Tetrachloroethene	UG/KG	0 0	%%	1400	0 0	0 0	45 45	2.9 U 2.9 U	3.7 UJ	3.2 UJ 3.2 UJ	3.8 U	3.2 UJ	3.3 U
Toluene	UG/KG	313	18%	1500	C	00	45	3,6	17 111	17 111	3 8 11	111 02	2 2 2
Trans-1,2-Dichloroethene	UG/KG	0	%0	300	0	0	45	2.9 UJ	3.7 UJ	3.2 UJ	3.8 UJ	3.2 UJ	3.3 UJ
Trans-1,3-Dichloropropene	UG/KG	0	%0		0	0	45	2.9 U	3.7 UJ	3.2 UJ	3.8 ∪	3.2 U	33 U
Trichloroethene	UG/KG	0	%	200	0	0	45				38U	3.2 U	3.3 U
v myl chlonde Semivolatile Organic Compounds	UG/KG	0	%0	200	0	0	45	2.9 U	3.7 UJ	3.2 UJ	3.8 U		3.3 U
1,2,4-Trichlorobenzene	UG/KG	0	%0	3400	0	0	51	440 U	450 U	480 U	460 U	380 U	430 U
1,2-Dichlorobenzene	UG/KG	0	%0	2000	0	0	51	440 U	450 U	480 U	460 U	380 U	
1,3-Dichlorobenzene	UG/KG	0 (	%0	1600	0	0	51	440 U	450 U	480 U	460 U	380 U	
1,4-Dieniorobenzene 2,4 S-Trichlorophenol	0.5/KG	0 0	%%	3200	00	0 0	15 5	440 U	450 U	480 U	460 U	380 U	430 U
2,4,6-Trichlorophenol	UG/KG	0	%	2	0	> 0	. 15	440 U	450 U	1200 U 480 U	1100 U 460 U	380 U	430 1
2,4-Dichlorophenol	UG/KG	0	%0	400	0	0	51	440 U	450 U	480 U	460 U	380 U	430 U
2,4-Dimethylphenol	UG/KG	0	%0		0	0	51	440 U	450 U	480 U	460 U		430 U

SENECAPID Area/Report/Draft Final/Risk Assessment/data/S1211-surface-soil+ditch-rev.xls/S1211-SS+Ditch B&S

# Table C-8 SURFACE SOIL AND DITCH SOIL SAMPLE RESULTS SEAD-1211

#### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility Location ID Matrix Sample ID Sample Depth to Top of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Depth to Bottom of Sample Sample Date QC Code		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of	SEAD-1211 SD1211-8 DITCHSOIL 1211-4008 2 11/6/2002 SA PID-NI	SBAD-1211 SD1211-9 DITCHSOIL 1211-4009 0 2 11/6/2002 SA PID-RI 1	SEAD-1211 SD1211-10 DITCHSOIL 1211-4010 0 11/6/2002 SA PID-RI 1	SEAD-1211 SD1211-1 DITCHSOIL 1211-4000 0 11/6/2002 SA PID-RI 1	SEAD-1211 SD1211-2 DITCHSOIL 1211-4001 0 2 11/6/2002 SA PID-RI	SEAD-1211 SD1211-3 DITCHSOIL 1211-4002 0 11/6/2002 SA PID-RI
Parameter	Units	Value	Detection		Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2,4-Dinitrophenol	UG/KG	0	%0	200	0	0	51	1100 U	U 0011	1200 U	1100 U	D 096	1100 U
2,4-Dinitrotoluene	UG/KG	0	%0		0	0	51	440 U	450 U	480 U	460 U	380 U	430 U
2,6-Dinitrotoluene	UG/KG	0	%	1000	0	0	51	440 U	450 U	480 U	460 U	380 U	430 U
2-Chloronaphthalene	UG/KG	0	%0		0	0	51	440 U	450 U	480 U		380 U	430 U
2-Chlorophenol	UG/KG	0	%	800	0	0	51	440 U	450 U	480 U	460 U	380 U	430 U
2-Methyinaphthalene	UG/KG	260	10%	36400	0 0	vo o	51	440 U	450 U		460 U	380 U	430 U
2-Methylphenol	UG/KG	0 0	% 6	001	0 0	0 0	7 5	440 U	1,000	480 0	0 094	380 0	1100 11
2-Nitroshess1	UG/KG	0 0	%%	130	<b>&gt;</b> •	<b>&gt;</b>	7 5	1100 U	1100 0	1200 U	1100 U	380 0	1100 U
3 or 4-Methylphenol	UG/KG	0	%		0	0	. 4	440 U	450 U	480 U	460 U	380 U	430 U
3.3'-Dichlorobenzidine	UG/KG	3153	2%		0	-	47	440 U	450 UJ	480 U	460 U	380 U	430 U
3-Nitroaniline	UG/KG	0	%	200	0	0	51	1100 U	. 1100 U	1200 U	1100 U	D 096	1100 U
4,6-Dinitro-2-methylphenol	UG/KG	0	%0		0	0	20	1100 U	1100 U	1200 U	1100 U	U 096	1100 U
4-Bromophenyl phenyl ether	UG/KG	0	%0		0	0	20	440 U	450 U	480 U	7460 U	380 U	430 U
4-Chloro-3-methylphenol	UG/KG	0	%	240	0	0	51	440 U	450 U	480 U	460 U	380 U	430 U
4-Chloroaniline	UG/KG	0	%0	220	0	0	51	440 U	450 U	480 U	460 U	380 U	430 U
4-Chlorophenyi phenyl ether	UG/KG	0 0	% 6	0	0 (	0 (	51	440 UJ	450 U	480 U	460 UJ	380 O	430 U
4-Methylphenol	UG/KG	<b>&gt;</b> <	% %	200	0 0	<b>&gt;</b> (	0 ;			11 0000	0011	11 000	1100 11
4-Mittochandle	09/8G	> 0	% %	100	<b>&gt; C</b>	<b>&gt;</b> C	7 5	1100 01	110011	1200 0	1100 11	960 0	1100 11
Acessablese	IIG/KG	6100	\$1%	20000	o c	200	, <u>c</u>	1 99	640	1 021	460 11	380 11	430 11
Acenaphthylene	UG/KG	260	12%	41000	0	9 0	51	440 U	76 J	480 U	460 U	380 U	430 U
Anthracene	UG/KG	12000	28%	20000	0	53	8	120 J	086	210 J	460 U	380 U	430 U ·
Benzo(a)anthracene	UG/KG	28000	%06	224	28	46	51	450	5800 J	510	460 U	380 U	49 J
Benzo(a)pyrene	UG/KG	23000	%88	61	44	45	51	420 J	5500 J	390 J	460 U		430 U
Benzo(b)fluoranthene	UG/KG	29000	94%	1100	14	84 9	51	610 J	8500 J	550	460 U	45 J	44 J
Berra (L) fluorent han	110/KG	23000	370%	1100	> <u>5</u>	4 5	ñ \$	260 1	2300 1	150 7	460 U	380 0	430 U
Bis(2-Chloroethoxy)methane	UG/KG	0	%0	201	. 0	; 0	51	440 U	450 U	480 U	460 U	380 U	430 U
Bis(2-Chloroethyl)ether	UG/KG	0	%0		0	0	51	440 U	450 U	480 U	460 U	380 U	430 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	%0		0	0	51	440 U	450 U	480 U	7460 U	380 U	430 U
Bis(2-Ethylhexyl)phthalate	UG/KG	1600	33%	20000	0	17	51	440 U	78 J	480 U	460 U	380 U	430 U
Butylbenzylphthalate	UG/KG	420 -	%9	20000	0	m :	48	440 U	450 UI	480 U	460 U	380 U	430 U
Carbazole	UG/KG	0089	57%		0 ;	53	i o	100 J	920	200 J	460 U	380 U	430 U
Carysene Dia buratahalata	00/80	32000	20%	0019	Q <	4 ÷	i 6	300	3800 J	740	460 0	380 11	430 U
Distriction of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the	OWO!	5 6	0 4	2010	> 0		3 5		450 11	000	2 000	0 0 0 0 0	430 11
Di-n-octyphthalate	00/80	074	2407	00000	> ¥	- 4	4 4	440 0	150 1	0 084	1460 0	380 0	450 0
Dibenzofiran	LIG/KG	2000	27%	6200	] c	7 7	21	440 111	130 1	180	460 111	380 11	430 U
District about 100	11000	6403	700	2100	, ,	; -	5 5	440 11	450 11	180 11	11 097	380 11	130 11
Directly puringer	11G/KG	3	%0	2000	o c	۰ ۵	1 5	440 11	450 11	480 11	460 11	380 11	430 11
Fluoranthene	UG/KG	62000	94%	20000	·	48	: 55	1100	. 9400	1300	460 U	1 66 1	130 J
Fluorene	UG/KG	4200	43%	50000	0	22	51	53 J	390 J	140 J	460 U	380 U	430 U
Hexachlorobenzene	UG/KG	0	%0	410	0	0	20	440 U	450 U	480 U	460 U	380 U	430 U
Hexachlorobutadiene	UG/KG	0	%		0	0	51	440 U	450 U	480 U	460 U	380 O	430 U

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# Table C-8 SURFACE SOIL AND DITCH SOIL SAMPLE RESULTS SEAD-121I SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Facility Location ID Matrix Sarmple DD Sarmple Depth to Top of Sarmple Sarmple Depth to Bottom of Sarmple Sarmple Depth to Bottom of Sarmple Sarmple Date QC Code		Maximum	Frequency of	Criteria	Number	Number of Times	Number of	SEAD-1211 SD1211-8 DITCHSOIL 1211-4008 2 11/6/2002 SA PID-RI	SEAD-1211 SD1211-9 DITCHSOIL 1211-4009 0 2 11/6/2002 SA PID-RI 1	SEAD-1211 SD1211-10 DITCHSOIL 1211-4010 0 2 11/6/2002 SA PID-RI	SEAD-1211 SD1211-1 DITCHSOIL 1211-4000 0 2 11/6/2002 SA PID-RJ	SEAD-1211 SD1211-2 DITCHSOIL 1211-4001 0 2 11/6/2002 SA PID-RJ	SEAD-1211 SD1211-3 DITCHSOIL 1211-4002 0 2 11/6/2002 SA PID-RI
Parameter	Units	Value	Detection		Exceedances		Analyses 2	Value (0)	Value (0)	Value (O)	Value (O)	Value (O)	Value (Q)
Hexachlorocyclopentadiene	UG/KG	0	%0		0		51	440 UJ	450 U	480 U	460 UJ	380 U	430 U
Hexachloroethane	UG/KG	0	%0		0	0	51	440 U	450 U	480 U	460 U	380 U	430 U
Indeno(1,2,3-cd)pyrene	UG/KG	12000	71%	3200	3	3.5	49	110 J	f 054.	150 J	460 U	380 U	430 U
Isophorone	UG/KG	3153	7%	4400	0	-	51	440 U	450 U	480 U	460 U	380 U	430 U
N-Nitrosodiphenylamine	UG/KG	0	%0		0	0	20	440 U	450 U	480 U	460 U	380 U	430 U
N-Nitrosodipropylamine	UG/KG	0	0%	13000	0 0	10	51	440 UJ	450 U	480 U	460 UJ	380 U	430 U
	10/701	0.50	200	2000		. ,	7 1	0 0 0	0.004	1 60	0 000	380 0	430 0
Pentschloropheno!	08/01	c) c	%7	200	- <	- <	10 %	0 644	1100 11	1200 11	1001	380 0	1200 1
Phenanthrene	UG/KG	\$2000	94%	50000	-	48	51	650	4900	1200	460 U	50 J	93 J
Phenol	UG/KG	3153	2%	30	_	-	15	440 11	450 11	480 11	460 11	380 13	430 11
Pyrene	UG/KG	64000	94%	20000	-	48	51	840	17000 J	940	460 U	78 J	93 J
Pesticides/PCBs													
4,4'-DDD	UG/KG	0	%0	2900	0	0	45	0.27 U	0.27 U	0.29 U	0.28 UJ	0.24 U	0.26 U
4,4"-DDE	UG/KG	4 6	11%	2100	0 0	vo c	45	0.27 U	0.27 U	0.29 U	0.28 U	0.24 U	0 26 U
4,4 -DD1	5 N O O O	ξ; C	% 6	7100	0 0	7 7	4 4	0.27 03	0.27 0.0	0.29 UJ	0.28 UJ	0.24 U	0.26 UJ
Alaba-BHC	110/80	7 0	%60	14.	0 0	4 0	0 4 0 4	0.14 0	0.14 U	0.14 0	0.14 0.	0.12 0	0.13 U
Alpha-Chlordane	11G/KG		%0	011	0 0	> 0	. t	0.41 P	0.41 P	0.7.0	11. 00		1.0 0.1
Beta-BHC	UG/KG	0	%	200	0	0	45			0.14 U	0.14 U		0.13 U
Chlordane	UG/KG	0	%0		0	0	45	2.6 U	2.6 U	2.8 U	2.6 U	2.2 U	2.5 U
Delta-BHC	UG/KG	0	%0	300	0	0	45	0.27 UJ	0.27 UJ	0.29 UJ	0.28 UJ		0.26 UJ
Dieldrin	UG/KG	34	%4	44	0	7	45	0.14 UJ		0.14 UJ	0.14 UJ	0.12 UJ	0.13 UJ
Endosultan t	UG/KG	95	26%	006	0 0	24	41	0.68 R		0.72 UJ	0.69 UJ	0.59 R	0.66 UJ
Endosultan III Endosulfan sulfate	119/80	0 0	% %	0001	0 0	o c	45	0.41 0	0.41 U	0.43 U	0.42 UJ	0.35 U	0.39 U
Endrin	UG/KG	30	4%	100	0	2 0	45	11 11		1.2 U	1.1 UI	0.94 U	0 670
Endrin aldehyde	UG/KG	0	%0		0	0	45	1.1 UJ		1.2 UJ	1.1 UJ	0.94 UJ	1.1 U
Endrin ketone	UG/KG	0	%0		0	0	45	0.14 U	0.14 U	0.14 U	0.14 UJ	0.12 U	0.13 U
Garrina-BHC/Lindane	UG/KG	0 (	%0	9	0 (	0 (	45	0.14 UJ	0.14 UJ	0.14 UJ	0.14 UJ	0.12 UJ	0.13 UJ
Useranda-Chiordane	08/80 08/61	> <	%0	240	> 0	0 0	45	0.41 UJ	0.41 U)	0.43 U	0.42 UJ	0.35 U)	0.39 UJ
Heptachlor epoxide	UG/KG	55	21%	20	> 100	> 00	3 6	0.41 R	0.41 B	0.43	0.42	0.35 B	1.50
Methoxychlor	UG/KG	0	%0		0	0	45	0.14 U	0.14 U	0.14 U	0.14 U	0.12 U	0.13 U
Toxaphene	UG/KG	0	%0		0	0	45	4.3 U	4.4 U	4.6 U	4.4 U	3.8 U	4.2 U
Aroclor-1016	UG/KG	0	%0		0	0	45	O 6.9	7.1 UJ	7.5 UJ	7.2 U	61 U	0.8 U
Aroclor-1221	UG/KG	0	%0		0	0	45	1.7 U	1.8 U	U 6.1	1.8 U	1.5 U	U 7 I
Aroclor-1232	UG/KG	0	%0		0	0	45	11 U	11 UJ	12 UJ	11 U	9.4 U	10 U
Aroclor-1242	UG/KG	0 0	%%		0 (	0 (	45	2.9 U	3 0	3.2 UJ	3.0	2.6 U	2.9 U
Aroclor-1248	UG/KG	0 !	%0		0	0	45	7.3 U	7.5 U	0 %	7.6 U	0.4 U	7.2 U
Aroclor-1254	UG/KG	67	% ;	10000	0 0	7 .	45		14 U	15 U	15 U	12 U	
Metals and Coonide	0.G/RG	0	%/	10000	0	~	<b>4</b>	2.6 U	2.7 00	2.9 UJ	7.8 ∪	230	2 6 U
Aluminum	MG/KG	13200	100%	19300	0	45	45	5040	6140	5330	8790	4180	6930
Antimony	MG/KG	7.5	31%	5.9		14	45	1.2 UJ	1.2 UJ	1.3 UJ	1.2 UJ	1 01	12 UJ

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#### SURFACE SOIL AND DITCH SOIL SAMPLE RESULTS **SEAD-1211** Table C-8

#### SEAD-121C and SEAD-1211 RI REPORT Seneca Army Depot Activity

	Facility							SEAD-121I	SEAD-1211	SEAD-121I	SEAD-121I	SEAD-121I	SEAD-1211
1	Location ID							SD121I-8	SD121I-9	SD1211-10	SD1211-1	SD1211-2	SD1211-3
	Matrix							DITCHSOIL	DITCHSOIL	DITCHSOIL	DITCHSOIL	DITCHSOIL	DITCHSOIL
	Sample ID							1211-4008	1211-4009	1211-4010	121I-4000	1211-4001	1211-4002
Sample Depth to Top of Sample	of Sample							0	0	0	0	0	0
Sample Depth to Bottom of Sample	of Sample							2	2	2	2	2	2
Š	Sample Date							11/6/2002	11/6/2002	11/6/2002	11/6/2002	11/6/2002	11/6/2002
	QC Code							SA	SA	SA	SA	SA	SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum	jo	Criteria	Jo	of Times	Jo .	-	-	-	-		-
Parameter	Units	Value	Detection	٠.	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Arsenic	MG/KG	104	100%	8.2	8	34	34	104	9.9	3.8	7.7	2.6	4
Barium	MG/KG	207	100%	300	0	45	45	91.1 J	75.6 J	74.4 J	47.8 J	44.1 J	53.7 J
Beryllium	MG/KG	89.0	%86	1.1	0	44	45	0.3	0.5	0.43	0.52	0.31	0.42
Cadmium	MG/KG	9.9	31%	2.3	ы	14	45	0.16 U	0.16 U	0.17 U	0.16 U	0.14 U	0.16 U
Calcium	MG/KG	298000	100%	121000	18	45	45	0668	65800	54300	17000	36500	33200
Chromium	MG/KG	439 3	100%	29.6	9	45	45	83.9	12.2	10.1	15.6	8.6	11.7
Cobalt	MG/KG	2063	100%	30	4	45	45	616	80.00	7.4	10.3	5.9	9.3
Copper	MG/KG	209 3	100%	33	10	40	40	117	33.2	20.4	17.1 J	23.1	22.9
Cyanide, Amenable	MG/KG	0	%0		0	0	45	U 79.0	O.68 U	0.72 U	0.69 UJ	0.59 U	0.66 U
Cyanide, Total	MG/KG	2.003	%/		0	3	45	U 79.0	0.68 U	0.72 U	U 69.0	0.59 U	0.66 U
Iron	MG/KG	58400 3	100%	36500	2	45	45	30400	13900	12500	19800 J	10100	16600
Lead	MG/KG	122	100%	24.8	22	45	45	67.2	86.9	39.6	11.2 J	22.4	17.8
Magnesium	MG/KG	22300	100%	21500	-	45	45	2150	7380	7450	4480 J	3530	7540
Manganese	MG/KG	3105003	100%	1060	15	45	45	14900	167	477	478 J	303	399
Mercury	MG/KG	0.18	%86	0.1	-	44	45	0.05	. 0.1	0.05	0.04 J	0.02	0.18
Nickel	MG/KG	342 3	100%	49	7	45	45	153	20.4	17	24.3 J	16.4	24.4
Potassium	MG/KG	1450	100%	2380	0	45	45	874	856	837	723 J	541	818
Selenium	MG/KG	146 3	47%	7	5	21	45	90	0.56 U	U 9.0	0.57 UJ	0.48 U	0.55 U
Silver	MG/KG	10.5	18%	0.75	4	9	34	10.5	0.36 U	0.39 U	0.37 UJ	0.31 U	0.36 U
Sodium	MG/KG	372	82%	172	24	37	45	132 U	162	266	184 J	186	209
Thallium	MG/KG	1633	70%	0.7	2	6	45	21.5	0.41 U	0.44 U	0.42 UJ	0.36 U	0.41 U
Vanadium	MG/KG	1823	100%	150	-	45	45	69.4	17	11.6	13.4 3	8.1	12.4
Zinc	MG/KG	532	100%	110	14	45	45	121 J	129 J	89.2 J	57.3 3	59.3 J	132 J
Other	02/07/	0	,a00		•	ý	76	400	7000	0000	1000	9	0000
Total Petroleum Hydrocarbons	MONE OF	2200	33%		o c	÷ ;	5 4 5 4	2400	000/	58 11	111 55	150	52 11
Lotal Felioteuili Atyarocaroona	7457	2077	07.00		>	3	3	5	016	9	20	25.1	0 40
NOTES:													

#### NOTES:

<sup>1)</sup> The criteria value source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.

2) Sample-duplicate pairs were averaged and the average results was used in the summary statistic presented in this table.

3) The maximum detected concentration was obtained from the average of the sample and its duplicate.

U= compound was not detected U= the proported value is an estimated concentration U= the compound was not detected; the associated reporting limit is approximate W= the data was rejected in the data validating process W= the data was "rentatively identified" and the associated numerical value is approximate NJ= compound was "rentatively identified" and the associated numerical value is approximate

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# Table C-9 SURFACE WATER SAMPLE RESULTS SEAD-121I

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility							SEAD-121I	SEAD-1211	SEAD-1211	SEAD-121I
ol	Location ID							SW121I-1	SW121I-10	SW1211-2	SW121I-3
	Matrix							SW	SW	SW	SW
S	Sample ID							1211-3000	121I-3010	1211-3001	1211-3002
Sample Depth to Top of Sample	of Sample							0	0	0	0
Sample Depth to Bottom of Sample	of Sample							N/A	N/A	N/A	N/A
Sar	Sample Date							11/6/2002	11/6/2002	11/6/2002	11/6/2002
	QC Code							SA	SA	SA	SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum	Jo	Criteria	Jo	of Times	Jo	<b>-</b> '	1	-1	1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds											
I,1,1-Trichloroethane	$\Omega$ G/L	0	%0		0	0	7	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	NG/L	0	%0		0	0	7	0.7 U	0.7 U	0.7 U	0.7 U
1,1,2-Trichloroethane	UG/L	0	%0		0	0	7	0.62 U	0.62 U	0.62 U	0.62 U
l,1-Dichloroethane	NG/L	0	%0		0	0	7	0.66 U	0.66 U	0.66 U	0.66 U
I,1-Dichloroethene	NG/L	0	%0		0	0	7	O 69.0	O 69.0	O 69:0	O.69 U
1,2-Dichloroethane	UG/L	0	%0		0	0	7	0.56 U	0.56 U	0.56 U	0.56 U
1,2-Dichloropropane	NG/L	0	%0		0	0	7	0.73 U	0.73 U	0.73 U	0.73 U
Acetone	NG/L	0	%0		0	0	7	3.5 UJ	3.5 U	3.5 U	3.5 U
Senzene	NG/L	0	%0		0	0	7	0.71 U	0.71 U	0.71 U	0.71 U
Sromodichloromethane	UG/L	0	%0		0	0	7	0.73 U	0.73 U	0.73 U	0.73 U
Вготобот	NG/L	0	%0		0	0	7	0.49 U	0.49 U	0.49 U	0.49 U
Carbon disulfide	NG/L	0	%0		0	0	7	0.72 U	0.72 U	0.72 U	0.72 U
Carbon tetrachloride	NG/L	0	%0		0	0	7	0.47 U	0.47 U	0.47 U	0.47 U
Chlorobenzene	UG/L	0	%0	5	0	0	7	0.78 U	0.78 U	0.78 U	0.78 U
Chlorodibromomethane	NG/L	0	%0		0	0	7	0.66 U	0.66 U	0.66 U	0.66 U
Chloroethane	NG/L	0	%0		0	0	7	2.4 U	2.4 U	2.4 U	2.4 U
Chloroform	NG/L	0	%0		0	0	7	0.61 U	0.61 U	0.61 U	0.61 U
Cis-1,2-Dichloroethene	NG/L	0	%0		0	0	7	0.62 U	0.62 U	0.62 U	0.62 U
Cis-1,3-Dichloropropene	NG/L	0	%0		0	0	7	0.66 U	0.66 U	0.66 U	0.66 U
Ethyl benzene	NG/L	0	%0		0	0	7	0.76 U	0.76 U	0.76 U	0.76 U
Meta/Para Xylene	NG/L	0	%0		0	0	7	1.5 U	1.5 U	1.5 U	1.5 U
Methyl bromide	NG/L	0	%		0	0	7	0.38 UJ	0.38 U	0.38 U	0.38 U
Methyl butyl ketone	$\Omega Q/\Gamma$	0	%0		0	0	7	0.6 U	0.6 U	0.6 U	O.6 U
Methyl chloride	NG/L	0	%0		0	0	7	0.51 U	0.51 U	0.51 U	0.51 U
Methyl ethyl ketone	NG/L	0	%0		0	0	7	2.3 U	2.3 U	2.3 U	2.3 U
Methyl isobutyl ketone	NG/L	0	%0		0	0	7	0.81 UJ	0.81 U	0.81 U	0.81 U
Methylene chloride	$\Omega G/\Gamma$	0	%0		0	0	7	1.8 U	1.8 U	1.8 U	1.8 U
Ortho Xylene	NG/L	0	%0		0	0	7	0.72 U	0.72 U	0.72 U	0.72 U
Styrene	UG/L	0	%		0	0	7	0.92 U	0.92 U	0.92 U	0.92 U
Tetrachloroethene	$\Omega G/\Gamma$	0	%0		0	0	7	0.7 UJ	0.7 U	0.7 U	0.7 U
Foluene	NG/L	0	%0	0009	0	0	7	0.71 U	0.71 U	0.71 U	0.71 U
Trans-1,2-Dichloroethene	NG/L	0	%0		0	0	7	· 0.81 U	0.81 U	0.81 U	0.81 U
Frans-1,3-Dichloropropene	NG/L	0	%0		0	0	7	0.66 U	0.66 U	0.66 U	0.66 U
Trichloroethene	NG/L	0	%	40	0	0	7		0.72 U	0.72 U	0.72 U
Vinyl chloride	NG/L	0	%0		0	0	7	0.79 U	U 62.0	U 62.0	0.79 U

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Table C-9
SURFACE WATER SAMPLE RESULTS
SEAD-1211

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

Loc: San Sample Depth to Top of mple Depth to Bottom of Samy Q		Maximum	Frequency of	Criteria	Number of		Number of	SEAD-1211 SW1211-1 SW 1211-3000 0 N/A 11/6/2002 SA PID-RI 1	SEAD-1211 SW1211-10 SW 1211-3010 0 N/A 11/6/2002 SA PID-RI	SEAD-1211 SW1211-2 SW 1211-3001 0 N/A 11/6/2002 SA PID-RI	SEAD-1211 SW1211-3 SW 1211-3002 0 N/A 11/6/2002 SA PID-R1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2.	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Semivolatile Organic Compounds	1,511	c	\e^0	¥	c	c		11 01	11 01		
1,2,4-Inchorobenzene	1,01	0 0	%%	Λ 4	<b>-</b>	<b>&gt;</b> (	- 1		1001	0 0 0	10 01
1,2-Dichlorobenzene	1,511	<b>&gt;</b>	%%	n v	<b>&gt;</b>	<b>&gt;</b> c	- 1	0 01	0 01	0 0 0	
1,4-Dichlorobenzene	NG/L	0	%0	ı vo	0	0		D 01	10 C	D 01	
2,4,5-Trichlorophenol	UG/L	0	%		0	0	4	10 U	10 U		
2,4,6-Trichlorophenol	UG/L	0	%0		0	0	4	10 U	10 U	10 R	10 R
2,4-Dichlorophenol	UG/L	0	%0	1	0	0	4	10 U	10 U	10 R	10 R
2,4-Dimethylphenol	UG/L	0	%0	1000	0	0	4	10 OI	10 U		10 R
2,4-Dinitrophenol	NG/L	0	%0	400	0	0	4	10	10 UI		10 R
2,4-Dinitrotoluene	UG/L	0 (	%0		0 (	0	۲ ۱	7 10 U	D 01	D 01	10 U
2,6-Dintrotoluene	7,00,T	<b>&gt;</b> (	%0		0 (	<b>o</b> (	7	00:	0 01		10 01
2 Chlomatene	7/5/1	<b>&gt;</b>	% 6		<b>&gt;</b> 0	> <		1001	100	0 0 0	10 0
2-Methylpanhthalene	3 6	> <	%%	7.7	> <	> <	<b>†</b> r	0 10 01	10 01		10 L
2-Methylphenol	1001	o	%	ř	o c	o c	. 4	10 01	10 01	0 01	10.0
2-Nitroaniline	UG/L	0	%		0	0	7	10 U	10 UI	10 01	10 U
2-Nitrophenol	UG/L	0	%0		0	0	4	10 U	10 U	10 R	10 R
3 or 4-Methylphenol	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
3-Nitroaniline	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 UI
4,6-Dinitro-2-methylphenol	UG/L	0	%0		0	0	4	10 UI	10 UJ	10 R	10 R
4-Bromophenyl phenyl ether	UG/L	0	%0		0	0	7	10 UJ	10 UJ	10 CI	10 UJ
4-Chloro-3-methylphenol	UG/L	0 0	%%		0 (	0 0	4 (	D 01	10 0	10 R	10 R
4-Ciffoldallillie	7.00	> 0	°,		> 0	0	~ t	1001	5 5	100	0 01
4-Nitrognijine	100	o c	%%		o	o c	. [	10 91			111 01
4-Nitronhenol	11971.	· C	%0		· c		- 4	10 111	10 111	10 8	10 R
Acenaphthene	UG/L	0	%0		0	0	. 7	10 U	10 U	10 OI	10 U
Acenaphthylene	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Anthracene	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Benzo(a)anthracene	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Benzo(a)pyrene	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Benzo(ghi)perylene	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	UG/L	0 (	%0		0 (	0 0	۲ ،	10 O.	D 01	10 U	10 U
ыs(z-спогоепоху)птепапе	7/50	Þ	%0		>	>	,	0 01			

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## Table C-9 SURFACE WATER SAMPLE RESULTS SEAD-1211

# SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

1	Facility Location ID							SEAD-1211 SW121I-1	SEAD-1211 SW1211-10	SEAD-1211 SW121I-2	SEAD-1211 SW1211-3
	Matrix							SW	SW	SW	SW
	Sample ID							1211-3000	1211-3010	1211-3001	1211-3002
Sample Depth to Top of Sample	of Sample							0	0	0	0
Sample Depth to Bottom of Sample	ı of Sample							N/A	N/A	Y/A	Y X
S	Sample Date							11/6/2002	11/6/2002	11/6/2002	11/6/2002
	QC Code		Ç.			M	M	SA Pro Pr	SA	SA Pro Pr	SA PID-DI
	Study ID	Maximum	r requency of	Criteria	Number	of Times	of	7. 1	10-12	10.1	1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Bis(2-Chloroethyl)ether	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Bis(2-Chloroisopropyl)ether	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Bis(2-Ethylhexyl)phthalate	NG/L	0	%0	9.0	0	0	7	10 U	10 U	10 U	10 U
Butylbenzylphthalate	NG/L	1.1	14%		0	1	7	10 U	1.1 J	10 U	10 U
Carbazole	NG/L	0	%0		0	0	7	10 U	10 UJ	10 U	10 O
Chrysene	T/9n	0	%0		0	0	7	10 U	10 UJ	10 U	10 O
Di-n-butylphthalate	NG/L	0	%0		0	0	7	10 UI	10 UI	IO 0I	10 OI
Di-n-octylphthalate	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	NG/L	0	%0		0	0	7	10 U	10 UJ	10 U	10 U
Dibenzofuran	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Diethyl phthalate	$\Omega G/\Gamma$	0	%0		0	0	7	10 U	10 UI	10 U	10 U
Dimethylphthalate	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Fluoranthene	NG/L	1.1	14%		0	1	7	10 U	10 U	10 U	10 U
Fluorene	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 1
Hexachlorobenzene	NG/L	0	%0	0.00003	0	0	7	10 UI	10 UJ	10 UJ	10 UJ
Hexachlorobutadiene	NG/L	0	%0	0.01	0	0	7	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	UG/L	0	%0	0.45	0	0	7	10 U	10 UJ	10 O	10 UJ
Hexachloroethane	UG/L	0	%0	9.0	0	0	7	10 U	10 U	10 U	10 UI
Indeno(I,2,3-cd)pyrene	UG/L	0	%0		0	0	7	IO 0I	IO 0I	10 UI	10 U
Isophorone	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
N-Nitrosodiphenylamine	UG/L	0	%0		0	0	7	10 U	10 ∪	10 U	10 UI
N-Nitrosodipropylamine	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Naphthalene	$\Omega G \Lambda T$	0	%0		0	0	7	10 U	10 U	10 U	10 U
Nitrobenzene	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Pentachlorophenol	$\Omega G/\Gamma$	0	%0	1	0	0	4	10 01	10 UI	10 R	10 R
Phenanthrene	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Phenol	$\Omega G/\Gamma$	0	%0	2	0	0	4	10 ₪	10 U	10 R	10 R
Pyrene	$\Omega G \Lambda L$	0	%0		0	0	7	10 UJ	10 UJ	10 UJ	10 UJ
Pesticides/PCBs											
4,4'-DDD	NG/L	0	%0	0.00008	0	0	7	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDE	NG/L	0	%0	0.000007	0	0	7	0.005 U	0.005 U	0.005 U	0.005 U
4,4'-DDT	$\Omega G/\Gamma$	0	%0	0.00001	0	0	7	0.01 UJ	0.01 UJ	0.01 UI	0.01 UJ
Aldrin	$\Omega G/\Gamma$	0	%0	0.001	0	0	7	0.02 U	0.02 U	0.02 U	0.02 U
Alpha-BHC	NG/L	0	%0		0	0	7	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Alpha-Chlordane	NG/L	0	%0		0	0	7	0.02 U	0.02 U	0.02 U	0.02 U
Beta-BHC	NG/L	0	%0		0	0	7	0.01 U	0.01 U	0.01 U	0.01 U
Chlordane	NG/L	0	%0		0	0	7	0.13 U	0.13 U	0.13 U	0.13 U

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Table C-9
SURFACE WATER SAMPLE RESULTS
SEAD-121I

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	SEAD-1211	SW121I-3	SW	1211-3002	0	N/A	11/6/2002	SA	PID-RI	1	
	SEAD-1211	SW12II-2	SW	1211-3001	0	N/A	11/6/2002	SA	PID-RI	1	
	SEAD-121I	SW121I-10	SW	1211-3010	0	N/A	11/6/2002	SA	PID-RI	1	
	SEAD-1211	SW121I-1	SW	1211-3000	0	N/A	11/6/2002	SA	PID-RI	1	
Fau : 100									Number	of Times of	
· · · · · ·									Number	of Times	
for the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th									Number	Jo	
•										Criteria	
									Frequency	of	,
										Maximum	;
	Facility	Location ID	Мафіх	Sample ID	Sample Depth to Top of Sample	Sample Depth to Bottom of Sample	Sample Date	QC Code	Study ID		

		Maximum	o <b>j</b> o	Criteria	<b>J</b> 0	of Times	J0	-	1	1	1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Delta-BHC	UG/L	0	%0		0	0	7	0.004 U	0.004 U	0.004 U	0.004 U
Dieldrin	UG/L	0	%0	0.0000000	0	0	7	0.009 U	0.009 U	O.009 U	0.009 U
Endosulfan I	UG/L	0	%0	0.009	0	0	7	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan II	$\Omega G/\Gamma$	0	%0	600.0	0	0	7	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Endosulfan sulfate	$\Omega G/\Gamma$	0	%0		0	0	7	0.02 U	0.02 U	0.02 U	0.02 U
Endrin	$\Omega G/\Gamma$	0	%0	0.002	0	0	7	0.02 U	0.02 U	0.02 U	0.02 U
Endrin aldehyde	$\Omega G/\Gamma$	0	%0		0	0	7	0.02 U	0.02 U	0.02 U	0.02 U
Endrin ketone	$\Omega G/\Gamma$	0	%0		0	0	7	0.009 U	0.009 U	O.009 U	0.009 U
Gamma-BHC/Lindane	UG/L	0	%0		0	0	7	0.009 U	0.009 U	O.009 U	0.009 U
Gamma-Chlordane	UG/L	0	%0		0	0	7	. 0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor	UG/L	0	%0	0.0002	0	0	7	0.007 U	0.007 U	0.007 U	0.007 U
Heptachlor epoxide	$\Omega G/\Gamma$	0	%0	0.0003	0	0	7	0.008 U	0.008 U	0.008 U	0.008 U
Methoxychlor	$\Omega G/\Gamma$	0	%0	0.03	0	0	7	0.008 U	0.008 U	0.008 U	0.008 U
Toxaphene	UG/L	0	%0	0.00000	0	0	7	0.12 U	0.12 U	0.12 U	0.12 U
Aroclor-1016	$\Omega G/\Gamma$	0	%0	0.000001	0	0	7	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ
Aroclor-1221	$\Omega G/\Gamma$	0	%0	0.000001	0	0	7	0.08 U	0.08 U	0.08 U	0.08 U
Aroclor-1232	$\Omega G/\Gamma$	0	%0	0.000001	0	0	7	0.09 UJ	0.09 UJ	0.09 UJ	0.09 UJ
Aroclor-1242	$\Omega G/\Gamma$	0	%0		0	0	7	0.08 UJ	0.08 UJ	0.08 UJ	0.08 UJ
Aroclor-1248	$\Omega G/\Gamma$	0	%0	0.000001	0	0	7	0.12 U	0.12 U	0.12 U	0.12 U
Aroclor-1254	$\Omega G/\Gamma$	0	%0	0.000001	0	0	7	0.05 U	0.05 U	0.05 U	0.05 U
Aroclor-1260	$\Omega G/\Gamma$	0	%0	0.000001	0	0	7	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Metals and Cyanide											
Aluminum	$\Omega G/\Gamma$	2050	100%	100	ю	7	7	37.6	1490	23.9	43.5
Antimony	$\Omega G/\Gamma$	0	%		0	0	7	4.7 U	4.7 U	4.7 U	4.7 U
Arsenic	NG/L	0	%0	150	0	0	7	2.8 U	2.8 U	2.8 U	2.8 U
Barium	$\Omega G/\Gamma$	49.2	%98		0	9	7	49.2	48.9	33.8	33.2
Beryllium	NG/L	0.28	%98	1100	0	9	7	0.21	0.26	0.16	0.16
Cadmium	$\Omega G/\Gamma$	0.54	14%	3.84	0		7	0.4 U	0.54	0.4 U	0.4 U
Calcium	$\Omega G/\Gamma$	74200	100%		0	7	7	74200	26600	00609	61100
Chromium	$\Omega G/\Gamma$	9	71%	139,45	0	5	7	1.9	4.3	1.1	0.6 U
Cobalt	NG/L	м	29%	2	0	2	7	0.6 U	2.8	0.6 U	0.6 U
Copper	NG/L	11.2	%98	17.32	0	9	7	1.4	7.2	1.2	2
Cyanide, Amenable	MG/L	0	%0		0	0	7	0.01 U	0.01 U	0.01 U	0.01 U
Cyanide, Total	MG/L	0	%		0	0	7	0.01 U	0.01 U	0.01 U	0.01 U
Iron	NG/L	3410	71%	300	2	5	7	32.3 J	3080	17.3 U	17.3 U
Lead	NG/L	26.3	21%	1.4624632	4	4	7	2.1 U	21	4.3 J	2.1 U
Magnesium	UG/L	11100	100%		0	7	7	11100	7240	7790	9200

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#### SURFACE WATER SAMPLE RESULTS **SEAD-1211** Table C-9

### SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility							SEAD-121I	SEAD-1211	SEAD-1211	SEAD-1211
οŢ	Location ID							SW121I-1	SW121I-10	SW121I-2	SW1211-3
	Matrix							SW	SW	SW	SW
Ø	Sample ID						٠	1211-3000	1211-3010	1211-3001	1211-3002
Sample Depth to Top of Sample	f Sample							0	0	0	0
Sample Depth to Bottom of Sample	f Sample							N/A	N/A	N/A	N/A
San	Sample Date							11/6/2002	11/6/2002	11/6/2002	11/6/2002
	OC Code							SA	SA	SA	SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI
	~	Maximum	Jo	Criteria	Jo	of Times	Jo	1		1	1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Manganese	NG/L	206	100%		0	7	7	18	139	0.8	1.7
Mercury	NG/L	0	%0	0.0007	0	0	7	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	NGV	3.6	78%	99.92	0	2	7	1.8 U	3.5	1.8 U	1.8 U
Potassium	NG/L	4640	100%		0	7	7	2400 J	3200 J	1700 J	1290 J
Selenium	NGV	2.5 3	14%	4.6	0	_	7	3 U	3 U	3 U	3 U
Silver	NGV	0	%0	0.1	0	0	7	10	1 U	1 0	1 U
Sodium	NGV	38500	100%		0	7	7	18700 J	38500 J	14900 J	30900 J
Thallium	NG/L	0	%0	∞	0	0	7	5.4 U	5.4 U	5.4 U	5.4 U
Vanadium	NGV	3.9	43%	14	0	m	7	2.1	3.3	0.7 U	0.7 U
Zinc	NG/L	190	100%	159.25		7	7	15.9	54.1	12.5	16.4
Other											
Total Petroleum Hydrocarbons	MG/L	0	%0		0	0	7	1 U	1 U	1 U	1 U

0)

NOTES:

Action Levels are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
 Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
 The maximum detected concentration was obtained from the average of the sample (1211-3007) and its duplicate (1211-3005).

 $U={\rm compound}$  was not detected  $J={\rm the}$  concentration  $UJ={\rm the}$  compound was not detected; the associated reporting limit is approximate  $R={\rm the}$  data was rejected in the data validating process

## Table C-9 SURFACE WATER SAMPLE RESULTS SEAD-1211 SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility							SEAD-1211	SEAD-1211	SEAD-121I	SEAD-1211
מ	Location ID							SW121I-5	SW121I-6	SW121I-7	SW121I-7
	Matrix							SW	SW	SW	SW
.,	Sample ID							1211-3004	1211-3006	1211-3007	1211-3005
Sample Depth to Top of Sample	of Sample							0	0	0	0
Sample Depth to Bottom of Sample	of Sample							N/A	N/A	N/A	N/A
Sa	Sample Date							11/6/2002	11/6/2002	10/26/2002	10/26/2002
	OC Code							SA	SA	SA	SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum	Jo	Criteria	Jo	of Times	Jo	1	1	-	1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Volatile Organic Compounds											
1,1,1-Trichloroethane	UG/L	0	%0		0	0	7	0.75 U	0.75 U	2 U	5 U
1,1,2,2-Tetrachloroethane	T/90	0	%0		0	0	7	0.7 U	0.7 U	S U	5 U
1,1,2-Trichloroethane	NG/L	0	%0		0	0	7	0.62 U	0.62 U	5 U	5 U
1,1-Dichloroethane	UG/L	0	%0		0	0	7	0.66 U	0.66 U	5 U	5 U
1,1-Dichloroethene	NG/L	0	%0		0	0	7	0.69 U	O 69.0	2 U	5 U
1,2-Dichloroethane	NG/L	0	%0		0	0	7	0.56 U	0.56 U	5 U	5 U
1,2-Dichloropropane	NG/L	0	%0		0	0	7	0.73 U	0.73 U	\$ U	5 U
Acetone	T/DN	0	%0		0	0	7	3.5 U	3.5 U	s UJ	5 UJ
Benzene	NG/T	0	%0		0	0	7	0.71 U	0.71 U	5 U	5 U
Bromodichloromethane	T/DN	0	%0		0	0	7	0.73 U	0.73 U	5 U	5 U
Вготобот	NG/T	0	%0		0	0	7	0.49 U	0.49 U	5 U	5 U
Carbon disulfide	NG/T	0	%0		0	0	7	0.72 U	0.72 U	5 U	5 U
Carbon tetrachloride	NG/L	0	%0		0	0	7	0.47 U	0.47 U	5 U	5 U
Chlorobenzene	T/DN	0	%0	5	0	0	7	0.78 U	0.78 U	S U	5 U
Chlorodibromomethane	NG/L	0	%0		0	0	7	0.66 U	0.66 U	s ui	5 UJ
Chloroethane	T/DN	0	%0		0	0	7	2.4 U	2.4 U	s UJ	s UI
Chloroform	UG/L	0	%0		0	0	7	0.61 U	0.61 U	2 U	5 U
Cis-1,2-Dichloroethene	NG/L	0	%0		0	0	7	0.62 U	0.62 U	5 U	5 U
Cis-1,3-Dichloropropene	NG/L	0	%0		0	0	7	0.66 U	0.66 U	S U	5 U
Ethyl benzene	$\Omega G/\Gamma$	0.	%0		0	0	7	0.76 U	0.76 U	2 U	5 U
Meta/Para Xylene	NG/L	0	%0		0	0	7	1.5 U	1.5 U	S U	5 U
Methyl bronnide	NG/L	0	%0		0	0	7	0.38 U	0.38 U	2 U	5 U
Methyl butyl ketone	NG/L	0	%0		0	0	7	0.6 U	0.6 U	5 U	5 U
Methyl chloride	$\Omega G/\Gamma$	0	%0		0	0	7	0.51 U	0.51 U	5 U	5 U
Methyl ethyl ketone	T/DN	0	%0		0	0	7	2.3 U	2.3 U	s ui	s UJ
Methyl isobutyl ketone	$\Omega G/\Gamma$	0	%0		0	0	7	0.81 U	0.81 U	5 U	5 U
Methylene chloride	NG/L	0	%0		0	0	7	1.8 U	1.8 U	2 U	5 U
Ortho Xylene	$\Omega G/\Gamma$	0	%0		0	0	7	0.72 U	0.72 U	2 U	5 U
Styrene	UG/L	0	%0		0	0	7	0.92 U	0.92 U	5 U	5 U
Tetrachloroethene	$\Omega G/\Gamma$	0	%0		0	0	7	0.7 U	0.7 U	5 U	5 U
Toluene	$\Omega G/\Gamma$	0	%0	0009	0	0	7	0.71 U	0.71 U	2 U	5 U
Trans-1,2-Dichloroethene	NG/L	0	%0		0	0	7	0.81 U	0.81 U	2 U	5 U
Trans-1,3-Dichloropropene	$\Omega G/\Gamma$	0	%0		0	0	7	. 0.66 U	0.66 U	s UI	s ui
Trichloroethene	NG/L	0	%0	40	0	0	7	0.72 U	0.72 U	5 U	5 U
Vinyl chloride	NG/L	0	%0		0	0	7	0.79 U	0.79 U	s UJ	s UJ

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# Table C-9 SURFACE WATER SAMPLE RESULTS SEAD-121I

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

200	Facility Location ID							SEAD-1211 SW1211-5	SEAD-1211 SW1211-6	SEAD-1211 SW1211-7	SEAD-1211 SW1211-7
	Matrix							SW	SW	SW	MS.
Sar	Sample ID							1211-3004	1211-3006	1211-3007	1211-3005
Sample Depth to Top of Sample	Sample							0	0	0	0
Sample Depth to Bottom of Sample	Sample							A/A	N/A	N/A	A/A
Samp	Sample Date							. 11/6/2002	11/6/2002	10/26/2002	10/26/2002
S W	Study ID		Frequency		Number	Number	Number	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI
		Maximum	Jo	Criteria	Jo	of Times	Jo	1 -	1 -	-	1 1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Semivolatile Organic Compounds	i i										
1,2,4-Trichlorobenzene	NG/L	0	%0	5	0	0	7	10 U	10 U	10 U	10 UJ
1,2-Dichlorobenzene	NG/L	0	%0	5	0	0	7	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	NG/L	0	%0	2	0	0	7	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	NG/L	0	%0	5	0	0	7	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	NG/L	0	%0		0	0	4	10 R	10 U	10 U	10 R
2,4,6-Trichlorophenol	NG/L	0	%0		0	0	4	10 R	10 U	10 U	10 R
2,4-Dichlorophenol	$\Omega G/\Gamma$	0	%0	1	0	0	4	10 R	10 U	10 U	10 R
2,4-Dimethylphenol	NG/L	0	%0	1000	0	0	4	10 R	10 U	10 U	10 R
2,4-Dinitrophenol	NG/L	0	%0	400	0	0	4	10 R	10 UJ	10 UJ	10 R
2,4-Dinitrotoluene	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
2-Chloronaphthalene	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
2-Chlorophenol	NG/L	0	%0		0	0	4	10 R	10 U	10 U	10 R
2-Methylnaphthalene	NG/L	0	%0	4.7	0	0	7	10 U	10 U	10 U	10 U
2-Methylphenol	NG/L	0	%0		0	0	4	10 R	10 U	10 U	10 U
2-Nitroaniline	$\Omega G/\Gamma$	0	%0		0	0	7	10 UJ	10 UJ	10 UJ	10 U
2-Nitrophenol	UG/L	0	%0		0	0	4	10 R	10 U	10 U	10 R
3 or 4-Methylphenol	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 UJ
3,3'-Dichlorobenzidine	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 R
3-Nitroaniline	$\Omega G/\Gamma$	0	%0		0	0	7	10 UJ	10 UJ	10 U	10 U
4,6-Dinitro-2-methylphenol	$\Omega G/\Gamma$	0	%0		0	0	4	10 R	10 UJ	10 U	10 R
4-Bromophenyl phenyl ether	NG/L	0	%0		0	0	7	10 UJ	10 OI	10 U	10 U
4-Chloro-3-methylphenol	UG/L	0	%0		0	0	4	10 R	10 U	10 U	10 R
4-Chloroaniline	$\Omega G/\Gamma$	0	%0		0	0	7	10 UJ	10 UI	10 U	10 U
4-Chlorophenyl phenyl ether	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
4-Nitroaniline	$\Omega G/\Gamma$	0	%0		0	0	7	10 UJ	10 UJ	10 U	10 U
4-Nitrophenol	$\Omega G/\Gamma$	0	%0		0	0	4	10 R	10 UJ	10 U	10 R
Acenaphthene	$\Omega G/\Gamma$	0	%0		0	0	7	10 U	10 U	10 U	10 CI
Acenaphthylene	$\Omega G/\Gamma$	0	%0		0	0	7	10 U	10 U	10 U	10 U
Anthracene	$\Omega G/\Gamma$	0	%0		0	0	7	10 U	10 U	10 U	10 U
Benzo(a)anthracene	$\Omega G/\Gamma$	0	%0		0	0	7	10 U	10 U	10 U	10 U
Benzo(a)pyrene	$\Omega G/\Gamma$	0	%0		0	0	7	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Benzo(ghi)perylene	$\Omega G/\Gamma$	0	%0		0	0	7	10 UJ	10 UJ	10 U	10 U
Benzo(k)fluoranthene	$\Omega G/\Gamma$	0	%0		0	0	7	10 U	10 U	10 U	10 U
Bis(2-Chloroethoxy)methane	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U

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# Table C-9 SURFACE WATER SAMPLE RESULTS SEAD-1211

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility							SEAD-1211	SEAD-121I	SEAD-1211	SEAD-1211
ol	Location ID							SW121I-5	SW121I-6	SW1211-7	SW1211-7
	Matrix						•	SW	SW	SW	SW
S	Sample ID							1211-3004	1211-3006	1211-3007	1211-3005
Sample Depth to Top of Sample	of Sample							0	0	0	0
Sample Depth to Bottom of Sample	of Sample							N/A	N/A	N/A	N/A
Sar	Sample Date							11/6/2002	11/6/2002	10/26/2002	10/26/2002
	QC Code Study ID		Frequency		Number	Number	Number	SA PID-RI	SA PID-RI	SA PID-RI	SA PID-RI
		Maximum	Jo	Criteria	of	of Times	Jo	1	1	1	1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Bis(2-Chloroethyl)ether	UG/L	0	%0		0	0	7	10 U	10 U	IO 0I	10 UJ
Bis(2-Chloroisopropyl)ether	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Bis(2-Ethylhexyl)phthalate	UG/L	0	%0	9.0	0	0	7	10 U	10 U	10 U	10 U
Butylbenzylphthalate	$\Omega G/\Gamma$	1.1	14%		0	1	7	10 U	10 U	10 U	10 U
Carbazole	UG/L	0	%0		0	0	7	10 UJ	10 UI	10 U	10 U
Chrysene	$\Omega G/\Gamma$	0	%0		0	0	7	10 UJ	10 UI	10 U	10 U
Di-n-butylphthalate	$\Omega G/\Gamma$	0	%0		0	0	7	10 OI	10 UJ	10 U	10 U
Di-n-octylphthalate	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	$\Omega G/\Gamma$	0	%0		0	0	7	10 UI	10 UJ	10 U	10 U
Dibenzofuran	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Diethyl phthalate	UG/L	0	%0		0	0	7	10 UJ	10 UJ	10 U	10 U
Dimethylphthalate	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Fluoranthene	UG/L	1.1	14%		0	1	7	10 U	1.1 J	10 U	10 U
Fluorene	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Hexachlorobenzene	$\Omega G/\Gamma$	0	%0	0.00003	0	0	7	10 UJ	10 UJ	10 U	10 U
Hexachlorobutadiene	UG/L	0	%0	0.01	0	0	7	10 U	10 U	10 UJ	10 UJ
Hexachlorocyclopentadiene	$\Omega G/\Gamma$	0	%0	0.45	0	0	7	10 UJ	10 UJ	10 UJ	10 UJ
Hexachloroethane	NG/L	0	%0	9.0	0	0	7	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	UG/L	0	%0		0	0	7	10 UJ	10 UI	10 U	10 UJ
Isophorone	NG/L	0	%0		0	0	7	10 U	10 U	10 UJ	10 U
N-Nitrosodiphenylamine	UG/L	0	%0		0	0	7	10 U	10 U	10 UJ	10 UJ
N-Nitrosodipropylamine	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Naphthalene	NG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Nitrobenzene	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Pentachlorophenol	$\Omega G/\Gamma$	0	%0	1	0	0	4	10 R	10 UJ	10 U	10 R
Phenanthrene	UG/L	0	%0		0	0	7	10 U	10 U	10 U	10 U
Phenol	UG/L	0	%0	5	0	0	4	10 R	10 U	10 U	10 R
Pyrene	UG/L	0	%0		0	0	7	10 UJ	. 10 UJ	10 U	10 U
Pesticides/PCBs											
4,4'-DDD	NG/L	0	%0	8000000	0	0	7	0.01 U	0.01 U	0.01 UJ	0.01 UJ
4,4'-DDE	UG/L	0	%0	0.000007	0	0	7	0.005 U	0.005 U	0.005 UJ	0.005 UJ
4,4'-DDT	UG/L	0	%0	0.00001	0	0	7	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Aldrin	UG/L	0	%0	0.001	0	0	7	0.02 U	0.02 U	0.02 UJ	0.02 UJ
Alpha-BHC	$\Omega G/L$	0	%0		0	0	7	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Alpha-Chlordane	UG/L	0	%0		0	0	7	0.02 U	0.02 U	0.02 UJ	0.02 UJ
Beta-BHC	NG/L	0	%0		0	0	7	0.01 U	0.01 U	0.01 UJ	0.01 UJ
Chlordane	NG/L	0	%0		0	0	7	0.13 U	0.13 U	0.13 U	0.13 U

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# Table C-9 SURFACE WATER SAMPLE RESULTS SEAD-1211

SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility							SEAD-1211	SEAD-1211	SEAD-1211	SEAD-1211
	I ocation ID							SW1211-5	SW121I-6	SW1211-7	SW1211-7
	Matrix							SW	SW	SW	SW
	Sample ID							1211-3004	1211-3006	1211-3007	1211-3005
Sample Depth to Top of Sample	op of Sample							0	0	0	0
Sample Depth to Bottom of Sample	m of Sample							N/A	N/A	N/A	N/A
	Sample Date							11/6/2002	11/6/2002	10/26/2002	10/26/2002
	QC Code							SA	SA	SA	SA
	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum	Jo	Criteria	Jo	of Times	of o	<b>,</b> 4	<b></b> 4	-	1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Delta-BHC	UG/L	0	%0		0	0	7	0.004 U	0.004 U	0.004 UJ	0.004 UJ
Dieldrin	UG/L	0	%0	0.0000006	0	0	7	0.009 U	O.009 U	0.009 UJ	0.009 UJ
Endosulfan I	UG/L	0	%0	600.0	0	0	7	0.01 U	0.01 U	0.01 UJ	0.01 UJ
Endosulfan II	UG/L	0	%0	0.009	0	0	7	0.01 UJ	0.01 UJ	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0	%		0	0	7	0.02 U	0.02 U	0.02 U	0.02 U
Endrin	NG/L	0	%0	0.002	0	0	7	0.02 U	0.02 U	0.02 UJ	0.02 UJ
Endrin aldehyde	NG/L	0	%0		0	0	7	0.02 U	0.02 U	0.02 U	0.02 U
Endrin ketone	UGL	0	%0		0	0	7	O.009 U	0.009 U	0.009 U	O.000 U
Gamma-BHC/Lindane	UG/L	0	%0		0	0	7	O.009 U	O.009 U	0.009 UJ	0.009 UJ
Gamma-Chlordane	UG/L	0	%0		0	0	7	0.01 U	0.01 U	0.01 UJ	0.01 UJ
Heptachlor	NG/L	0	%0	0.0002	0	0	7	0.007 U	0.007 U	0.007 UJ	0.007 UJ
Heptachlor epoxide	UG/L	0	%0	0.0003	0	0	7	0.008 U	0.008 U	0.008 UJ	0.008 UJ
Methoxychlor	NG/L	0	%0	0.03	0	0	7	0.008 U	0.008 U	0.008 U	0.008 U
Toxaphene	UG/L	0	%0	0.000000	0	0	7	0.12 U	0.12 U	0.12 U	0.12 U
Aroclor-1016	UG/L	0	%	0.000001	0	0	7	0.24 UJ	0.24 UJ	0.5 UJ	0.5 UJ
Aroclor-1221	UG/L	0	%0	0.000001	0	0	7	0.08 U	0.08 U	0.5 U	0.5 U
Aroclor-1232	UG/L	0	%0	0.000001	0	0	7	0.09 UJ	0.09 UJ	0.5 UJ	0.5 UJ
Aroclor-1242	$\Omega G \mathcal{I}$	0	%0		0	0	7	0.08 UJ	0.08 UJ	0.5 U	0.5 U
Aroclor-1248	UG/L	0	%0	0.000001	0	0	7	0.12 U	0.12 U	0.5 U	0.5 U
Aroclor-1254	NG/L	0	%0	0.000001	0	0	7	0.05 U	0.05 U	0.5 U	0.5 U
Arocior-1260	UG/L	0	%0	0.000001	0	0	7	0.01 UJ	0.01 UJ	0.5 UJ	0.5 UJ
Metals and Cyanide											
Aluminum	UG/L	2050	100%	100	М	7	7	119	2050	45.8	46.3
Antimony	NGA	0	%0		0	0	7	4.7 U	4.7 U	3.8 U	3.8 U
Arsenic	NG/L	0	%0	150	0	0	7	2.8 U	2.8 U	4.5 U	4.5 U
Barium	UG/L	49.2	%98		0	9	7	29.3	22.5	O 6.6	0.9 U
Beryllium	NG/L	0.28	%98	1100	0	9	7	0.14	0.28	0.1 U	0.1 U
Cadmium	NG/L	0.54	14%	3.84	0	1	7	0.4 U	0.4 U	0.8 U	0.8 U
Calcium	$\Omega G/\Gamma$	74200	100%		0	7	7	33500	67200	18300	17700
Chromium	NG/L	9	71%	139.45	0	2	7	1.5	9	1.4 U	1.4 U
Cobalt	$\Omega G/\Gamma$	٣	78%	2	0	2	7	0.6 U	e	0.7 U	0.7 U
Copper	UG/L	11.2	%98	17.32	0	9	7	2	11.2	3.6 U	3.6 U
Cyanide, Amenable	MG/L	0	%0		0	0	7	0.01 U	0.01 U	0.01 U	0.01 U
Cyanide, Total	MG/L	0	%0		0	0	7	0.01 U	0.01 U	0.01 U	0.01 U
Iron	NG/L	3410	71%	300	2	2	7	90.1 J	3410	41.8 J	41.8 J
Lead	NG/L	26.3	21%	1.4624632	4	4	7	6.6 J	26.3	3 C	3 C
Magnesium	NG/L	11100	100%		0	7	7	4130	7290	3660	3610

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SURFACE WATER SAMPLE RESULTS **SEAD-121I** Table C-9

## SEAD-121C and SEAD-121I RI REPORT Seneca Army Depot Activity

	Facility							SEAD-121I	SEAD-1211	SEAD-1211	SEAD-1211
Loc	Location ID							SW1211-5	SW121I-6	SW121I-7	SW1211-7
	Matrix							SW	SW	SW	SW
Sai	Sample ID							1211-3004	1211-3006	1211-3007	1211-3005
Sample Depth to Top of Sample	Sample							0	0	0	0
Sample Depth to Bottom of Sample	Sample							N/A	N/A	N/A	N/A
Sam	Sample Date							11/6/2002	11/6/2002	10/26/2002	10/26/2002
0	C Code							SA	SA	SA	SA
S	Study ID		Frequency		Number	Number	Number	PID-RI	PID-RI	PID-RI	PID-RI
		Maximum	of	Criteria	Jo	of Times	Jo	1	1	1	1
Parameter	Units	Value	Detection	Level 1	Exceedances	Detected	Analyses 2	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Manganese	UG/L	206	100%		0	7	7	. 43	206	5.3	3
Mercury	NG/L	0	%0	0.0007	0	0	7	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	UG/L	3,6	29%	99.92	0	2	7	1.8 U	3.6	2 U	2 U
Potassium	UG/L	4640	100%		0	7	7	3050 J	4640 ]	630	099
Selenium	UG/L	2.5 3	14%	4.6	0	1	7	3 U	3 U	3.1 J	1.8 J
Silver	UG/L	0	%0	0.1	0	0	7	1 U	1 U	3.7 U	3.7 U
Sodium	UG/L	38500	100%		0	7	7	3400	4810	2180	2300
Thallium	UG/L	0	%0	00	0	0	7	5.4 U	5.4 U	5.3 U	5.3 U
Vanadium	NG/L	3.9	43%	14	0	3	7	0.7 U	3.9	1.4 UJ	1.4 UJ
Zinc	NG/L	190	100%	159.25		7	7	32.9	190	14.7 J	13.8 J
Other											
Total Petroleum Hydrocarbons	MG/L	0	%0		0	0	7	1 U	1 U	0.412 UJ	0.408 UJ

#### NOTES:

Action Levels are from the New York State Ambient Water Quality Standards, Class C for Surface Water.
 Sample-duplicate pair was averaged and the average results were used in the summary statistic presented in this table.
 The maximum detected concentration was obtained from the average of the sample (1211-3007) and its duplicate (1211-3005).

U= compound was not detected J= the reported value is an estimated concentration UJ= the compound was not detected; the associated reporting limit is approximate R= the data was rejected in the data validating process

#### APPENDIX D

#### SENECA SITE-WIDE BACKGROUND DATA

- D-1
- Background Soil Data Background Groundwater Data D-2

		• ,	:		
				•	

- m 501	B-8-91	B-8-91	B-8-91	B-8-91	B-9-91	B-9-91	B-9-91	BK-1	BK-2
OC CODE:	SA	SA	SA	SA	SA	SA	SA	SA	SA
STUDY ID:	RI PHASE1	RI PHASE1	RI PHASE1	RI PHASE1	RI PHASE1	RI PHASE1	RI PHASE1	RI PHASE1	RI PHASEI
TOP:									
BOTTOM:									
MATRIX:	SOIL	SOIL	SOIL	TIOS	SOIL	SOIL	SOIL	SOIL	SOIL
SAMPLE DATE:	11/02/91	11/02/91	11/02/91	11/02/91	11/05/91	11/02/91	16/50/11	12/16/92	12/16/92
SAMP ID:	S1105-	S1105-	S1105-	S1105-	S1105-	S1105- 29SOIL1	S1105-	BK-1SOIL3	BK-2RESOIL3
	VALUE (O)	VALUE(O)	VALUE (0)	VALUE(0)	VALUE (O)	VALUE (O)	VALUE (0)	VALUE (0)	VALUE
u	19200	20500	17700	12700	14800	0888	7160	19400	14400
A	10.3 UJ	8.8 UJ	8.2 UJ	8.4 UJ	UJ 6:6	U 6.6	tU 7	U 6.7	7.2
	5.1 J	6.1 3	6 9	4.2 J	4.3 J	3.8 J	1 4.4	8	2.7
	136 J	98.9 J	86.7 J	56.2 J	101 J	110 J	39.9 J	159	106
u	1.4	1.2	-	0.78 J	1.1	0.76	0.52 J	1.1	0.81
ı	2.6	2.9	2.4	1.9	2.3	1.7	1.5	0.45 U	0.41
	5390	4870	3560	85900	45600	104000	101000	4590	22500
m	27.4 J	30.1 J	26.9 J	19.8 J	22.5 J	13.8 J	11.2 J	30	22.3
	13.8	18.4	14	14.2	13.7	10.7	8.1	14.4	12.3
	22.3	27.6	26	16.2	22.6	21.6	19.3	26.9	18.8
	0.6 U	0.63 U	0.67 U	0.58 U	U 7.0	0.63 U	0.62 U	0.57 U	19.0
	37200	36100	32500	27400	31000	00961	17300	38600	26600
	14.5	11.4	13.6	10.1	10.8	10.1	7.8	15.8	18.9
ш	5850	7300	6490	6720	0988	17000	12600	2980	7910
se	1130	926	832	926	903	532	514	2380	800
	0.09	0.06 J	0.06 J	0.05 J	0.08 J	0.04 J	0.05 J	0.13 J	0.11
	42.3	48.7	44.4	30.4	38.4	23.8	19	47.7	31
u	1910	2110	1760	1430	1320	1080	1050	1720	1210
	0.17 UJ	0.21 UJ	0.2 UJ	0.61 UJ	0.21 UJ	0.65 UJ	0.21 UJ	0.73	0.94
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	79.2 U	07.5 U	62.6 U	75.3 J	84.2 J	112 J	116 J	49.1	61.1
	0.47 U	0.58 U	U 257 U	0.34 U	U 65.0	0.36 U	0.6 U	0.42 U	0.38
n	32.2	25.4	26.4	15.7	19.7	19.5	12.9	28	22.4
	85.1 J	94.2 J	85 J	75 J	126 J	84.3 J	74.8 J	9.86	63.7
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TOC ID:	GB35	GB35	GB35	GB36	GB36	MW-36	MW-34	SB24-5	SB24-
OC CODE:	SA	YS .	DO	SA	SA	SA	SA	SA	SA
STUDY ID:	RI PHASE1	RI PHASE1	RI PHASE!	RI PHASE1	RI PHASE1 R	RI Phase 1 Step 1	RI PHASE1	ESI	ES
TOP:						-1			•
BOTTOM:						-1-		- 1	•
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOII
SAMPLE DATE:	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/11/93	11/20/91	12/02/93	12/02/9
SAMP ID:	GB35-1GRID	GB35-2GRID	GB35- 6DUGRID	GB36-1GRID	GB36-2GRID	MW36-3GRID	S2011121MW 34GRID	SB24-5-1	SB24-5-
V,		(O)	L	VALUE(Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE(Q)	VALU
m	18000	17600	16200	18100	16200	12700	16100	16200	1010
ay	5.8 UJ	6.8 J	6.3 J	5.9 J	5.8 UJ	S.7 UJ	5.7 J	12.5 UJ	5.
	6.2	7.7	5.3	4.6	7.6	2.9 J	6.3 U	4.2	3.
	93.6	61.7	61.7	74.8	8.08	46.9 J	67.5	117	58.
Wi China	0.85	0.74	0.77	0.77	0.65	0.59	98.0	0.98 J	0.4
tr.	0.33 U	0.31 U	0.35 U	0.3 U	0.33 U	0.33 U	2.3	0.78 U	0.3
	1590	17700	1370	1660	22900	4170	28600	4540	7420
m	23.5	29.3	25.1	24.8	27.4	23.3 J	26.6	24.5	16.
	9.4	16.3	10.3	20.4	13.2	18.6	17	16	80
	17.5	24.5	17.2	17.7	17.5	19.2 J	32.7	28.4	20.
43	0.78 U	0.71 U	0.82 U	0.7 U	0.68 U	0.56 U	0.54 U	0.6 U	0.5
	25200	34200	30800	26100	30700	27500	35000	33600	2130
	14.4	5.4	1.61	12.7	6.2	20.2	11.9	45.5 J	οó
ium	3850	7790	4490	4490	7150	5750	6850	5150	1210
lese	102	646	775	426	202	240	803	1080	40
×	0.06 J	0.03 U	0.07 J	0.02 J	0.02 J	0.02 J	0.07 R	0.07 JR	0.0
	26.3	48.7	28.3	28.3	42.8	43.3 J	49.3 J	37.3	26.
mı	1110	1110	975	1400	1100	754	1290	1170 J	66
u	0.23 UJ	0.23 UJ	0.21 UJ	0.2 UJ	0.18 UJ	0.19 UJ	0.18 UJ	0.15 UJ	0.2
	0.34 U	0.32 U	0.36 U	0.31 U	0.34 U	0.34 U	0.87	1.6 U	0.7
	35.6 J	77.5 J	34.6 J	46.6 J	97.6 J	31.6 U	55.2 J	50.9 J	15
m	0.55 U	0.54 U	0.5 U	0.46 U	0.43 U	0.45 U	0.51 U	0.16 U	0.2
un	27.1	22.3	26.1	27.8	19.7	16.2 J	22.3	29.9	14.
	55	83.4	53.1	59.2	74.1	34.7 J	95.7	85.7	62.
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POT	LOC ID: SB24-5	5	MW25-1	MW25-1	MW25-6	MW25-6	MW25-6	MW25-6	MW64A-I	MW04A-1
500	QC CODE:	SA	SA	SA	SA	SA	SA	DO	SA	SA
STUE	STUDY ID: E	ESI	ESI	ESI	RI ROUNDI	RI ROUNDI	RI ROUNDI	RI ROUNDI	ESI	ESI
	TOP:	1-	0	2	0	4	9	0	0	2.
BOT	BOTTOM:	7	2	4	0.17	9	00	0.17	0.2	4
MA	MATRIX: SOIL	IL	SOIL							
SAMPLE DATE:	DATE: 12/02/93	93	12/03/93	12/03/93	09/25/95	09/25/95	09/25/95	09/25/95	04/02/94	04/02/94
SAN	SAMP ID: SB24-5-5	5	SB25-6-01	SB25-6-02	SB25-7-00	SB25-7-03	SB25-7-04	SB25-7-10	MW64A-1-1	MW64A-1-2
		VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE
u	13700	00	10600	7070	12500	8020	7550	12500	16100	19800
,	11	11.3 UJ	4.2 U	3 U	0.4	0.42 UJ	0.44 U	0.4 UJ	0.23 J	0.2
		5	8.3	4.8	4.3	4.1	3.4	4.3	7.1	8.2
	19	67.2	59.1	35	71.3	58	52	71.3	83.7	91.2
ı	0.0	0.62 J	0.48 J	0.35 J	0.56	0.43	0.39	0.56	0.68 J	0.74
	0	0.7 U	0.41 U	0.29 U	0.05 U	0.06 U	0.06 U	0.05 U	0.11 J	0.02
	49000	00	82500	122000	47400 J	120000 J	133000 J	47400 J	7210	4300
п	23	23.1	16.9	11.3	16.9 J	13.7 J	12.4 J	16.9 J	23	25
		12	11.2	f 9.9	8	8:2	6.9	00	11.8	11.3
	22	22.2	20.2 J	12 J	15.7	17.7	16.4	15.7	25.5	21
	.0	0.57 U	0.58 U	0.64 U	0.44 U	U 75.0	U 15.0	0.444 U	U 99.0	0.56
	26700	00	21400	15800	20500	18900	15400	20500	28500	28000
	7	7.9 J	9.5	13.8	11.1	7	6.5	11.1	21.6	13.6
m	11400	00	19600	22800	11700	17400	20700	11700	5480	5010
se	4.	450	722 J	610 J	452	735	402	452	558	604
	0.0	0.04 JR	0.03 J	0.04 U	0.03	0.02	0.01	0.03	0.05 J	0.03
	35	35.2	26.8	18	22.3	26.4	22.4	22.3	32.2	28.6
U	1660	09	1480	1060	1110	1280	1430	1110	2590 J	2260
	00	0.22 UJ	0.97 J	0.63 J	0.63 U	U 2.0	0.74 U	0.66 U	96.0	1.7
		1.4 U	0.82 U	0.59 U	0.89 U	0.98 U	1 U	0.92 U	0.12 U	0.14
		139 J	269 J	186 J	59.9	89.1	110	57.5	27.5 U	31.8
	0.	0.24 U	0.24 UJ	0.21 UJ	1.2	1.1	0.6 U	1.2	0.42 J	0.32
u	15	19.5	18.5	12	21	13.4	13.7	21	27.6	32.2
	63	63.2	71.6 J	40.6 J	54.1	64.9	65.1	54.1	104	87.1
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Delicity   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   Color   C	STIDY ID.	FCI	FCI	FCI	FCI	FCI	FCI	FSI	FSI	FS
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MATRIED         SORID         CONDIN         AVAILE (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)         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)         V	BOTTOM:	. 9	0.2	9	00	80	0.2	4	5	0.
SAMPLE DATE         G071394         MW672-23         MW672-23         MW672-23         MW672-23         MW672-24         MW672-	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOI
NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME   NAME	SAMPLE DATE:	04/02/94	05/13/94	05/13/94	05/13/94	05/13/94	03/30/94	03/30/94	03/30/94	05/11/9
WALLIE (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)         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)         VALUE (Q)         VALUE (Q)         VALUE (Q)         VALUE (Q)         VALUE (Q)         VALUE (Q)         VALUE (Q)         <	SAMP ID:	MW64A-1-3	MW64B-1-1	MW64B-1-2	MW64B-1-3	MW64B-1-04	MW67-2-1	MW67-2-2	MW67-2-3	MW70-1-
12600   12600   13400   8850   7650   7650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650   1650		VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALUE(Q)	VALU
6 (1)         6 (1)         0 (1)         0 (1)         0 (1)         0 (1)         0 (1)         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)         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)         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)         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)         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)         0 (2)         0 (2)         0 (2)         0 (2)         0 (2)         0 (2) <th< td=""><td>un</td><td>12600</td><td>13400</td><td>8870</td><td>7620</td><td>7620</td><td>00291</td><td>14900</td><td>9460</td><td>1220</td></th<>	un	12600	13400	8870	7620	7620	00291	14900	9460	1220
6.23         7.5         4.5         5.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         4.5         6.5         1         6.5         7.5         6.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5         7.5	ay	0.2 UJ	0.3 J	0.15 UJ	0.15 UJ	0.15 UJ	0.27 J	0.22 J	0.2 UJ	0.2
6.23         73.5         70.8         76.7         76.7         114         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5         10.5		5	5.5	4.3	5.5	5.5	4.4	4.5	4.2	5.
0.53   J. 0.64 j         0.43 j         0.43 j         0.43 j         0.43 j         0.64 j         0.64 j         0.64 j         0.64 j         0.64 j         0.63 j         0.61 j         0.64 j         0.63 j         0.64 j         0.64 j         0.64 j         0.64 j         0.64 j         0.64 j         0.64 j         0.64 j         0.64 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.61 j         0.62 j         0.62 j         0.62 j         0.62 j         0.62 j         0.62 j         0.62 j         0.62 j         0.62 j         0.62 j         0.62 j         <		62.3	75.5	70.8	76.7	76.7	114	105	80.8	. 67.
0 (12)         (0.6)         1 (0.4)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)         (0.41)<	m	0.53 J	0.56 J	0.43 J	0.37 J	0.37 3	0.67 J	0.61 J	0.4 J	0.4
12400         5520         7000         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         77800         7	ш	0.12 J	0.63 J	0.64 J	0.54 J	0.54 J	0.2 J	0.11 J	0.12 J	0.5
11   11   11   11   11   11   11   1	T .	72400	5530	70000	75900	75900	3580	79000	77800	360
9   1         72   1         10   1         74   1         75   1         104   1         97   1           1   237   0.55   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50   0.50	m	61	17.5	14.1	13.5	13.5	19.5	22.5	14.8	13
name         237         189         202         176         176         165         203         203         2045           considered to the date of the control of the part of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of the date of		9.1 J	7.2 J	10	7.4 J	7.4 J	7.5 J	10.4 J	9.7 J	5.
0.55 U         0.65 U         0.65 U         0.64 U         0.64 U         0.64 U         0.65 U         0.64 U         0.65 U         0.65 U         0.64 U         0.65 U         0.64 U         0.65 U         0.64 U         0.65 U         0.64 U         0.65 U         0.64 U         0.65 U         0.64 U         0.65 U         0.64 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U         0.65 U<		23.7	18.9	20.2	17.6	17.6	16.5	20.3	20.5	12.
154   22600   18400   17100   17100   20500   24400   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700   18700	43	0.55 U	U 9.0	0.5 U	0.48 U	0.48 U	0.64 U	0.5 U	0.54 U	
n         154         214         8.8         8.3         8.3         17.5         9.3         9.3           n         14800         3720         1890         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150         2150		22600	20900	18400	17100	17100	20500	24400	18700	1770
n         14800         3720         18900         21500         438         438         438         438         438         438         438         438         438         438         438         438         438         438         438         438         438         438         528         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7		15.4	21.4	8.8	8.3	8.3	17.5	9.3	8.5	20.
9 condition         402         207         434         389         438         438         528         528         438         528         389         438         528         528         389         438         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         522         187         523         523         528         528         523         528         523         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528         528 <th< td=""><td>ium</td><td>14800</td><td>3720</td><td>18900</td><td>21500</td><td>21500</td><td></td><td></td><td></td><td>283</td></th<>	ium	14800	3720	18900	21500	21500				283
ound was not detected und rate reported the reportant of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part of a part	lese	402	207	434	389	389	438	528	411	23
26.7         19.8         28.2         22.6         18.7         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3         32.3 <th< td=""><td>y</td><td>0.02 J</td><td>0.05 J</td><td>0.02 J</td><td>0.01</td><td>0.01 U</td><td>0.04</td><td>0.01</td><td>0.02 J</td><td>0.</td></th<>	y	0.02 J	0.05 J	0.02 J	0.01	0.01 U	0.04	0.01	0.02 J	0.
1700   1700   1630   1650   1650   1780   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 3160   1 31		26.7	19.8	28.2	22.6	22.6	18.7	32.3	25.9	12.
many was rejected in the data experimental value is approximate the data was rejected in the data an expension of the data was "tentatively identified"         0.14 (U or) 0.16 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (U or) 0.11 (	ш	2700 J	1700	1630	1650	1650	1780 J	3160 J	1970 J	98
4 Composition         0.14 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.11 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)         0.12 (U)	ш	0.34 U	t 66.0	0.26 U	0.57 J	0.57 J	0.81	0.36 U	0.34 U	
4 And the field of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of the class of th		0.14 U	0.16 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 U	0.15 U	0.14 U	
made was not detected with size a percential data of the data in merical value is a societed numerical value is a societed numerical value was not detected; where is a set siected in the data in easing process.         1.4.1 (a)         0.24 (b)         0.24 (c)		92.1 J	35.9 U	96.8 J	79.6 J	79.6	25.1 U	112 J	107 J	36,
and was not detected         64.9         72.2         59         45.6         64.8         28.2         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8         24.8 <td>m</td> <td>0.32 U</td> <td>0.41 J</td> <td>0.24 U</td> <td>0.24 U</td> <td>0.24 U</td> <td>0.48 J</td> <td>0.34 U</td> <td>0.32 U</td> <td></td>	m	0.32 U	0.41 J	0.24 U	0.24 U	0.24 U	0.48 J	0.34 U	0.32 U	
64.9     72.2     59     45.600     64.8     62       64.8     62     64.8     62	um	22.8	23.3	14.8	14.2	14.2	28.2	24.8	16.5	23.
reported was not detected reported value is an estimated reported value is an estimated reported value is an estimated reported value is an estimated compound was not detected; the recompound was no		64.9	72.2	59	45.6	45.600	64.8	62	60.1	55.
inpound was not detected  reported value is an estimated  centration was not detected; the coint and as a sproximate  data was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected in the data identified was rejected was rejected was rejected was rejected was rejected was rejected was rejected was rejected was rejected was re										
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ecompound was not detected; the e compound was not detected; the belated reporting limit is approximate data was rejected in the data identity process mipound was "tentatively identified" if the associated numerical value peroximate	reported value is an estimated									
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I the associated numerical value	mpound was "tentatively identified"									
pproximate	I the associated numerical value									
	approximate									

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		. 000.00					1 6100	CD12.1	N431/12 6
LOC ID:	1-0/ MW	MW /0-1	SB11-3	2B11-3	SB11-3	3B13-1	3513-1	1-0100	0-51 vv 1v1
QC CODE:	SA	SA	SA	SA	SA	SA	AV	NA.	SA
STUDY ID:	ESI	ESI	ESI	ESI	ESI	ESI	ESI	ESI	ESI
TOP:	2	4	0	2	10	0		9	0
BOTTOM:	4	9	2	4	12	2		∞	2
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMPLE DATE:	05/11/94	05/11/94	11/02/93	11/02/93	11/03/93	12/08/93		12/08/93	12/15/93
SAMP ID:	MW70-1-2	MW70-1-3	SB11-3-1	SB11-3-2	SB11-3-6	SB13-1-1	SB13-1-2	SB13-1-3	SB13-6-1
S	VALUE (Q)	VALUE (Q)		VALUE (Q)	VALUE(Q)	VALUE(Q)	VALUE (Q)	VALUE (Q)	VALUE
m	9480	11000		6330	00601	18300	8250	11700	16000
,	0.21 UJ	U 61.0	IO.8 UJ	8 UJ	7.6 UJ	5.1 J	3.7 UJ	2.8 UJ	3.2
	4.1	5.7	5.6 R	3.4 R	6 R	7	6.2	5.7	4.6
	56.6	79.9	113	57.4	62.7	901	88.1	33.9	103
u	0.41 J	0.54 J	0.85 J	0.34 J	0.47 J	0.92 J	0.42 J	0.54 J	0.92
G.	0.43 J	f 8.0	U 76.0	0.5 U	0.48 U	0.45 U	0.36 U	0.27 U	0.31
	51600	48600	4950	91300	48600	3570	87700	50300	5140
m	14.7	17.8	24	11.11	18.6	29.4	13.3	19.6	21.5
	7.1 J	21	11.3	6.5 J	10.1	12	7.2 3	11.1	10.6
	19.7	33.5	20	12.2	21.7	11.6	18.4	17.6	16
			0.57 U	0.47 U	0.53 U	0.61 U	0.5 U	0.53 U	0.0
	16000	26400	27200	13200	28300	32500	17400	24700	25300
	9.1	13.6	27.9	11.4	10.1	15 R	9 R	11.7 R	13.8
um	13600	7980	4160	12900	10100	5890	20800	12600	3750
sse	470	1040	674	356	434	451	517	404	934
	0.03 J	0.02 J	0.05 J	0.04 U	0.03 U	0.03 J	0.07 J	0.02 U	0.0
	17.6	52.4	28.3	16.7	29.5	34.9	24	33.1	22.7
ш	1590	1350	2110	1110	1230	2190	1390	1270	1330
U	0.64 J	0.32 U	0.24 J	0.13 UJ	0.21 UJ	0.26 J	0.56 J	0.51 J	1.7
			1.4 UJ	U I	UJ 76.0	0.9 U	0.71 U	0.54 U	0.63
	126 J	165 J	66.3 J	136 J	146 J	80.6 J	155 J	134 J	61.9
L			U 61.0	1.5 U	0.23 U	0.43 J	0.43 J	0.64 J	0.1
m	17.2	17.6	31.8	13.3	17	32.7	13.3	16.3	29.
	42.4	116	83.2 R	65 R	77.3 R	81.9	56.2	45.8	62.
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compound was not detected; the									
ciated reporting lumit is approximate									
data was rejected in the data									
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-H 201	MW112 C	May 25	1 2123	1 2103	CD17.1	CB26.1	CB26.1	CB4-1	CB4.
100 100	0-CI WINI	141 W 13-0	1-/1GC	1-/100	1-/100	1-0700	1-0700	1-100	100
OC CODE:	SA	SA	SA	SA	SA	NA.	SA.	N.	ן ו
STUDY ID:	ESI	ESI	ESI	ESI	ESI	ESI	ESI	ESI	田
TOP:	4	9	0	2	4	0	2	0	
BOTTOM:	9	80	2	4	9	2	4	2	
MATRIX:	NOS	TIOS	TIOS	SOIL	TIOS	SOIL	SOIL	SOIL	SOI
SAMPLE DATE:	12/15/93	12/15/93	12/01/93	12/01/93	12/01/93	11/17/93	11/17/93	12/06/93	12/06/9
SAMP ID:	SB13-6-3	SB13-6-4	SB17-1-1	SB17-1-2	SB17-1-3	SB26-1-1	SB26-1-2	SB4-1-1	SB4-1-1
LS	VALUE(Q)	VALUE(Q)	VALUE (Q)	VALUE (Q)	VALUE(Q)	VALUE (Q)	VALUE (Q)	VALUE (Q)	VALU
um	13500	10200	13700	18100	8700	5560	9040	14800	2100
ny.	2.5 UJ	2.9 UJ	11.7 UJ	11.8 UJ	IN 6	7.3 UJ	6.7 UJ	4.8 UJ	3.
	2.7	2.3	4.3	5.2	3.4	3.2	5.3	6.2	4
	60.4	56.8	107	114	59.4	73.2	43.7	72	97
un	0.71	0.58 J	0.7 J	0.9 J	0.42 J	0.35 J	0.41 J	0.73.J	0.6
шп	0.25 U	0.28 U	0.73 U	0.74 U	0.56 U	0.46 U	0.42 U	0.47 U	0.3
u	31800	45200	2870	20900	72800	293000	47300	4280	246
mni	23.5	17.8	17.6	25.1	13.9	10.3	15.7	23.2	27
	15	11.3	9.9 J	13.3	8.8	5.9 J	9.5	11.3	5
	27.4	14.5	46.4	26.9	20	9.7	14.3	14.1	15
0	0.53 U	0.51 U	0 NA	0 NA	0 NA	0.48 U	U 72.0	0.52 U	0.5
	26900	20700	25100	29900	18800	8770	19100	27500	1950
	11.6	11.7	266	11.4 J	7.5 J	6.33	8.5	17.7 J	9
sium	6640	5220	3330	8490	18100	29100	9160	4270	440
nese	508	556	547	487	391	309	551	615 JR	11
ý	U 10.0	0.01 U	0.05 J	0.06 J	0.03 UJ	0.02 U	0.02 U	0.05 J	0.0
	41.9	33	19.1	42	25.2	31.6 R	23.9	27.8	25
um	1120	1000	628 J	1560	1090	1710	106	1250	249
m	0.11 J	0.24 J	0.25 UJ	0.24 UJ	0.14 UJ	0.13 UJ	0.26 J	0.4 J	0.2
	0.49 U	0.56 U	1.5 U	1.5 U	1.1 U	0.92 UJ	0.85 UJ	0.93 U	0.
U	116 J	141 J	46.2 J	74.6 J	137 J	192 J	108 J	43.8 U	39
un	0.14 U	0.23 U	0.28 UJ	0.26 UJ	0.15 UJ	0.73 U	0.17 U	0.23 U	0.7
mni	18.5	13.8	23.1	27	13.9	12.7	14.4	28.6	
	64.7	39.3	93.4	80.2	57.1	283 R	90.6	79.6	72
mpound was not detected									
reported value is an estimated									
centration									
re compound was not detected; the									
ociated reporting limit is approximate									
s data was rejected in the data									
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	LOC ID:	SB4-1		SB4-1		TP57-11
	QC CODE:	SA		SA		SA
	STUDY ID:	ESI		ESI		ESI
	TOP:	4		80		3
	BOTTOM:	9		10		3
	MATRIX:	SOIL		SOIL		SOIL
SAMI	SAMPLE DATE:	12/06/93		12/06/93	-	11/08/93
	SAMP ID:	SB4-1-2		SB4-1-3		TP57-11
METALs		VALUE (Q)	8	VALUE (Q)	2	VALUE (Q)
Aluminum		15300		19200		14600
Antimony		s UJ	J	2.8 UJ	J	11.3 UJ
Arsenic		3.9		21.5		5.9
Barium		40.4 J		81.2		120
Beryllium		0.74 J		_		0.81
Cadmium		0.49 U		0.27 U		0.71 U
Calcium		30900		14400		22300
Chromium		27.6		32.7	-	20.1
Cobalt		16.5		29.1		8.8
Copper		62.8	-	21.6		21.7
Cyanide		0.53 U		0.47 U		0.54 U
Iron		34300		37900		24900
Lead		7.5 J		9.1 J		11.3
Magnesium		7130		8040		5360
Manganese		337 R		795 R	- 1	329
Mercury		0.04 J		0.04 J		0.04 J
Nickel		47.6		62.3		25.7
Potassium		1300		2030		1430
Selenium		0.09 U		0.14 U		0.46 J
Silver		0.98 U		0.64 J		1.4 UI
Sodium		105 J		91.6 J	$\dashv$	93 J
Thallium		0.16 U		0.24 U		0.17 U
Vanadium		22.2		29.3		27.8
Zinc		102		115	+	57.9
U = compound was not detected			-		-	
J == the reported value is an estimated	ated				-	
concentration						
UJ = the compound was not detected; the	cted; the					
	approximate				1	
R = the data was rejected in the data	lata			+		
validating process	. donnifind"				+	
	I value		-	-	1	
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STUDY ID:		RI PHASE	3093	RI PHASE!	ESI	ESI
LOC ID:		MW-21	MW-35	MW-35	MW11-1	MW13-1
QC CODE:		SA	SA	SA	SA	SA
SAMP. DETH TOP:		NONE	NONE	NONE	NONE	NONE
SAMP. DEPTH BOT:		NONE	NONE	NONE	NONE	NONE
MATRIX:		GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
SAMP. DATE:		8-Jan-92	NONE	8-Jan-92	18-Jan-94	3-Feb-94
SAMP ID:		MW-21GW	MW350B3Q93M	MW-35GW	MW11-1-1	MW13-1-1
PARAMETER	UNIT	VALUE	VALUE Q	VALUE Q	VALUE Q	VALUEIQ
METALS						
Aluminum	NG/L	1880 J	207	7550 J	53.7 J	42400
Antimony	NGV	U 6559 U	16.8 U	55.5 U	21.4 U	33.9 J
Arsenic	NG/L	3.5 U	1 B	3.5 U	0.8 U	9.3 J
Barium	UG/L	47.5 J	97.3 B	103 J	25.2 J	337
Beryllium	NG/L	1.6 R	0.3 U	1.8 R	0.4 U	2.2 J
Cadmium	UG/L	2.9 U	2.4 U	2.9 U	2.1 U	2.1 U
Calcium	UG/L	94100	108000	94700	97500	181000
Chromium	NG/L	6.2 U	3.3 U	15.3 R	2.6 U	69.4
Cobalt	UG/L	20 U	2.7 U	19.9 J	4.4 U	34.6 J
Copper	UG/L	14.5 U	2.1 U	14.4 U	3.1 U	23.3 J
Cyanide	NG/L	10 UJ	2.8 B	U 01	S U	S U
Iron	NG/L	2720	321	10500	41.4 J	69400
Lead	NG/L	1.8 J	2.8 B	3.3	1.1 J	34.8
Magnesium	UG/L	12200	15600	14600	29700	50300
Manganese	NG/L	232 J	23.4	557 J	278	1120
Mercury	UG/L	0.15 R	0.1 U	0.18 R	0.04 U	0.05 J
Nickel	UG/L	16 U	8.3 U	15.9 U	4 U	8.66
Potassium	UG/L	3050 J	1400 B	4180 J	7100	10100
Selenium	NG/L	10	1.2 B	1.1 J	U 2.0	3.6 J
Silver	UG/L	9.1 U	2.6 U	0 6	4.2 U	4.2 U
Sodium	NG/L	18400	13400	44100	4860 J	9350
Thallium	UG/L	3.2 U	1.2 U	3.2 U	1.2 U	1.2 U
Vanadium	NG/L	30.6 U	3 U	30.3 U	3.7 U	70.8
Zinc	UG/L	15.1 R	72.7	58.2	21.4	143
U = compound was not detected						
J = the reported value is an estimated	ď					
concentration						
UJ = the compound was not detected; the	d; the					
associated reporting limit is approximate	roximate					
R = the data was rejected in the data	а					
validating process						
NJ = compound was "tentatively identified"	entified"					
and the associated numerical value	alue					
is approximate						

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DOC DECODE  SAM SAM SAM SAM SAM SAM SAM SAM SAM SAM	STUDY ID:		ESI	RI ROUNDI	RI ROUND2	RI ROUNDI	RI ROUND2	
SAMP DETH FORD:         SA         3.4         3.4           SAMP DETH FORD:         NONE         5.3         731.5         3.4           SAMP DETH FORD:         NONE         5.3         731.5         3.4           SAMP DETH FORD:         NONE         AFF69-34         CROUNDWATER         GROUNDWATER         GROUNDWATER         GROUNDWATER           SAMP DATE         MATRIX         GROUNDWATER         GROUNDWATER         GROUNDWATER         GROUNDWATER         GROUNDWATER           SAMP DATE         MATRIX         AFF69-34         AFF69	LOC ID:		MW13-4	MW16-1	MW16-1	MW17-1	MW17-1	
SAMP DETH TOP         NONE         5.34         731.5         3.4           SAMP DETH TOP         GROUNDWATER         GROUNDWATER         GROUNDWATER         GROUNDWATER         3.4           SAMP DATE         MATRIX         GROUNDWATER         GROUNDWATER         GROUNDWATER         3.4         3.4           SAMP DATE         MATRIX         MATRIX         ALLOE Q         VALUE Q         7.28.4         3.4.10.6         2.7.40.6         2.7.40.6         2.7.40.6         2.7.40.6         2.7.40.6         2.7.40.6         2.7.40.6         2.7.40.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6         3.4.10.6 <t< td=""><td>OC CODE:</td><td></td><td>SA</td><td>SA</td><td>SA</td><td>SA</td><td>SA</td><td></td></t<>	OC CODE:		SA	SA	SA	SA	SA	
SAMP DEPTH BOT         NOME         S3         728.4         ROLUNDWATER           SAMP DETH BOT         GROLUNDWATER         GROLUNDWATER         GROLUNDWATER         GROLUNDWATER         GROLUNDWATER           SAMP DT         MATRIX         GROLUNDWATER         GROLUNDWATER         GROLUNDWATER         GROLUNDWATER           SAMP DT         MATRIX         A+40         27-Aug-36         16101         16152         16108           SAMP DT         NT         WAY13-4-1         QCL         31.5         1         30.4         90.4           SAMP DT         NT         WAY13-4-1         QCL         A-40         A-	SAMP. DETH TOP:		NONE		731.5	3.4	731.1	
MANTER:   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROUNDWATER   GROU	SAMP. DEPTH BOT:		NONE	5.3	728.4	7.4	727.1	
SAMP DATE:         MV13-41-69-94         27-Aug-96         7-Dec-96         29-Aug           EFTR         SAMP DD.         MV13-14         4-feb-94         27-Aug-96         7-Dec-96         29-Aug           SAMP DD.         MV13-14         VALUE Q         <	MATRIX:		GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	
SAMP ID:   NW1341   1610    16152   1615   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   16152   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522   161522	SAMP. DATE:		4-Feb-94	27-Aug-96	7-Dec-96	29-Aug-96	11-Dec-96	
NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALUE   NALU	SAMP ID:		MW13-4-1	16101	16152	16108	16171	
S	PARAMETER	UNIT	VALUE	VALUE Q		VALUE	VALUE Q	
Imm         UG/L         5540         1880         143 U         9           Vy         UG/L         31.5 J         2 U         4 J U         9           Vy         UG/L         13.5 J         2 U         4 J U         4 J U         4 J U         4 J U         4 J U         4 J U         4 J U         4 J U         4 J U         4 J U         4 J U         4 J U         4 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U         6 J U </td <td>METALS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	METALS							
by         UG/L         31.5 J         2.7 J         4.4 J         4.4 J           UG/L         71.2 J         4.4 J         4.4 J         4.4 J         4.4 J           m         UG/L         71.2 J         4.2 J         4.4 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.0 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J         6.2 J	luminum	NG/L	5540	1850	143 U	90.4	386	
March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   Marc	ntimony	UG/L	31.5 J	2 U	3 U	2 U	3 U	
UG/L   112   1   142   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182   182	Arsenic	NG/L	1.4 U	2.7 U	4.4 U	2.7 U	4.4 U	
mm         UG/L         0.4 U         0.23         0.2 U         0.6           mm         UG/L         1100         15000         116600         116800           mm         UG/L         9.9 J         2.7         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         1 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U         2 U	Barium	NG/L	71.2 J	74.2	48.2 U	85	90.4 U	
m         UG/L         2.1 U         0.3 U         0.6 U         108 U           t         UG/L         182000         157000         116000         108 U           tm         UG/L         9.9 J         2.7         1.3 U         1.3 U           tm         UG/L         3.3 J         4.9         1.9 U         1.9 U           tm         UG/L         8010         2400 J         206 I         1.9 U           tm         UG/L         490         2.3 J         2.0 I         2.0 I           time         UG/L         490         2.3 J         2.4 I         1.5 U         2.5 U           time         UG/L         4200         2.330         1.75 U         2.5 U         2.5 U           time         UG/L         4200         2.3 J         4.7 U         2.5 U         2.5 U           time         UG/L         420         0.1 U         0.1 U         0.2 U         0.1 U         0.1 U         0.1 U         0.1 U         0.2 U         0.1 U         0.2 U         0.1 U         0.2 U         0.1 U         0.2 U         0.1 U         0.2 U         0.1 U         0.2 U         0.1 U         0.2 U         0.1 U         0.2 U         0.1 U <td>eryllium</td> <td>NG/L</td> <td>0.4 U</td> <td>0.23</td> <td>0.2 U</td> <td>0.26</td> <td>0.2 U</td> <td></td>	eryllium	NG/L	0.4 U	0.23	0.2 U	0.26	0.2 U	
tr UG/L 182000 15000 16000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 100000 10000 10000 10000 10000 10000 10000 10000 10000 10000 100000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 100000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 100000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 100000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 100000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 10000 100	admium	NG/L	2.1 U	0.3 U	U 9.0	0.3 U	U 9.0	
m         UG/L         9.9 J         2.7         1 U           u G/L         67 J         2.1         1.3 U         1.3 U           u G/L         8010         2400 J         5 UJ         5 UJ           u G/L         8010         2400 J         256           u G/L         4900         2400 J         1.5 U         226           u G/L         4900         2300         1.600         22           see         U G/L         4299         210         64.2         2           u UG/L         12 J         4.7         1.5 U         2           u UG/L         940         1.670         998 U         1           u UG/L         940         1.3 U         4.7 UJ         4.7 UJ           u UG/L         940         8.8 J         3.3 U         5.9 U           u UG/L         9.8 J         3.3 U         5.9 U           n         U G/L         9.3 U         5.9 U           n         U G/L         8.8 J         3.3 U         5.9 U           n         U G/L         8.8 J         3.3 U         5.9 U           n         U G/L         8.8 J         3.3 U         5.9 U      <	alcium	NG/L	182000	157000	116000	108000	104000	
UG/L   G/J   1.3 U	hromium	NG/L	9.9 J	2.7	10	1 0	1 0	
UG/L   3.3 J   4.9   1.9 U     UG/L   8010   2.90   2.96     UG/L   8010   2.3300   1.5 U     UG/L   3.1   1.7 U   1.5 U     UG/L   3.1   1.7 U   1.5 U     UG/L   1.2 J   4.7   2.4 U     UG/L   1.2 J   2.4 U   4.7 U     UG/L   1.2 J   2.4 U   4.7 U     UG/L   1.2 J   3.3 U   3.5 U     UG/L   1.2 J   3.3 U   3.5 U     UG/L   1.2 J   3.3 U   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.3 B   1.5 G   3.5 U     UG/L   1.5 G   3.5 U     UG/L   1.5 G   3.	obalt	NG/L	6.7 J	2.1	1.3 U	1.2 U	2 U	
UG/L   S(1)   240  3   0   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   256  1   2	Opper	NG/L	3.3 J	4.9	U 6.1	3.1	1.1 U	
sim         UG/L         8010         2400 J         1         296           sim         UG/L         4900         2330         1.7 U         1.5 U         220           nese         UG/L         299         2130         1.600         22           v         UG/L         299         210         6.42         2           v         UG/L         1.7.5 J         4.7         2.5 U         0           um         UG/L         4.2 U         1.2 U         2.5 U         0           n         UG/L         4.2 U         2.2 U         2.5 U         0           n         UG/L         4.2 U         4.2 U         5.9 U         0           n         UG/L         1.2 U         4.2 U         5.9 U         0           n         UG/L         1.2 U         4.2 U         5.9 U         0           nm         UG/L         1.3 U         4.2 U         5.9 U         0           nm         UG/L         1.3 U         4.2 U         5.9 U         0           nm         UG/L         1.3 U         4.2 U         5.9 U         0           nm         UG/L         1.3 U         4.2 U <td>yanide</td> <td>NG/L</td> <td>5 U</td> <td>5 U</td> <td>s s u</td> <td></td> <td></td> <td></td>	yanide	NG/L	5 U	5 U	s s u			
sium UG/L 44900 23300 17600 22  nese UG/L 44900 23300 17600 22  y UG/L 2299 210 64.2 2  y UG/L 0.04 U 0.1 U 0.1 U 0.3 U 0.3 U  um UG/L 446 J 1670 998 U  um UG/L 1.2 J 2.4 U 4.7 U 1.3 U  um UG/L 9340 8750 0 3870 U 9  n UG/L 1.2 U 4.2 U 5.9 U  um UG/L 8.8 J 3.3 1.6 U  um UG/L 8.8 J 3.3 1.6 U  um UG/L 1.3 U  um UG/L 8.8 J 3.3 1.6 U  um UG/L 1.3 U  um UG/L 8.8 J 3.3 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un UG/L 8.8 U  um un un UG/L 8.8 U  um un un UG/L 8.8 U  um un un UG/L 8.8 U  um un un UG/L 8.8 U  um un un UG/L 8.8 U  um un un un un un un un un un un un un un	uo.	NG/L	8010	2400 J	296	119	572 J	
sium         UG/L         44900         23300         17600         22           nese         UG/L         299         210         64.2         22           y         UG/L         10.4 U         0.1 U         0.1 U         0.1 U           y         UG/L         4460 J         1.2 J         2.4 U         4.7 U         2.5 U           m         UG/L         4460 J         1.3 U         4.7 U         4.7 U         9.8 U           n         UG/L         9340         8750         3870 U         9           n         UG/L         1.2 U         4.2 U         1.3 U         4.2 U         5.9 U           n         UG/L         1.3 W         1.5 W         9         1.6 U         9           n         UG/L         1.3 W         1.5 W         5.9 U         9         9           n         UG/L         1.3 W         1.5 W         5.9 U         9         9           n         UG/L         1.3 W         1.5 W         5.9 U         9         9           n         UG/L         1.3 W         1.5 W         5.9 U         9         9           centration         UG/L         1.3 W	ead	T/DN	3.1	U.7 U	1.5 U	U/1	1.5 U	
nese         UG/L         299         210         64.2         2           y         UG/L         0.04 U         0.1 U         0.1 U         0.1 U         0.1 U           um         UG/L         4460 J         1670         92.5 U         4.7 UJ           um         UG/L         4460 J         1.2 J         2.4 U         4.7 UJ           n         UG/L         9340         8750         3870 U         9           n         UG/L         8.8 J         3.3         1.6 U         9           nm         UG/L         8.8 J         3.3         1.6 U         9           nm         UG/L         1.38         1.5 G         9         9           nm         UG/L         8.8 J         3.3         1.6 U         9           mpound was not detected         1.38         1.5 G         8         9         1.5 G         9           eentration         UG/L         1.38         1.5 G         9         1.6 U         1.7 UJ         1.	fagnesium	T/90	44900	23300	17600	22600	22900	
y         UG/L         0.04 U         0         0.1 U         0.2 S         0           um         UG/L         4466 J         1.2 J         4.7 U         4.7 UJ         9.8 U	Aanganese	NG/L	299	210	. 64.2	21.3	U 7.6	
um         UG/L         17.5 J         4.7         2.5 U           um         UG/L         4460 J         1670         998 U           um         UG/L         1.2 J         2.4 U         4.7 UJ           n         UG/L         9340         8750         3870         9           n         UG/L         1.2 U         4.2 U         5.9 U         9           nm         UG/L         1.3 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U         1.6 U <td>hercury</td> <td>UG/L</td> <td>0.04 U</td> <td>0.1 U</td> <td>0.1 U</td> <td>0.1 U</td> <td></td> <td></td>	hercury	UG/L	0.04 U	0.1 U	0.1 U	0.1 U		
turn         UG/L         4460 J         1 1670         998 U           am         UG/L         1.2 J         2.4 U         4.7 UJ           am         UG/L         4.2 U         1.3 U         4.7 UJ           n         UG/L         9340         8750         3870 U         99           nm         UG/L         1.2 U         4.2 U         5.9 U         99           imm         UG/L         1.3 K         1.6 U         99           imm         UG/L         1.3 K         3.3         1.6 U         99           impound was not detected         138         1.5 K         1.6 U	lickel	UG/L	17.5 J	4.7	2.5 U	1.8	2.5 U	
imm         UG/L         1.2 J         2.4 U         4.7 UJ           n         UG/L         4.2 U         1.3 U         4.7 UJ           n         UG/L         9340         8750         38.0 U         9           imm         UG/L         1.2 U         4.2 U         5.9 U         9           imm         UG/L         138         1.6 U         9           impound was not detected         138         15.6 R         5.8 U         1           reported value is an estimated         centration         6         7         6         7         6           centration         1c compound was not detected; the         6         7         6         7         6         6         6         7         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6	otassium	UG/L	4460 J	1670	Ω 866	472	843 U	
n         UG/L         4.2 U         1.3 U         1.5 U         9           n         UG/L         9340         8750         3870 U         9           im         UG/L         1.2 U         4.2 U         5.9 U         9           ium         UG/L         1.2 U         4.2 U         5.9 U         9           ium         UG/L         138         1.6 U         9           mpound was not detected         UG/L         138         5.8 U         1           reported value is an estimated         Centration         5.8 U         1         6           centration	elenium	T/Sn	1.2 J	2.4 U	4.7 UJ			
n         UG/L         9340         8750         3870 U         99           n         UG/L         1.2 U         4.2 U         5.9 U         99           um         UG/L         8.8 J         3.3         1.6 U         99           um         UG/L         138         1.5 R         9.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1	ilver	T/Sn	4.2 U	1.3 U	1.5 U	1.3 U		
UG/L     1.2 U     4.2 U     5.9 U       UG/L     8.8 J     3.3     1.6 U       UG/L     138     15.6 R     5.8 U       UG/L     138     15.6 R     5.8 U       Ithe     .     .     .       wimate     .     .     .       utified"     .     .     .       ue     .     .     .	odium	T/DN	9340	8750	3870 U	9290	8190	
UG/L     8.8 J     3.3     1.6 U       UG/L     138     15.6 R     5.8 U       Indiced         Intiffed         Intiffed         Intiffed	hallium	NG/L	1.2 U	4.2 U	5.9 U	4.4		
UG/L     138     15.6 R     5.8 U       II         i.the         oximate         utified"         ue	/anadium	UG/L	8.8	3.3	1.6 U	1.2 [U	J 1.6 U	
i = compound was not detected  = the reported value is an estimated  concentration  J = the compound was not detected; the  associated reporting limit is approximate  t = the data was rejected in the data  validating process  J = compound was "tentatively identified"  and the associated numerical value	inc	UG/L	138	15.6 R	5.8 U	2.5 R	14.4 U	
i = compound was not detected  = the reported value is an estimated  concentration  IJ = the compound was not detected; the associated reporting limit is approximate  t = the data was rejected in the data  validating process  Validating process  Validating brocess  Validating brocess  Validating brocess  Validating value								
= the reported value is an estimated  concentration  JJ = the compound was not detected; the  associated reporting limit is approximate  = the data was rejected in the data  validating process  JJ = compound was "tentatively identified"  in of the associated numerical value	= compound was not detected							
concentration  JJ = the compound was not detected; the associated reporting limit is approximate  t = the data was rejected in the data  validating process  JJ = compound was "tentatively identified"	= the reported value is an estimated	q						
JJ = the compound was not detected; the associated reporting limit is approximate  \( \text{-} \text{ the data was rejected in the data} \) validating process JJ = compound was "tentatively identified"  and the associated numerical value	concentration							
associated reporting limit is approximate  = the data was rejected in the data validating process    Compound was "tentatively identified"	J = the compound was not detected	i; the						
\text{\text{validating process}} \text{\text{\text{validating process}}} \text{\text{\text{\text{validating process}}}} \text{\text{\text{\text{validating process}}}} \text{\text{\text{\text{\text{validating process}}}} \text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tinte\ta}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tex	associated reporting limit is appra	oximate						
validating process  J = compound was "tentatively identified"  and the associated numerical value	= the data was rejected in the data							
and the associated numerical value	validating process							
and the associated numerical value	IJ = compound was "tentatively ider	ntified"						
advision ni	and the associated numerical val	lue						
IS additional	is approximate							

jects\SENECA\PID Area\Report\Draft Final\Appendix\App-D-2 background GW data.xls

Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Marcola   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone   Mone	CT VOLLEY		DI BOTATA	PT POT FILE	TOTALOGIA	CONTINUE	FCI	PIROINDI
NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE	STODI ID.		A KOUNDI	N KOUNDZ	N NOOIN	MINOON IN	1,61190 1	ACTION IN
NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE	LOCID	410	4W25-1	MW25-1	MW25-0	MW25-6	MW20-1	MW 20-1
NONE	QC CODE:	S	, Y	SA	SA	SA	SA	SA
NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE   NONE	SAMP. DETH TOP:	_	NONE	NONE	NONE	NONE	NONE	NONE
Columnia   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Groundwater   Gro	SAMP. DEPTH BOT:	_	JONE	NONE	NONE	NONE	NONE	NONE
May	MATRIX:	J	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
MW25-1         MW25-6         AW25-6         AW25-1-1           MW25-1         VALUE Q	SAMP. DATE:			10-Apr-96	21-Nov-95	31-Mar-96	21-Jan-94	13-Nov-0
NALUE   Q   NALUE   Q   NALUE   Q   NALUE   Q   NALUE   Q	SAMP ID:			25001	MW25-6	25008	MW26-1-1	MW26-1
18   34.5   U   16.2   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U   2.3   U	TER			VALUE	VALUE Q	VALUE Q	VALUE	VALL
18     34.5 U     162     529       2.1 U     4 U     2.2 U     3.5 U       2.1 U     4 U     2.1 U     3.5 U       2.1 U     7.1 U     2.2 U     3.5 U       2.1 U     7.1 U     2.2 U     3.5 U       3.2 U     0.3 U     0.3 U     0.3 U       0.3 U     0.2 U     0.3 U     0.3 U       0.6 U     0.7 U     1.3 000     0.1 U       0.6 U     0.7 U     1.3 U     0.3 U       0.6 U     0.7 U     1.3 U     0.3 U       0.7 U     1.3 U     0.0 U     1.1 U       2 S     1 U     0.0 P     1.1 U       2 S     2 S     1.1 U     0.0 P       3.4 U     2.2 U     3.2 U     0.1 U       2 S     2 S     0.2 U     0.1 U       3 S     3.4 U     3.7 U     3.4 U       4 S     1.1 U     1.4 U     1.1 U       6 S     0.0 U     1.4 U     1.1 U       1.1 U     1.1 U     1.4 U     1.2 U       1.1 U     1.1 U     1.4 U     1.2 U       1.1 U     1.1 U     1.4 U     1.2 U       1.1 U     1.1 U     1.4 U     1.2 U       1.1 U     1.1 U     1.2 U								
2.2 U         1.4         2.2 U         2.3 U         2.3 U         2.3 U         2.3 U         2.3 U         2.3 U         2.3 U         2.3 U         2.3 U         2.3 U         2.3 U         2.3 U         2.2 U         2.3 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2.2 U         2		UG/L	18	34.5 U	162	529	188 J	4
2.1 U         4 U         2.1 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3.5 U         3		NG/L	2.2 U	1.4	2.2 U	2.3 U	21.5 U	2
17.1		UG/L	2.1 U	4 U	2.1 U	3.5 U	0.8 U	2
128000		UG/L	77.1	71.2	85.6	72.3	31.9 J	33
12000		NG/L	0.27 U	0.1 U	0.27 U	0.13 U	0.4 U	0.
128000   122000   130000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   118000   1		UG/L	0.3 U	0.3 U	0.3 U	0.32 U	2.1 U	0
0.68     0.7 U     2.2     1.3 U       0.99 U     1.1 U     1.1 U       5 U     1.1 U     0.99     1.1 U       5 U     5 U     5 U     5 U       5 U     5 U     6.23     1.1 U       27.3     21.7 U     308     6.23       3.1.2     21.8 U     56     2.2       5.1.2     22.800     35900     1.1 U       0.02 U     0.2 U     0.02 U     0.1 U       0.09 U     1.3 U     3.7 U     3.4 U       0.8 U     1.3 U     3.7 U     3.4 U       0.8 U     1.3 U     3.4 U     3.7 U       1.1 U     1.1 U     1.1 U     1.2 U       6.3 U     1.1 U     1.2 U     1.2 U       1.1 U     1.1 U     1.2 U     1.2 U       1.1 U     1.1 U     1.2 U     1.2 U       1.1 U     1.2 U     1.2 U     1.2 U       1.1 U     1.2 U     1.2 U     1.2 U       1.1 U     1.2 U     1.2 U     1.2 U       1.1 U     1.2 U     1.2 U     1.2 U       1.1 U     1.2 U     1.2 U     1.2 U       1.1 U     1.2 U     1.2 U     1.2 U       1.1 U     1.2 U     1.2 U     1.2 U		UG/L	128000	122000	133000	118000	115000	1210
10		NG/L	89.0	U 2.0	2.2	1.3 U	2.6 U	7
1		UG/L	U 66:0	U 6.0	1.3	1.1 U	4.4 U	
5     U     5     U     5     U       27.3     21.7 U     308     623       3.4     21.9 U     304     1.1 U     1.1 U       231.0     2280     35900     32900     16       0.02 U     0.2 U     0.02 U     0.1 U     0       0.02 U     0.2 U     0.2 U     0.1 U     0       0.09 U     1.6 U     2.6     1.7 U     3.4 U       3.7 U     3.4 U     3.7 U     3.4 U     3.4 U       0.8 U     1.3 U     3.4 U     3.4 U     3.4 U       0.8 U     1.3 U     1.1 U     1.1 U     1.1 U       1.1 U     1.1 U     1.2 U     3.5 U       6.3     1.7 T     7.5     2.2       5.2     2.2     2.2		UG/L	2	1 U	66:0	1.1	3.1 U	9,
27.3     21.7 U     308     623       3.4     1.9 U     44     1.1 U       23.100     22.800     35900     1.1 U       31.20     22.800     35900     10       31.20     22.80     35900     10       0.02 U     0.2 U     0.02 U     0.1 U       0.09 U     1.6 U     2.6     1.7 U       1030     861 J     1840 J     1420       3.7 U     3.4 U     3.7 U     3.4 U       64700 J     53100     20400 J     16500       3 U     4.7 U     1.4 U     1.2 U       6.3     1.1 U     1.1 U     3.5 U       6.3     1.7 C     7.5     2.2		NG/L	5 U	5 U	\$ U	S U		
3.4     1.9 U     4.4     1.1 U       23100     22800     35900     10       31.2     2.2800     35900     12       0.02 U     0.02 U     0.02 U     0.1 U       0.09 U     1.6 U     2.6     1.7 U       1030     861 J     1840 J     1.7 U       0.8 U     1.3 U     3.4 U     3.4 U       0.8 U     1.3 U     1.4 U     1.4 U       1.1 U     1.1 U     1.4 U     1.2 U       6.3     1.7 U     1.7 U     1.7 U       6.3     1.7 U     1.7 U     2.2 U       6.3     1.7 U     1.7 U     2.2 U       6.3     1.7 U     1.7 U     2.2 U		NG/L	27.3	21.7 U	308	623	286	8
10		NG/L	3.4	U 6.1	4.4	1.1 U	0.5 U	
31.2     21.8     56     22       0.02 U     0.2 U     0.01 U     0.1 U       0.09 U     1.6 U     2.6     1.7 U       1030     861 J     1840 J     1420 I       0.8 U     1.3 U     3.4 U     3.4 U       64700 J     53100     20400 J     3.5 U       1.1 U     1.1 U     1.1 U     1.2 U       6.3     1.7 T     7.5     2.2       6.3     1.7 T     7.5     2.2	E	NG/L	23100	22800	35900	32900	16700	166
0.02 U 0.02 U 0.02 U 0.01 U 0.01 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.09 U 0.	ev.	UG/L	31.2	21.8	56	22	529	27
0.99 U 1.6 U 2.6 1.7 U 100 100 1000 1000 861 J 1840 J 1420 100 100 80 J 140 J 3.4 U 3.7 U 3.4 U 3.4 U 3.7 U 3.4 U 3.4 U 1.1 U 1.1 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U		UG/L	0.02 U	0.2 U	0.02 U	0.1 U	0.05 J	0.
1030   861 J   1840 J   1420   100     3.7 U   3.4 U   3.7 U   3.4 U     0.8 U   1.3 U   0.8 U   1.1 U     0.8 U   1.3 U   2040 J   1.5 U     1.1 U   1.1 U   1.4   1.2 U     6.3   1.7   7.5   2.2     1.8 U   1.1 U   1.4   1.5 U     1.9 U   1.1 U   1.4   1.5 U     1.1 U   1.1 U   1.4   1.5 U     1.2 U   1.3 U   1.4   1.5 U     1.3 U   1.4   1.5 U     1.4   1.5 U   1.5 U     1.5 U   1.5 U   1.5 U     1.6 U   1.6 U   1.6 U     1.7   7.5   7.5   7.5 U     1.8 U   1.8 U   1.5 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.9 U   1.9 U   1.6 U     1.		UG/L	U 66:0	1.6 U	2.6	U 7.1	4 U	
3.7 U 3.4 U 3.7 U 3.4 U 3.7 U 3.4 U 3.7 U 3.4 U 3.7 U 3.4 U 3.7 U 3.4 U 3.7 U 3.4 U 3.7 U 3.8 U 1.1 U 1.1 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U 3.5 U		UG/L	1030	861 J	1840 J	1420	10200	36
0.8 U     1.3 U     0.8 U     1.1 U       64700 J     53100     20400 J     16500     30       1.1 U     4.7 U     3 U     3.5 U       6.3     1.1 U     1.4     1.2 U       6.3     1.7     7.5     2.2     2       8     1.7     7.5     2.2     2       9     1.2 U     1.2 U     1.2 U     1.2 U       10     1.2 U     1.2 U     1.2 U     1.2 U       10     1.2 U     1.2 U     1.2 U     1.2 U       10     1.2 U     1.2 U     1.2 U     1.2 U       10     1.2 U     1.2 U     1.2 U     1.2 U       10     1.2 U     1.2 U     1.2 U     1.2 U       10     1.2 U     1.2 U     1.2 U     1.2 U       10     1.2 U     1.2 U     1.2 U     1.2 U     1.2 U       11     1.2 U     1.2 U     1.2 U     1.2 U     1.2 U       12     1.2 U     1.2 U     1.2 U     1.2 U     1.2 U       12     1.2 U     1.2 U     1.2 U     1.2 U     1.2 U       12     1.2 U     1.2 U     1.2 U     1.2 U     1.2 U     1.2 U       12     1.2 U     1.2 U     1.2 U<		UG/L	3.7 U	3.4 U	3.7 U	3.4 U	U 7.0	
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3 U 47 U 3 U 3.5 U 1.1 U 1.1 U 1.4 1.2 U 6.3 1.7 7.5 2.2 2		UG/L	64700 J	53100	20400 J	16500	30300	246
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SAMP DATE         11-App-96         21-Jan-96         12-Jan-94         11-Jan-94         IT-Jan-94         IT-Jan-94 <t< td=""><td>MATRIX:</td><td></td><td>GROUNDWATER</td><td>GROUNDWATER</td><td>GROUNDWATER</td><td>GROUNDWATER</td><td>GROUNDWATER</td><td>GROUNDWATER</td></t<>	MATRIX:		GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
SAAP ID:   MW44h-1-1   MW44h-1-1   MW44h-1-1   MW5-1-1   SAMP. DATE:		11-Apr-96	21-Jan-94	12-Jul-94	12-Jul-94		3-Feb-9	
VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALUE   VALU	SAMP ID:		26001	MW4-1-1	MW44A-1-1	MW44B-1-1	MW5-1-1	MW57-1-1
UGAL         38.7         419 U         66 J         288 J         1           UGAL         14         216 U         13 U         13 U         13 U         13 U         13 U         13 U         13 U         13 U         13 U         13 U         13 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U         10 U	IETER	UNIT		VALUE		VALUE Q	VALUE	VALU
UGL         38.7         419 U         69 J         288 J         1           UGL         14         2.16 U         69 J         1.3 U         1.3 U         1.3 U           UGL         14         2.2 J         1.3 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U         2.0 U	CS							
UG/L         14         216 U         13 U         113 U           UG/L         4 U         216 U         13 U         13 U           UG/L         29 U         16 J         102 J         2 U           UG/L         0.3 U         10 0.4 U         0.01 U         0.21 U           UG/L         0.3 U         2.1 U         0.01 U         0.02 U           UG/L         0.1 U         0.1 U         0.02 U         0.02 U           UG/L         0.7 U         2.1 U         0.04 U         0.04 U         0.04 U           UG/L         0.7 U         2.1 U         0.04 U         0.04 U         0.04 U         0.04 U           UG/L         5.8 4 U         5.0 U         0.05 U         0.05 U         0.05 U         0.05 U           UG/L         5.8 4 U         5.0 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U         0.05 U<	ııı	NG/L	38.7	V 41.9		288 J	1310	420
UG/L         29 J         192 J         2 J         2 J         2 J         1 J         2 J         1 J         2 J         1 J         2 J         1 J         2 J         1 J         2 J         1 J         2 J         1 J         2 J         1 J         2 J         1 J         2 J         1 J         2 J         2 J         2 J         2 J         2 J         2 J         2 J         2 J         2 J         2 J         3 J         3 J         3 J         3 J         3 J         3 J         3 J         3 J         3 J         3 J         4 J         0 J         1 J         0 J         1 J         0 J         1 J         0 J         1 J         0 J         1 J         0 J         1 J         0 J         1 J         0 J         1 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J         0 J	ηλ	NG/L	1.4	21.6 U	1.3 U	1.3 U	1.3 U	44
UG/L         29.9         19.6 J         10.2 J         72.6 J           UG/L         0.3 U         2.1 U         0.2 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2		UG/L	0 4	2.2 J	2 U	2 U	2 U	.1
UGAL         0.1 U         0.4 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.2 U         0.0 U         0.2 U         0.0 U         0.2 U         0.0 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.1 U         0.2 U         0.0 U         0.2 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U		UG/L	29.9	J 9.61	102 J	72.6 J	42.2 J	36.
UG/L         0.3 U         2.1 U         0.2 U         0.2 U         2.0 U         0.2 U         2.0 U         2.0 U         0.2 U         2.0 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U         0.2 U	m	UG/L	0.1 U			0.1 U	0.1 0	0.
UG/L   110000   137000   92200   120000   240   120000   240   120000   240   120000   240   120000   240   120000   240   120000   240   120000   240   120000   240   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260   260	m	UG/L	0.3 U			0.2 U	0.2 U	2.
UG/L         0,73         2 6 U         0,4 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,9 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0,0 U         0		NG/L	110000	137000	92200	120000	240000	8200
UG/L         09 U         4 6 J         0.5 U         0.9 I           UG/L         5 8 J         3.1 U         0.5 U         0.5 U           UG/L         58 J         3.2 U         114 J         666 U         0.5 U           UG/L         1.500         3.2 U         114 J         666 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U	ш	T/9n	0.73			0.4 U	2.5 J	7.
UG/L         1 U U UG/L         3.1 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U         0.5 U		UG/L	U 6.0		0.5 U	0.91 J	2.8 J	4
UG/L   SS 4 J   S 1		UG/L	1 0			0.5 U	2.2 J	3
UGAL         \$8.4 J         332         114 J         666         2           UGAL         1.9 U         0.5 U         0.9 U         0.9 U         0.9 U         0.9 U         0.9 U         0.9 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U         0.0 U		UG/L	S U			2 U	5 U	
UG/L   19   U   O   U   O   U   O   U   O   U   O   U   O   U   O   U   O   U   O   U   O   U   O   U   O   U   O   U   O   O		UG/L	58.4 J	332	114 J	999	2670	969
UG/L         15500         57600         19000         31800         43           UG/L         2.5         346         182         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         219         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227         227 <td< td=""><td></td><td>NG/L</td><td>1.9 U</td><td></td><td></td><td>U 6.0</td><td>U 68.0</td><td>2</td></td<>		NG/L	1.9 U			U 6.0	U 68.0	2
UG/L         2.5         346         18.2         219           UG/L         0.2 U         0.04 U         0.04 U         0.04 U           UG/L         1.6 U         7380 U         2.1 U         2.7 U         4           UG/L         3.4 U         2.1 J         2.7 U         2.7 U         4           UG/L         3.4 U         2.1 J         2.7 U         2.7 U         4           UG/L         3.4 U         4.2 U         0.5 U         0.68 J         7           UG/L         3.800         11700         2.1 U         2.7 U         4.7 U           UG/L         1.1 U         3.7 U         0.5 U         0.68 J         7           und was not detected         1.1 U         3.7 U         0.5 U         0.5 U         0.5 U           rted value is an estimated         3.1 J         19.1 J         3.8 J         2.2 U         1           mpound was not detected; the         3.2 U         3.2 U         2.2 U         1         1           r was rejected in the data         10 U         10 U         10 U         10 U         1         1         1           numb was 'tentatively identified"         10 U         10 U         10 U <t< td=""><td>ium</td><td>NG/L</td><td>15500</td><td></td><td>19000</td><td>31800</td><td>43200</td><td>1140</td></t<>	ium	NG/L	15500		19000	31800	43200	1140
UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L   UG/L	ese	NG/L	2.5			219	450	24
UG/L         1.6 U         4 U         0.7 U         0.73 J         4 U         0.73 J         4 U         0.73 J         4 U         0.73 J         4 U         0.73 J         4 U         0.73 J         4 U         0.73 J         4 U         0.73 J         4 U         0.73 J         4 U         0.73 J         0.68 J         0.68 J         0.68 J         0.68 J         0.68 J         0.68 J         0.68 J         0.68 J         0.73 J         0.73 J         0.73 J         0.74 J         0.75 U		NG/L	0.2 U			0.04 U	0.04 U	0.0
UG/L         3860 J         7380         1050 J         2150 J         4           UG/L         3.4 U         2.1 J         2.7 U         2.7 U         2.7 U         4.7 U         2.1 J         2.7 U         2.7 U         4.8 J         4.7 U         4.7 U         4.7 U         4.7 U         4.7 J         4.7 J </td <td></td> <td>UG/L</td> <td>1.6 U</td> <td></td> <td>U 2.0</td> <td>0.73 J</td> <td>5.3 J</td> <td>∞</td>		UG/L	1.6 U		U 2.0	0.73 J	5.3 J	∞
UG/L         3.4 U         2.1 J         2.7 U         2.7 U           UG/L         1.3 U         4.2 U         0.5 U         0.68 J           UG/L         34800         11700         2310 J         7190         73           UG/L         4.7 U         1.2 U         1.9 U         4.7 J         7.1 J         7.2 U         7.2 U           UG/L         3.1 J         19.1 J         3.8 J         2.2 U         7.2 U           Is an estimated         Is an estimated         Is approximate	m	NG/L	3860 J		1050 J	2150 J	4650 J	386
UG/L         1.3 U         4.2 U         0.6 U         0.6 U         0.68 J         73           UG/L         34800   11700   11700   2310 J         7190   7190   73         73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730   73         730	п	NG/L	3.4 U			. 2.7 U	2.7 U	9.0
UG/L   34800   11700   2310 J   7190   75   UG/L   4.7 U   1.2 U   1.9 U   4.7 J   7190   75   UG/L   3.1 J   3.7 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U   0.5 U		NG/L	1.3 U			0.68 J	0.5 U	4
UG/L         4.7   U         1.2   U         1.9   U         4.7   J         4		NG/L	34800	11700	2310 J	7190	73500	408
UG/L   1.1   U   0.5   U   0.5   U   0.5   U   0.5   U   0.5   U   0.5   U   0.5   U   U   U   U   U   U   U   U   U	u	NG/L	4.7 U			4.7 J	U 6.1	
UG/L   3.1 J   19.1 J   3.8 J   2.2 U	mı	NG/L	0 1.1 U			0.5 U	2.6 J	7
pound was not detected  eported value is an estimated entration  e compound was not detected; the ciated reporting limit is approximate data was rejected in the data dating process mpound was "tentatively identified"  the associated numerical value  mount was "tentatively identified"  the associated numerical value		NG/L	3.1 J	19.1 J	3.8 J	2.2 U	11.5 J	57
pound was not detected eported value is an estimated entration e compound was not detected; the ciated reporting limit is approximate data was rejected in the data dating process mpound was "tentatively identified"  the associated numerical value monoximate monoximate								
eported value is an estimated entration E compound was not detected; the ciated reporting limit is approximate data was rejected in the data dating process mpound was "tentatively identified" the associated numerical value	npound was not detected							
entration  2 compound was not detected; the ciated reporting limit is approximate data was rejected in the data dating process mpound was "tentatively identified" move the associated numerical value	eported value is an estimated							
compound was not detected; the ciated reporting limit is approximate data was rejected in the data dating process mpound was "tentatively identified" the associated numerical value monoximate	entration							
ciated reporting limit is approximate data was rejected in the data dating process mpound was "tentatively identified" the associated numerical value	s compound was not detected	; the						
data was rejected in the data dating process mpound was "tentatively identified" the associated numerical value	ciated reporting limit is appre	oximate						
dating process mpound was "tentatively identified" the associated numerical value	data was rejected in the data							
mpound was "tentatively identified" the associated numerical value	dating process							
the associated numerical value	mpound was "tentatively iden	ntified"						
norroxinate	the associated numerical val	ne						
	pproximate							

ects\SENECA\PID Area\Report\Draft Final\Appendix\App-D-2 background GW data.xls

STUDY ID:		ESI	ESI	ESI	ESI	ESI	RI PHASE2
LOC ID:		MW58-1	MW64A-1	MW64B-1	MW64C-9	MW64D-1	PT-10
OC CODE:		SA	SA	SA	SA	SA	SA
SAMP. DETH TOP:		NONE	NONE	NONE	NONE	NONE	NONE
SAMP. DEPTH BOT:		NONE	NONE	NONE	NONE	NONE	NONE
MATRIX:		GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER	GROUNDWATER
SAMP. DATE:		11-Jul-94	19-Jul-94	10-Jul-94	10-Jul-94	8-Jul-94	23-Jun-93
SAMP ID:		MW58-1-1	MW64A-1-1G	MW64B-1-1G	MW64C-9-1	MW64D-1-1	PT10GW1
ŒTER	UNIT	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE Q	VALUE
S							
mr	UG/L	440	398	l 861	38.2 J	177 J	72
ly.	T/90	1.3 U	49.5				
	UG/L	2 U	2 U	2 U	2 U	2 U	1.4
	UG/L	71.9 J	42 J	104 J	20.4 J	88.6 J	193
m	UG/L	0.1 U	0.89				
ш	UG/L	0.2 U	2.8				
	UG/L	113000	109000	138000	121000	142000	79100
ш	UG/L	0.82 J	0.49 J	0.41 J	U 4.0	0.4 U	2.7
	UG/L	0.64 J	0.5 U	1.1 J	U 5.0	0.69 J	5.4
	UG/L	1.5 J	J 19:0	<u> </u>	0.55 J	0.5 U	4.7
	NG/L	5 U	5 U	S U	5 U	5 U	10
	UG/L	829	773 J	400	189	440	85.6
	UG/L	U 68.0	U 68.0	U 6.0	U 6.0	U 6.0	0.79
ium	UG/L	17300	16800	45600	49400	14800	34200
ese	UG/L	84	28.3	6.86	96	223	124
	UG/L	0.04 U	0.04 J	0.04 U	0.04 U	0.04 U	0.09
	UG/L	1.6 J	1 1	1.4 J	1.2 J	1.4 J	7.4
m	UG/L	1460 J	I 1790 J	4780 J	1670 J	3340 J	2870
n	NG/L	2.7 U	0.99				
	NG/L	U 5.0	0.5 U	0.5 U	0.5 U	0.5 U	5.4
	NG/L	4180 J	2180 J	8140	6420	12300	41100
u	NG/L	1.9 U	1.9 U	1.9 U	U 6.1	2.2 J	
ım	NG/L	0.81 J	1.3 J	0.73 J	0.61 J	f 69.0	6.7
	UG/L	7.1 J	3.9 J	3.9 J	3.9 J	3.8 J	8.8
pound was not detected							
eported value is an estimated	p						
entration							
s compound was not detected; the	d; the						
ciated reporting limit is approximate	roximate						
data was rejected in the data	3						
dating process							
mpound was "tentatively identified"	entified"						
the associated numerical value	alue						
pproximate							

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#### APPENDIX E

#### SEAD-121C HUMAN HEALTH RISK ASSESSMENT CALCULATION TABLES

E-1A	Calculation of Intake and Risk from the Ingestion of Soil – RME
E-1B	Calculation of Intake and Risk from the Ingestion of Soil – CT
E-2A	Calculation of Absorbed Dose and Risk from Dermal Contact to Soil – RME
E-2B	Calculation of Absorbed Dose and Risk from Dermal Contact to Soil – CT
E-3A	Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Soil – RME
E-3B	Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Soil - CT
E-4A	Calculation of Intake and Risk from the Ingestion of Ditch Soil – RME
E-4B	Calculation of Intake and Risk from the Ingestion of Ditch Soil – CT
E-5A	Calculation of Absorbed Dose and Risk from Dermal Contact to Ditch Soil – RME
E-5B	Calculation of Absorbed Dose and Risk from Dermal Contact to Ditch Soil – CT
E-6A	Calculation of Intake and Risk from Inhalation of Dust in Ambient Air - Ditch Soil -
	RME
E-6B	Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Ditch Soil - CT
E-7A	Calculation of Absorbed Dose and Risk from Dermal Contact to Surface Water - RME
E-7B	Calculation of Absorbed Dose and Risk from Dermal Contact to Surface Water - CT
E-8A	Calculation of Blood Lead Concentration - Surface Soil - Industrial Worker
E-8B	Calculation of Blood Lead Concentration - Surface Soil - Residential Child
E-9A	Calculation of Blood Lead Concentration – Ditch Soil – Industrial Worker
E-9B	Calculation of Blood Lead Concentration – Ditch Soil – Residential Child

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### TABLE E-1A CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Sencea Army Depot Activity

take (mg/kg-day) =	EPC x IR x CF x F1 x EF x ED BW x AT	
imptions for Each Receptor are Listed at the Bottom);		Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose
re Point Concentration in Soil, mg/kg	EF = Exposure Frequency	
Rate	ED = Exposure Duration	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor
on Factor	BW = Bodyweight	
gested	AT = Averaging Time	

	Oral	Carc. Slope	EPC	EPC	*	Industrial Worker	Worker		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Construction Worker	on Worker			Adolescent Trespasser	Trespasser
Analyte	RID	Oral	Surface Soil	Total Soils	Intake	ıke	Hazard	Cancer	Intake	ake	Hazard	Cancer	Intake	ike	Hazard
					(mg/kg-day)	-day)	Quotient	Risk	(mg/ki	(mg/kg-day)	Quotient	Risk	(mg/kg-day)	z-day)	Quotient
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/kg)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	
anic Compounds															
	4E-03	5.5E-02	N/A	1.9E-01	******				6.27E-07	8.96E-09	2E-04	SE-10			
Organic Compounds															
racene	N/A	7.3E-01	3.1E+00	1.8E+00		1.08E-06		8E-07		8.09E-08		6E-08		1.69E-08	
ne	N/A	7.3E+00	3.4E+00	1.8E+00		1.20E-06		9E-06		8.36E-08		6E-07		1.88E-08	
anthene	N/A	7.3E-01	4.5E+00	2.4E+00		1.58E-06		1E-06		1.09E-07		8E-08		2.48E-08	
anthene	N/A	7.3E-02	2.4E+00	1.3E+00		8.41E-07		6E-08		5.94E-08		4E-09		1.32E-08	
	N/A	7.3E-03	2.9E+00	1.7E+00		1.02E-06		7E-09		7.72E-08		6E-10		1.60E-08	
thracene	N/A	7.3E+00	2.2E-01	2.1E-01		7.74E-08		6E-07		9.54E-09		7E-08		1.21E-09	
cd)pyrene	N/A	7.3E-01	3.6E-01	3.0E-01		1.25E-07		9E-08		1.38E-08		1E-08		1.96E-09	
Bs															
	SE-05	1.6E+01	1.4E-02	7.3E-03	1.36E-08	4.86E-09	3E-04	8E-08	2.34E-08	3.34E-10	SE-04	SE-09	1.07E-09	7.63E-11	2E-05
	N/A	2.0E+00	1.6E-02	1.4E-02		5.49E-09		1E-08		6.64E-10		1E-09		8.60E-11	
	2E-05	2.0E+00	2.8E-01	1.4E-01	2.74E-07	9.78E-08	IE-02	2E-07	4.61E-07	6.58E-09	2E-02	1E-08	2.15E-08	1 \$3E-09	IE-03
	N/A	2.0E+00	3.0E-02	3.3E-02		1.05E-08		2E-08		1.54E-09		3E-09		1.65E-10	
	4E-04	N/A	6.04E+01	3.0E+01	5.91E-05		1E-01		9.67E-05		2E-01		4.63E-06		1E-02
	3E-04	1.5E+00	5.79E+00	5.7E+00	5.67E-06	2.02E-06	2E-02	3E-06	1.85E-05	2.64E-07	6E-02	4E-07	4.45E-07	3.18E-08	IE-03
	4E-02	N/A	2.868E+03	1.5E+03	2.81E-03		7E-02		4.77E-03		1E-01		2.20E-04		SE-03
	3E-01	N/A	2.6903E+04	2.8E+04	2.63E-02		9E-02		8.88E-02		3E-01		2 06E-03		7E-03
d Quotient and Cancer Risk:	Risk:						3E-01	1E-05			7E-01	1E-06			3E-02
					As	sumptions for I	Assumptions for Industrial Worker	er	Ass	Assumptions for Construction Worker	onstruction Wo	rker	Assu	Assumptions for Adolescent Tres	Jolescent Tres
					CF =	1E-06	E-06 kg/mg		CF =	1E-06	1E-06 kg/mg		CF =	1E-06	1E-06 kg/mg
					EPC=	EPC Surface Only	ıly		EPC=	EPC Surface and Subsurface	d Subsurface		EPC=	EPC Surface Only	lly
					BW=	70	70 kg		BW=	70	70 kg		BW=	20	50 kg
					IR =	100	100 mg/day		IR =	330	330 mg/day		IR =	100	100 mg/day
					FI=	-	1 unitless		되면		1 unitless		티	~	1 unitless
					田子ョ	250	250 days/year		三子三	250	250 days/year		田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田	14	14 days/year
					ED=	25	25 years		ED =	- :	l years		ED =	\$	5 years
					AT (Nc) =	9,125 days	days		AT (Nc) =	365	365 days		AT (Nc) =	1,825 days	1,825 days
					A1 (Car) =	SARD UCC, C2	days		AI (Car) =	SARD OCC,C2	Cays		A1 (Car) =	00000	oays

this table were intentionally left blank due to a lack of toxicity data tion not available.

### TABLE E-1B CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL CENTRAL TENDENCY (CT) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

ntake (mg/kg-day) ==	EPCXIRX CFXFI X EFXED BW x AT		
sumptions for Each Receptor are Listed at the Bottom);			Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose
are Point Concentration in Soil, mg/kg		EF = Exposure Frequency	
Rate		ED = Exposure Duration	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor
ion Factor		BW = Bodyweight	
Ingested		AT = Averaging Time	

	Oral	Carc. Slope	EPC	EPC		Industria	Industrial Worker			Construction Worker	on Worker			Adolescent	Adolescent Trespasser
Analyte	RD	Oral	Surface Soil	Total Soils	Int	Intake	Hazard	Cancer	Int	Intake	Hazard	Cancer	Int	Intake	Hazard
					(mg/k	(mg/kg-day)	Quotient	Risk	(mg/k	(mg/kg-day)	Quotient	Risk	(mg/k	(mg/kg-day)	Quotient
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/kg)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	
inic Compounds	4 0E-03	5.5F-02	N/A	1 98-01					1.67B-07	2.38E-09	4E-05	1E-10			
		!													
Organic Compounds															
acene.	N/A	7.3E-01	3.1E+00	1.8E+00		1.70E-07		1E-07		2.15E-08		2E-08		8.46E-09	
e	NA	7.3B+00	3.4E+00	1.8E+00		1.89E-07		1B-06		2.22E-08		2E-07		9.38E-09	
anthene	N/A	7.3E-01	4.5E+00	2.4E+00		2.50E-07		2B-07		2.90E-08		2E-08		1.24E-08	
anthene	N/A	7.3E-02	2.4E+00	1.3E+00		1,33E-07		1E-08		1.58E-08		1E-09		6.59E-09	
	N/A	7.3E-03	2.9E+00	1.7E+00		1.61E-07		1E-09		2.05E-08		1E-10		8.01E-09	
thracene	N/A	7.3E+00	2.2E-01	2.1E-01		1.22E-08		9E-08		2.53E-09		2E-08		6.07E-10	
cd)pyrene	N/A	7.3E-01	3.6E-01	3.0E-01		1.97E-08		1E-08		3.67E-09		3E-09		9.78E-10	
Bs															
	5.0E-05	1.6E+01	1.4E-02	7.3B-03	5.97E-09	7.67E-10	1E-04	1E-08	6.21E-09	8.88E-11	1E-04	1E-09	5.34E-10	3.81E-11	1E-05
	NA	2.0E+00	1.6E-02	1.4E-02		8.65E-10		2E-09		1.76E-10		4E-10		4.30E-11	
	2.0E-05	2.0E+00	2.8E-01	1.4E-01	1.20E-07	1.54E-08	6E-03	3E-08	1.22E-07	1.75E-09	6E-03	3E-09	1.07E-08	7.67E-10	5E-04
	N/A	2.0E+00	3.0E-02	3.3E-02		1.66E-09		3E-09		4.10E-10		8E-10		8.27E-11	
	4.0E-04	N/A	6.04E+01	3.0E+01	2.59E-05		6E-02		2.57E-05		6B-02		2.32E-06		6E-03
	3.0E-04	1.5E+00	5.79E+00	5.7B+00	2.48E-06	3.19E-07	8E-03	SE-07	4.91E-06	7.01E-08	2B-02	1E-07	2.22E-07	1.59E-08	7E-04
	4.0E-02	N/A	2.868E+03	1.5E+03	1.23E-03		3E-02		1.27E-03		3E-02		1.10E-04		3E-03
	3.0E-01	N/A	2.6903E+04	2.8B+04	1.15E-02		4E-02		2.36E-02		8E-02		1.03E-03		3E-03
l Quotient and Cancer Risk:	Risk:						1E-01	2E-06			2E-01	3E-07			1E-02
					As	Assumptions for Industrial Worker	ndustrial Worl	cer	Assı	Assumptions for Construction Worker	nstruction Wo	rker	Assu	imptions for Ac	Assumptions for Adolescent Trespa
				100	H	1F-06	1R-06 kg/mg		E E	18-06	18-06 kg/mg		80	1E-06	1E-06 kg/mg
					BPC=	BPC Surface Only	o Ar		EPC=	EPC Surface and Subsurface	d Subsurface		BPC	EPC Surface Only	da yir
				,-4	BW=	70	70 kg		BW=	70	70 kg		BW=	50	50 kg
		٠			田=	50	50 mg/day		三 出	100	100 mg/day		京本	90	50 mg/day
					FI=	1	1 unitless		FI=	1	1 unitless		FIX	***	1 unitless
				.:1.	BF =	219	219 days/year		田下二	219	219 days/year		田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田	14	14 days/year
				-	ED=	0	9 years		ED =	1	1 years		ED =	\$	5 years
				,	AT (Nc) =	3,285 days	days		AT (Nc) =	365	365 days		AT (Nc) =	1,825 days	days
					AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days		(AT (Car) =	25,550 days	days

this table were intentionally left blank due to a lack of toxicity data.

### TABLE E-2A CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

					3 1 3 1 3 1 3 1 3 1			A								Carlotte Company
take (mg/kg-day) =			EPC x CF x SA	EPC x CF x SA x AF x ABS x EV x EF x ED	X EF X ED											
umptions for Each Receptor are Listed at the Bottom)	tor are Listed at the	. Bottom):		DW X A1					Egu	ation for Hazard	1 Ouotient = Chr.	Equation for Hazard Opolical = Chronic Daily Intake (Ney/Reference Dose	Nc)/Reference Do	380		
re Point Concentration in Soil, mg/kg	Soil, mg/kg			EV = Event Frequency EF = Exposure Frequency	acy				14.	oustion for Can	zer Risk = Chron	Fountion for Cancer Risk = Chronic Daily Intake (Car) x Slone Factor	nr) x Slone Factor			
rea Contact e Factor			~	ED = Exposure Duration BW = Bodyweight	ration				•							
			1 1		1 1											
	Dermai	Carc. Slope	Absorption	EPC	EPC		Industrial Worker	Worker			Construct	Construction Worker			Adolescent Trespasser	respasser
Analyte	CD.	Dermai	Factor	Surface Soil	Total Soils	Absorbed Dose (mg/kg-dav)	d Dose	Hazard	Cancer	Absorbed Dose	d Dose	Hazard	Cancer	Absorbed Dose	d Dose	Hazard
	(mg/kg-day)	(mg/kg-day)-1	(unitless)	(mg/kg)	(mg/kg)	(Nc)	(Car)			(NC)	(Car)			(Nc)	(Car)	
nie Compounds	45.03	, ee	50 30	, and	10 30 1					00	01 107 6	20				
	45-03	7.3E-02	1.05-04	C/N	1.75-01			-		1.88E-V8	7.09E-10	20-20	11-21			
Organic Compounds	X/X	7.3E-01	1.3E-01	3.1E+00	1.8E+00		9.25E-07		7E-07		3.16E-08		2E-08		9 03E-09	
	N/A	7.3E+00	1.3E-01	3.4E+00	1.8E+00		1.03E-06		7E-06		3.26E-08		2E-07		1.00E-08	
nthene	N/A	7.3E-01	1.3E-01	4.5E+00	2.4E+00		1.36 <b>E-</b> 06		1E-06		4.27E-08		3E-08		1 33 E-08	
nthenc	N/A	7.3E-02	1.3E-01	2.4E+00	1,3E+00		7.22E-07		\$E-08		2.32E-08		2E-09		7 04E-09	
	N/A	7.3E-03	1.3E-01	2.9E+00	1.7E+00		8.77E-07		6E-09		3.01E-08		2E-10		8.55E-09	
hracene	N/A	7.3E+00	1.3E-01	2.2E-01	2.1E-01		6.64E-08		\$E-07		3.72E-09		3E-08		6.48E-10	
d)pyrene	٧/X	7.3E-01	1.3E-01	3.6E-01	3.0E-01		1.07E-07		8E-08		\$.39E-09		4E-09		1.04E-09	
Bs	90 13	104371	10 10	145.00	00 22	00 000	00	.000	90	200	100	3	6		-	2
	N/A	2.0E+00	1.4E-01	1.4E-02	1.45-02	6.37E-03	5.07E-09	50-27	0E-08	7.02E-03	2 79E-10	+0-u	6E-10	4.395-10	3,13E-11	75-06
	2E-05	2.0E+00	1.4E-01	2.8E-01	1.4E-01	2.53E-07	9.04E-08	1E-02	2E-07	1.93E-07	2.76E-09	1E-02	6E-09	1.23E-08	8 82E-10	6E-04
	N/A	2.0E+00	1.4E-01	3.0E-02	3.3E-02		9.74E-09		2E-08		6.48E-10		1 <b>E-</b> 09		9.51E-11	
	6E-03	××××××××××××××××××××××××××××××××××××××	1.0E-03	6.0E+01	3.0E+01	3.90E-07		7E-03		2.90E-07		\$E-03		1.90E-08		3E-04
	3E-04	1.5E+00	3.0E-02	5.8E+00	\$.7E+00	1.12E-06	4.01E-07	4E-03	6E-07	1 66E-06	2.38E-08	6E-03	4E-08	\$ 48E-08	3.91E-09	2E-04
	4E-02	X X	1.0E-03	2.9E+03	1.5E+03	1.85E-05		5E-04		1.43E-05		4E-04		9 03E-07	•	2E-05
Ouotient and Cancer Risk:	1					1		2E-02	1E-05	10-700-7		2E-02	4E-07	00-2010		1E-03
						Ass	Assumptions for Industrial Worker	dustrial Worke	1	As	sumptions for C	Assumptions for Construction Worker	ker	Assu	Assumptions for Adolescent Tres	lescent Tres
							1E-06 kg/mg	gm/g.			1E-06 kg/mg	g/mg		CF **	IE-06 kg/mg	g/mg
						EPC = I	EPC Surface Only	<i>&gt;</i> °		EPC=	EPC Surface and Subsurface	Subsurface		EPC = Bw =	EPC Surface Only	× 5
						SA =	3.300 cm²	n,		SA	3.300 cm²	, ii		SA=	\$ 867 CIN <sup>2</sup>	, 11
						AF-	0.2 m	0.2 mg/cm²-event	-	AF *	0,3 1	0.3 mg/cm²-event		AF ==	0.07	0.07 mg/cm²-event
						EV =	-	1 event/day		EV=	-	1 event/day		EV =	10	1 event/day
						EF=	250 days/ye	250 days/year		EF =	250	250 days/year		EF =	Ξ.Υ	14 days/year
						AT (Nc) =	9,125 days	lays		AT (Nc) **	365 days	tays		AT (Nc) =	1,825 days	lays
						AT (Car) =	25,550 days	lays		AT (Car) =	25,550 days	lays		AT (Car) =	25,550 days	lays

nce for Superfund, Human Health Evaluation Manual (Volume !). Into this table were intentionally left blank due to a lack of toxicity data.

Into the second of the second of the second of the second of the USEPA (2004) Supplemental Guidance for Dernul Risk Assessment, Part E of Risk Assessment Guidance for Second from Exhibit 14 of USEPA (2004).

Solor for antimony, copper, and from were assumed to be 0.001 in accordance with the USEPA Region 4 (2000).

Confor for betrace was assumed to be 0.01 in accordance with the USEPA Region 4 (2000) guidance for VOCs.

Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/weate/ots/healtbul.htm).

### TABLE E-2B CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL CENTRAL TENDENCY (CT) - SEAD-121C SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

take (mg/kg-day) =		_	EPC x CF x SA x AF x	F x ABS x EV x EF x ED	XED											
umptions for Each Receptor are Listed at the Bottom);	ceptor are Listed at	t the Bottom);	BW×AT						ជ	quation for Haza	rd Quotient = Ch	Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose	(Nc)/Reference Do	280		
re Point Concentration in Soil, mg/kg on Factor vea Contact re Factor (on Factor	n in Soil, mg/kg			EV = Event Frequency EF = Exposure Frequency ED = Exposure Duration BW = Bodyweight AT = Averaging Time	cy puency ation ne					Equation for Ca	ncer Risk = Chro	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	ar) x Slope Facto			
	Dermol	Care Clone	Absoration	Jaa	Jaa	1 to (2.4)	Industrial Worker	Worker			Contract	Construction Worker			Adolescent Tresnasser	Treensager
Analyte	8	Dermal	Factor	Surface Soil	Total Soils	Absorb	Absorbed Dose	Hazard	Cancer	Absorb	Absorbed Dose	Hazard	Cancer	Absorb	Absorbed Dose	Hazard
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(unitless)	(mg/kg)	(mg/kg)	(Nc)	(mg/kg-day)	Quotient	Rusk	(Nc)	mg/kg-day) (Car)	Quotient	Kusk	(Nc)	(mg/kg-day)	Quotient
nic Compounds	4.00E-03	5.5E-02	1.0E-02	N/A	1.9E-01					1.65E-08	2.35E-10	4E-06	11-31			
Organic Compounds																
icene	_	7.3E-01	1.3E-01	3.1E+00	1.8E+00		2.92E-08		2E-08		2.76E-08		2E-08		1.29E-09	
	N/A	7.3E+00	1.3E-01	3.4E+00	1.8E+00		3.24E-08		2E-07		2,85E-08		2E-07		1.43E-09	
nthene	N/A	7.3E-01	1.35-01	4.5E+00	2.45+00		4.29E-08		3E-08		3.74E-08		3E-08		1.90E-09	
nthene	N/A	7.3E-02	1.3E-01	2.4E+00	1.3E+00		2.28E-08		2E-09		2.03E-08		1E-09		1.01E-09	
	A/N	7.3E-03	1.3E-01	2.9E+00	1.7E+00		2.76E-08		2E-10		2.64E-08		25-10		1.22E-09	
hracene	A/A	7.3E+00	1.3E-01	2.2E-01	2.1E-01		2.09E-09		2E-08		3.26E-09		2E-08		9.23E-11	
d)pyrene	N/A	7.3E-01	1.3E-01	3.6E-01	3.0E-01		3.37E-09		2E-09		4.72E-09		3E-09		1.49E-10	
Bs									*							
	\$.00E-0\$	1.6E+01	1.05-01	1.4E-02	7.3E-03	7.87E-10	1.01E-10	2E-05	2E-09	6.15E-09	8.79E-11	18-04	1E-09	6.27E-11	4.48E-12	1.25E-06
	N/A	2.0E+00	1.45-01	1.6E-02	1.4E-02		1.60E-10		3E-10	20 207 .	2.44E-10		5E-10	27.	7.075-12	0.000
P	2.00E-05	2.0E+00	1.4E-01	3.05-02	3.3E-02	7.77E-08	3.07E-10	15-03	0E-10	1.09E-07	\$.68E-10	50-39	1E-09	1.705-09	1.36E-11	6.62E-U3
	6.00E-05	N/A	1.0E-03	· 6.0E+01	3.0E+01	3.42E-08		6E-04		2.54E-07		4E-03		2,72E-09		4.53E-05
	3.00E-04	1.5E+00	3.0E-02	5.8E+00	5.7E+00	9.83E-08	1.26E-08	35-04	2E-08	1.46E-06	2.08E-08	5E-03	3E-08	7.82E-09	5.59E-10	2.61E-05
	3.00E-01	N/A	1.0E-03	2.7E+04	2.8E+04	1.82E-06		\$E-03		2.33E-04		8E-04		1.21E-06		4.04E-06
Ouotlent and Cancer Risk:	r Risk:							2E-03	3E-07			2E-02	3E-07			2E-04
						A.	Assumptions for Industrial Worker	ndustrial Work	ter	٧	ssumptions for	Assumptions for Construction Worker	rker	Assı	Assumptions for Adolescent Tre	olescent Tre
						CF=	1E-06 kg/mg	kg/mg		CF=	1E-06	1E-06 kg/mg		CF=	1E-06	IE-06 kg/mg
						CS =	EPC Surface Only	ly .		EPC =	EPC Surface and Subsurface	and Subsurface		EPC =	EPC Surface Only	ly bo
						1 24 3	2 200 cm <sup>2</sup>	2 2 2		1 40	3 300 cm <sup>2</sup>	7 P P P P P P P P P P P P P P P P P P P		= 43	4 867 cm2	, 48 , 48
						1 40	0000			1 1	מיירי	viii 2		1 1 1	1000	,001
						AF=	0.02	0.02 mg/cm -event		A- =	6.0	0.3 mg/cm -event		Ar =	0.0	ol mg/cm -even
						1 1 1 1 1	219	219 days/year		EF.	219	219 days/year		EF	4	14 days/year
						ED=	6	9 years		ED=	-	1 years		ED =	\$	5 years
						AT (Nc) =	3,285 days	days		AT (Nc) =	365	365 days		AT (Nc) =	1,825 days	days
						AT (Car) =	25,550 days	days		AT (Car) **	25,550 days	days		AT (Car) =	25,550 days	days

this table were intentionally left blank due to a lack of toxicity data.

ion not available.

In IVER A (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluations, copper, and from were assumed to be 0.001 in accordance with the USEPA Region 4 (2000).

Cotof for entrare was assumed to be 0.01 in accordance with the USEPA Region 4 (2000) guidance for VOCs.

Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.spa.gov/region4/waste/ots/healtbul.htm).

ition Manual (Volume I).

ent/DERMSOIL1.xis/CT man Health Risk Tables/121C-DMRO\soil asse SENECA\PID Area\Report\Draft Final\Risk Assessm

## TABLE E-3A CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

													40000		
ske (mg/kg-day) =			EPC x IR x BF x ED RW x AT							Ear	Bouation for Hazard Ouotient = Chronic Daily Intake (Ney Reference Dose	Juotient = Chroni	c Daily Intake (P	ic)/Reference Dos	
mptions for Each Receptor are Listed at the Bottom)	tor are Listed	at the Bottom):								ſ					
ir, mg/m³				BD - Exposure Duration	tion					142	Equation for Cancer Risk = Chronic Daily Intake (Car) $\times$ Slope Factor	Risk = Chronic	Daily Intake (Ca	r) x Slope Factor	
Zate Prequency				BW = Bodyweight AT = Averaging Time	ų										
	1		044			1	Western			Constant	Construction Works			Adolescent	Adolescent Trespasser
	Inhaianon	Carc. Slope	AIT EFC ITOM	AJF E.P.C. ITOM		Andustral Worker	Worker		-	1	מחחות אג חו שבו				Trees
Analyte	8	Inhalation	Surface Soil	Total Solls	Int: Int:	Intake (mg/kg-dav)	Hazard	Cancer	Intake (mg/kg-day)	ake -day)	Hazard	Cancer	III (mg/k	Intake (mg/kg-day)	Quodent
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/m <sup>2</sup> )	(mg/m³)	(Nc)	(Car)	,		(Nc)	(Car)			(Nc)	(Car)	
c Compounds	8.57E-03	2.73E-02	N/A	1.9E-07					3.63E-08	5.18E-10	4B-06	1B-11			
ganic Compounds	;	;													
cne	A X	3.10E+00	5.2E-08 5.8E-08	1.7E-06		4.07E-09		1E-08		4.83E-09		1E-08		5.10E-12	
thene	N/A	N/A	7.7E-08	2.3E-06											
thene	A'X	N/A A/N	4.1B-08	1.2E-06											
racene	N/A	N/A	3.8E-09	2.0E-07											
pyrene	N/A	N/A	6.1E-09	2.9E-07											
s								5				9		1, 570 1,	
	X X	1.61E+01 2.00E+00	2.7E-10	0.9E-09		1.63E-11 1.87E-11		3E-10 4E-11		3.84E-11		8E-11		2.34E-14	
	N/A	2.00E+00	4.8E-09	1.4E-07		3.33E-10		7E-10		3.80E-10		8E-10		4.17E-13	
	V/A	2.00E+00	5.1E-10	3.2E-08		3.58E-11		7E-11		8.93E-11		2E-10		4.50E-14	
	N/A	N/A	1.0E-06	2.9E-05											
	X X X	1.51E+01 N/A	9.9E-08 4.9E-05	5.5E-06 1.4E-03		6.88E-09		1E-07		1.53E-08		2E-07		8.648-12	
	N/A	N/A	4.6E-04	2.6E-02											
Suotient and Cancer Risk:	Usk:							1E-07			4E-06	2E-07			
					A.	ssumptions for I	Assumptions for Industrial Worker	er	¥	ssumptions for	Assumptions for Construction Worker	ker	Ass	Assumptions for Adolescent Tresp	olescent Tresp
					EPC=	EPC Surface Only	ıly		EPC=	EPC Surface and Subsurface	Subsurface		EPC =	EPC Surface Only	ıly
					- M8.	70	70 kg		BW ≈	70 kg	89		BW ==	20	50 kg
					吊二	20	20 m³/day		吊=	20 1	20 m³/day		IR -	1.6	1.6 m³/day
					三子三 一子三	250	250 days/year		# HE	250	250 days/year		12日	14	14 days/year
					ED ==	25	25 years		ED =		1 year		1 02		o years
					AT (Nc) =	9,125 days	days		AT (Nc) = AT (Car) =	365 days 25.550 days	days		AT (Nc) =	1,825 days	Gays days
					(ma)	00000	2	1	( )	200			, , , , , , , ,		-

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as used for the industrial worker and the adolescent trospasser.
as used for the construction worker.

### TABLE E-3B CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR CENTRAL TENDENCY (CT) - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

rake (mg/kg-day) =

Canada Cara and and Land I amount of the Cara and and in-	Total to be and the second	, Care	BW x AT							Equat	ion for Hazard Ç	Puotient = Chrot	uc Daily Intake	Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose	ose
Air, mg/m³	ALL BEAT PROPERTY OF THE	. Toolson II.		ED = Exposure Duration	ion					ъ	ation for Cancer	7 Risk = Chronic	: Daily Intake (C	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	Ŀ
Rate Prequency			,	BW = Bodyweight AT = Averaging Time											
	Inheletion	Care Slone	Alr PPC from	Air EPC from		Industrial Worker	Worker			Construction Worker	Worker			Adolescent Tresparer	Trespanser
Analyte	KO	Inhalation	Surface Soll	Total Solls	Intake	ike	Hazard	Cancer	Inti	Intake (mo/ko.dav)	Hazard	Cancer	Inta	Intake (mo/ko-dav)	Hazard
	(mg/kg-day)	(mg/kg-day)-1	(mg/m <sup>2</sup> )	(mg/m <sup>2</sup> )	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	,
nic Compounds	8.57E-03	2.73B-02	N/A	1.9E-07					3.18E-08	4.54E-10	4E-06	15-11			
Organic Compounds						-									
scene	N/A	N/A	5.2E-08	1.7E-06								į		2, 10, 10	
or the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contrac	4 × ×	3.10E+00	2.8E-08	1./E-06		0.6/E-10		ZE-09		4.23E-09	_	12-08		3.105-12	
nthene	N/A	N/A	4.1B-08	1.2E-06											
	N/A	N/A	5.0E-08	1.6E-06							_				-
hracene	N/A	N/A	3.8E-09	2.0E-07		_									
d)pyrene	N/A	N/A	6.1B-09	2.9E-07											_
Bs								•							
	N/A	1.618+01	2.4E-10	6.9E-09		2.71B-12	_	4E-11		1.69E-11		3E-10		2.07E-14	
	N/A	2.00E+00	2.7E-10	1.4E-08		3.06E-12		6E-12		3.36E-11		76-11		2.34E-14	
	N/A	2,005+00	4.0E-03	1.7E-08		5 88E-12	_	11.11		7.87F-11		2F-10		4.50E-14	
				2				:				:			-
	N/A	N/A	1.0E-06	2.9E-05					,						
	N/A	1.518+01	9.9E-08	5.5E-06		1.13E-09		2E-08		1.34E-08	•	2E-07		8.64E-12	
	N/A	N/A	4.68-04	2.6E-02											
Quotient and Cancer Risk:	lsk:							2E-08			4E-06	2E-07			
					As	sumptions for It	Assumptions for Industrial Worker	i.	Ass	Assumptions for Construction Worker	astruction Worl	ker	Assu	Assumptions for Adolescent Trespa	descent Trespa
					EPC =	EPC Surface Only	Ą		EPC ≈	BPC Surface and Subsurface	Subsurface		EPC=	EPC Surface Only	ž.
					BW=	70 kg	, kg		BW =	70 kg	90		BW=	50 kg	.99
					IR=	10.4 1	10.4 m³/day		IR =	20 L	20 m³/day		IR =	1.6	1.6 m³/day
					EF =	219	219 days/year		EF=	219 €	219 days/year		五年 田	14	14 days/year
					ED	6	9 years		ED	11,	1 year		ED.	5 20 5	5 years
					A1 (NC) =	3,285 days	days ,		AI (NC) =	sos days	lays		AI (NC) #	1,825 days	ays J.:
					AT (Car) =	25,550 m³/day	m²/day		AT (Car) =	25,550 m³/day	n'/day		AT (Car) =	25,550 m²/day	m'/day
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this table were intentionally left blank due to a lack of toxicity data, on not available.
was used for the industrial worker and the adolescent trespasser.
was used for the construction worker.

## TABLE E-4A CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

		Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor		1.18.1886
	EPCxIRx CFxFI x EFxED BW x AT		ED = Exposure Frequency ED = Exposure Duration	BW = Bodyweight	AT = Averaging Time
Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compression Compre	ntake (mg/kg-day) ≂	unptions for Each Receptor are Listed at the Bottom)	re romt Concentration in Laten Sou, ing/kg Rate	on Factor	ngested

Analyte									71 1101170	Construction worker			TATOTONY.	Adolescent Trespasser
	RD	Oral	Ditch Soil	Intake	ke Hazar	Hazard	Cancer	Intake	ı	Hazard	Cancer	Intake	ike	Hazard
•				(mg/kg-day)	-day)	Quotient	Risk	(mg/kg-day)	-day)	Quotient	Risk	(mg/kg-day)	-day)	Quotient
1)	ng/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/kg)	(Nc)	(Car)	,		(Nc)	(Car)			(Nc)	(Car)	
Organic Compounds														
acene	N/A	7.3E-01	6.8E-01		4.73E-08		3E-08		3.12E-08		2E-08		3.71E-09	
e	N/A	7.3E+00	6.3E-01		4.42E-08		3E-07		2.91E-08		2E-07		3.46E-09	
anthene	N/A	7.3B-01	6.7E-01		4.71E-08		3E-08		3.11E-08		2E-08		3.69E-09	
anthene	N/A	7.3E-02	5.8E-01		4.07E-08		3E-09		2.68E-08		2E-09		3.19E-09	
	N/A	7.3E-03	7.0E-01		4.89E-08		4E-10		3.23E-08		2E-10		3.83E-09	
:d)pyrene	N/A	7.3E-01	5.8E-01		4.07E-08		3E-08		2.69E-08		2E-08		3.19E-09	
													_	
	3E-04	1.5E+00	4.3E+00	8.34E-07	2.98E-07	3E-03	4E-07	1.38E-05	1.97E-07	5E-02	3E-07	3.27E-07	2.34E-08	1E-03
	3E-01	N/A	2.2E+04	4.25E-03		1E-02		7.02B-02		2E-01		1.67E-03		6E-03
Quotient and Cancer Risk:	isk:					2E-02	9E-07			3E-01	6E-07			7E-03
				Ass	Assumptions for Industrial Worker	dustrial Worke	ar.	AS	sumptions for C	Assumptions for Construction Worker	ker	ASSIL	Assumptions for Adolescent Trespas	escent Trespa
			_	CF=	1E-06 kg/mg	kg/mg		CF =	1E-06 kg/mg	kg/mg		CF.	1E-06 kg/mg	sg/mg
				BW=	70 kg	80	_	BW =	70 kg	kg		BW=	50 kg	83
				IR =	1001	100 mg/day		IR =	330	330 mg/day		IR=	100	100 mg/day
				H=	11	1 unitless	_	FI =	1	1 unitless		三 王	-	1 unitless
				EF =	20 (	50 days/year		BF =	250	250 days/year		EF =	14	14 days/year
				ED=	25 )	25 years		(BD =	-	1 years		ED≖	S	5 years
				AT (Nc) =	9,125 days	days		AT (Nc) =	365 days	days		AT (Nc) =	1,825 days	lays
			,	AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	lays

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SENECA(PID Area)Report/Draft Final/Risk Assessment/Human Health Risk Tables/121C-DMRO/soil assessment/ING DITCH SOIL1.xls/RME

## TABLE E-4B CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL CENTRAL TENDENCY (CT) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

take (mg/kg-day) ≖	-	P-44	EPCXIRX CFXFIX EFXED BWXAT	EI x EF x ED										
umptions for Each Receptor are Listed at the Bottom):	otor are Listed	(at the Bottom):					Ä	quation for Hazai	d Quotient = Ch	Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose	Nc)/Reference Do	se		
re Point Concentration in Ditch Soil, mg/kg	n Ditch Soil, n	mg/kg		EF = Exposure Frequency	Frequency									
Rate		,		ED = Exposure Duration	Duration			Equation for Ca.	ncer Risk = Chrc	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	ar) x Slope Factor			
on Factor ngested				BW = Bodyweight AT = Averaging Time	ght g Time									
	Oral	Carc. Slope	EPC		Industrial Worker	l Worker			Construe	Construction Worker			Adolescent Trespasser	respasser
Analyte	ጹመ	Oral	Ditch Soil	Int	Intake	Hazard	Cancer	Int	Intake	Hazard	Сапсег	Intake	ke	Hazard
				(mg/k	(mg/kg-day)	Quotient	Risk	(mg/k	(mg/kg-day)	Quotient	Risk	(mg/kg-day)	-day)	Quotient
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	
Organic Compounds														
scene	N/A	7.3E-01	6.8E-01		8.51E-09		6E-09		8.28E-09		6E-09		1.85E-09	
•	N/A	7.3E+00	6.3E-01		7.95E-09		6E-08		7.74E-09		6E-08		1.73E-09	
urthene	N/A	7.3E-01	6.7E-01		8.48E-09		6E-09		8.26E-09		6E-09		1.85E-09	
inthene	N/A	7.3E-02	5.8E-01		7.32E-09		5E-10		7.13E-09		5E-10		1.59E-09	
	N/A	7.3E-03	7.0E-01		8.80E-09		6E-11		8.57E-09		6E-11		1.92E-09	
d)pyrene	N/A	7.3E-01	5.8E-01		7.33E-09		SE-09		7.14E-09		SE-09		1.60E-09	
												!		į
	3.0E-04	1.5E+00	4.3E+00	4.17E-07	5.36E-08	1E-03	8E-08	3.65E-06	5.22E-08	1E-02	8E-08	1.64E-07	1.17E-08	5E-04
	3.0E-01	N/A	2.2E+04	2.13E-03		7E-03		1.86E-02		6E-02		8.335-04		32-03
Quotient and Cancer Risk:	üsk:					8E-03	2E-07			7E-02	2E-07			3E-03
				Ą	Assumptions for Industrial Worker	industrial Work	er	₹	Assumptions for	Assumptions for Construction Worker	ker	Assu	Assumptions for Adolescent Trespa	lescent Trespa
				G-	1B-06	1E-06 kg/mg		GF=	1E-06	1E-06 kg/mg		CF=	1E-06 kg/mg	gm/gs
				BW=	70	70 kg		BW=	70	70 kg		BW=	50 kg	9
				田=	20	50 mg/day		R=	100	100 mg/day		K =	20 1	50 mg/day
				FI=		1 unitless		FI =	-	1 unitless		FI =	- ;	1 unitless
				五子 =	20	50 days/year		EF ==	219	219 days/year		- 1	4,	14 days/year
				ED=	O	9 years		ED=	- ;	1 years		ED =	2	5 years
				AT (Nc) =	3,285 days	days		AT (Nc) =	365 days 25 550 days	365 days 550 days		A1 (Nc) = AT (Car) =	1,825 days 25,550 days	lays
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# TABLE E-5A CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

ntake (mg/kg-day) =			EPC x CF x SA	EPC x CF x SA x AF x ABS x EV x EF x ED BW x AT	V x EF x ED										
sumptions for Each Receptor are Listed as the Bottom); are Point Concentration in Ditch Soil, mg/kg ion Factor and Concentration in Ditch Soil, mg/kg	ptor are Listed	at the Bottom); g/kg		EV = Event Frequency EF = Exposure Frequency ED = Exposure Augustica	uency requency			Щ	quation for Hazar Equation for Can	rd Quotient = Ch	Equation for Hazard Quotiont = Chronic Daily Intake (Ne)/Reference Dose Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	(Ne)/Reference D. Car) x Slope Facto	250		
orica Contactice ce Factor ption Factor				BW = Bodyweight AT = Averaging Time	ht Time										
	Dermal	Carc. Slope	Absorption	EPC		Industria	Industrial Worker			Construc	Construction Worker			Adolescent Trespasser	respasser
Analyte	RfD	Dermal	Factor	Ditch Sail	Absorbed Dose (mg/kg-day)	ed Dose	Hazard	Cancer Risk	Absorbed Dose (mg/kg-day)	ed Dose	Hazard	Cancer Risk	Absorbed Dose (mg/kg-day)	ed Dose	Hazard
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(unitless)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)	,		(Nc)	(Car)	,
Organic Compounds	;											i i			
accuc	Υ : 2	7.3E-01	1.3E-01	6.8E-01		4.06E-08		3E-08		1.22E-08		95-09		1 98E-09	
90	V :	7.3E+00	1.35-01	6.3E-01		3.79E-08		3E-07		1.14E-08		8E-08		1 85E-09	
anthene	Y/Z	7.3E-01	1.3E-01	6.7E-01		4.04E-08		3E-08		1.21E-08		9E-09		1 97E-09	
anthene	X/X	7.3E-02	1.3E-01	5.8E-01		3.49E-08		3E-09		1.05E-08		8E-10		1 70E-09	
	X/A	7.3E-03	1.3E-01	7.0E-01		4.20E-08		3 <b>E-</b> 10		1.26E-08		9E-11		2 05E-09	
d)pyrene	N/A	7.3E-01	1.3E-01	5.8E-01		3.49E-08		3E-08		1.05E-08		8E-09		1 70E-09	
	3E-04	1.5E+00	3.0E-02	4.3E+00	1.65E-07	5.90E-08	6E-04	9E-08	1.24E-06	1.77E-08	4E-03	3E-08	4.03E-08	2 88E-09	IE-04
	3E-01	N/A	1.0E-03	2.2E+04	2.81E-05	-	9E-05		2.10E-04		7E-04		6.85E·06		2E-05
Quotient and Cancer Risk:	isk:						6E-04	5E-07			5E-03	1E-07			2E-04
					As	sumptions for I	Assumptions for Industrial Worker	er	A	ssumptions for	Assumptions for Construction Worker	rker	Assu	Assumptions for Adolescent Trespi	lescent Trespa
					CF =	1E-06	1E-06 kg/mg		CF =	1E-06 kg/n	1E-06 kg/mg		CF = 0.00	1E-06 kg/mg	gm/g
					1 2	00 Kg	202		1 3 4	0/ 000	, KB		1 2 3	20 xg	200
					SA ≈	3,300 cm <sup>-</sup>	cm_		SA =	3,300 cm <sup>2</sup>	cm,		SA =	5,867 cm <sup>2</sup>	, E
					AF =	0.2	0.2 mg/cm2-event		AF=	0.3	0.3 mg/cm²-event		AF≍	0.07 n	0.07 mg/cm²-event
					EV =	_	l event/day		EV =	_	l event/day		EV =	_	l event/day
					EF =	20	50 days/year		EF =	250	250 days/ycar		EF =	14.0	14 days/year
					ED =	25	25 years		ED =	- ;	lyears		ED =	5 )	5 years
					AT (Nc) =	9,125 days	days		AT (Nc) =	365 days	365 days		AT (Nc) =	1,825 days	ays

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# TABLE E-5B CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL CENTRAL TENDENCY (CT) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Intake (mg/kg-day) =			EPCxCFxSAxAl BWxAT	EPCxCFxSAxAFxABS x EVxEFxED BWxAT	EF x ED										
ssumptions for Each Receptor are Listed at the Bottom): sure Point Concentration in Ditch Soil, mg/kg sion Pactor - Area Contact - mee Factor rption Factor	plor are Listed n Ditch Soil, m	at the Bottom);		EV = Event Frequency EF = Exposure Frequency ED = Exposure Duration BW = Bodyweight AT = Averaging Time	incy equency ration ime			ш	quation for Haza Equation for Ca	Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	ronic Daily Intake	(Nc)/Reference D Car) x Slope Facto	250		
	Dermal	Carc. Slope	Absorption	EPC	00 8	Industria	Industrial Worker			Construc	Construction Worker			Adolescent Trespasser	Frespasser
Analyte	RD	Dermal	Factor*	Ditch Soil	Absort	Absorbed Dose	Hazard	Cancer	Absorb (me/k	Absorbed Dose	Hazard	Cancer	Absorbed Dose	ed Dose	Hazard
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(unitless)	(mg/kg)	(Nc)	(Car)	,		(Nc)	(Car)	,		(Nc)	(Car)	,
Organic Compounds															
hacene	N/A	7.3E-01	1,3E-01	6.8E-01		1.46E-09		1E-09		1.07E-08		8E-09		2.83E-10	
ene	N/A	7.3E+00	1.3E-01	6.3E-01		1.36E-09		1E-08		9.96E-09		7E-08		2.64E-10	
pranthene	NA	7.3E-01	1.3E-01	6.7E-01		1.46E-09		1E-09		1.06€-08		8E-09		2.82E-10	
pranthene	N/A	7.3E-02	1.3E-01	5.8E-01		1.26E-09		9E-11		9.17E-09		7E-10		2.43E-10	
	N/A	7.3E-03	1.3E-01	7.0E-01		1.51E-09		15-11		1.10E-08		8E-11		2.92E-10	
-cd)pyrene	N/A	7.3E-01	1.3E-01	5.8E-01		1.26E-09		9E-10		9.18E-09		7E-09		2.44E-10	
	3.00E-04	1.5E+00	3.0E-02	4.3E+00	1.65E-08	2.12E-09	6E-05	3E-09	1.09E-06	1.55E-08	4E-03	2E-08	\$.76E-09	4.11E-10	1.92E-05
	3.00E-01	N/A	1.0E-03	2.2E+04	2.81E-06		9E-06		1.84E-04		6E-04		9.78E-07		3.26E-06
rd Quotient and Cancer Risk:	Risk:						6E-05	2E-08			4E-03	1E-07			2E-05
					Y	Assumptions for Industrial Worker	industrial Work	er	4	Assumptions for Construction Worker	Construction Wo	rker	Assu	Assumptions for Adolescent Trespo	olescent Trespa
					CF-	1E-06	E-06 kg/mg		CF ==	15-06	1E-06 kg/mg		CF≖	1E-06	E-06 kg/mg
					BW=	70	70 kg		BW=	70 kg	kg		BW≃	50 kg	kg
					SA-	3,300 cm²	cm <sup>2</sup>		SA =	3,300 cm <sup>2</sup>	cm <sub>2</sub>		SA =	5,867 cm <sup>2</sup>	cm <sup>2</sup>
					AF=	0.02	0.02 mg/cm <sup>2</sup> -event		AF=	0.3	0.3 mg/cm2-event		AF=	0.01	0.01 mg/cm²-event
					EV =	-	I event/day		EV=	-	1 event/day		EV=	;	l event/day
					Er =	30	50 days/year		EF=	219	219 days/year			4	14 days/year
					ED=	6	9 years		ED=	- 3	l years		ED=	\$ 200	5 years
					AT (Nc) =	3,285 days	days		AT (Nc) =	365 days 25 550 days	365 days 5 550 days		AT (Car) =	1,825 days	days
					/		200	-	1						

in this table were intentionally Iefl blank due to a lack of toxicity data.

sation not svaliable.

theors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). factor for it was assumed to be 0.001 in accordance with the USEPA Region 4 (2000).

factor for iron was assumed to be 0.001 in accordance with the USEPA Region 4 (2000).

tal Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/ficalibul.htm).

### TABLE E-6A CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RU REPORT Seneca Army Depot Activity

	- Control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the cont														
c (mg/kg-day) =					EPC x IR x EF x ED BW x AT	XED				ä	Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose	notient = Chroni	c Daily Intake (N	lc)/Reference Dost	
tions for Each Recentor are Listed at the Bottom):	are Listed at the	Bottom):					-								
, mg/m³					ED = Exposure Duration BW = Rodownight	Duration					Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	Risk = Chronic	Daily Intake (Car	r) x Slope Factor	
equency					AT = Averaging Time	Time									
	Inhalation	Carc. Slope	Air EPC from	Air EPC from		Industrial Worker	1 Worker			Construc	Construction Worker			Adolescent Trespasser	respasser
Analyte	RD	Inhalation	Ditch Soil	Ditch Soll	Int	Intake	Hazard	Cancer	Intake	ake	Hazard	Cancer	Int	Intake	Hazard
			3	Const. Worker (2)	(mg/k	(mg/kg-day)	Quotient	Risk	(mg/ks	(mg/kg-day)	Quotlent	Rdsk	(mg/k	(mg/kg-day)	Quotient
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/m³)	(mg/m <sub>3</sub> )	(Ne)	(Car.)			(Ne)	(Car)			(Nc)	(Car)	
openous de															
	N/A	N/A	1.1E-08	7.4E-08											
	Α/Χ	3.10E+00	1.1E-08	6.9E-08		7.51E-10		2E-09		1.94E-10		6E-10		9.42E-13	
cne	Α/Χ	A/A	1.1E-08	7.4E-08								!			
ene	A/N	N/A	9.9E-09	6.4E-08											
	A/X	N/A	1.2E-08	7.7E-08											
лепе	Α/X	N/A	9.9E-09	6.4E-08											
	N/A N/A	1.51E+01 N/A	7.2E-08 3.7E-04	4.7E-07 2.4E-03		5.07E-09		8E-08		1.31E-09		2E-08	,	6.35E-12	
otient and Cancer Risk:	2							8E-08				2E-08			
					¥	ssumptions for I	Assumptions for Industrial Worker	1:	A	ssumptions for	Assumptions for Construction Worker	ter	Assı	Assumptions for Adolescent Tresp.	lescent Trespo
				•	BW≂	70 kg	kg		BW≖	70 kg	88		BW≈	50 kg	200
					IR =	20	20 m³/day		R=	20 1	20 m³/day		吊=	1.6 п	1.6 m³/day
					EF=	250	250 days/year		EF =	250 (	250 days/year		EF =	14 6	14 days/year
					ED =	25	25 years		ED =	1 year	year		ED=	5 years	cars
					AT (Nc) =	9,125 days	days	•	AT (Nc) =	365 days	days		AT (Nc)	1,825 days	ays
					AT (Car) =	25,550 days	days	1	AT (Car) ==	25,550 days	days		AT (Car) =	25,550 days	ays

uble were intentionally left blank due to a lack of toxicity data, not available.

used for the incurrial worker and the adolescent trespasser.

used for the construction worker.

## TABLE E-6B CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR CENTRAL TENDENCY (CT) - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

PPC x IR x BP x ED  Equation for Hazard Quotient = Chronic Daily Intake (Ne)Reference Dose  BW x AT	্য	ED = Exposure Duration Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	BW = Bodyweight	AT = Averaging Time	
IRX I	.71	Ξ.	8	A	
nake (mg/kg-day) = EPC.x BV	umptions for Each Receptor are Listed at the Bottom	Air, mg/m³	Rate	e Frequency	

stake (mg/kg-day) =		ira	EPC x IR x EP x ED BW x AT							Equa	tion for Hazard	Quotient = Chro	Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose	Nc)/Reference D	ose
sumptions for Each Receptor are Listed at the Bottom);	otor are Listed	at the Bottom):													
Air, mg/m³ 1 Rate					ED = Exposure Duration BW = Bodyweight	Duration				, Eq.	quation for Canc	er Risk = Chron	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	ar) x Slope Facto	ь.
e Frequency					AT = Averaging Time	Time						Stocker			
	Inhalation	Carc. Slope	Air EPC from	Air EPC from		Industrial Worker	Worker			Construction Worker	on Worker			Adolescent Trespasser	respasser
Analyte	æ	Inhalation	Ditch Soil	Ditch Soll Const. Worker (2)	Intake (me/ke-dav)	ake dav)	Hazard	Cancer	Int (mg/kg	Intake (me/ke-dav)	Hazard	Cancer	Intake (mg/kg-day)	ike -day)	Hazard
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/m <sub>3</sub> )	(mg/m <sup>3</sup> )	(Nc)	(Car)	,		(Ne)	(Car)	,		(Nc)	(Car)	,
Organic Compounds acene	N/A	N/A	1.18-08	7.4E-08											
ie anthene	N/A A/A	3.10E+00	1.1E-08 1.1E-08	6.9E-08 7.4E-08		1.23E-10		4B-10		1.70E-10		5E-10		9.42E-13	
anthene	N/A	N/A	9.9E-09	6.48-08											
фуктепе	N/A	N/A	9.9E-09	6.4E-08											
	N/A N/A	1.51E+01 N/A	7.2E-08 3.7E-04	4.7E-07 2.4E-03		8,31E-10		1B-08	-	1.15E-09		2E-08		6.35E-12	
Quotient and Cancer Risk:	ŭsk:							1E-08				2E-08			
					As	Assumptions for Industrial Worker	ndustrial Work	ter	Ass	Assumptions for Construction Worker	onstruction Wo	rker	Assur	mptions for Ado	Assumptions for Adolescent Trespas
					BW≔	70 kg	kg		BW ==	70	70 kg		BW=	50 kg	89
					. 出	10.4	10.4 m³/day		IR.	20	20 m³/day		IR.	1.6 1	1.6 m³/day
					EF=	219	219 days/year		EF =	219	219 days/year		王子=	14 0	14 days/year
					BD=	6	9 years		ED ==	1	1 year		ED=	5 )	5 years
					AT (Nc) =	3,285 days	days		AT (Nc) =	365 days	365 days		AT (Nc) =	1,825 days	lays
					A (72.)	1111111	2200		A STILL	00000	220		- CENT	43,33V C	IAVS

this table were intentionally left blank due to a lack of toxicity data, ion not available.

was used for the industrial worker and the adolescent trespasser.

was used for the construction worker.

# TABLE E-7A CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SURFACE WATER REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

For inorganics: DA = Kp x EPC x t<sub>event</sub> x C Equation for Absorbed Dose per Event (DA): ED = Exposure Duration BW = Bodyweight AT = Averaging Time umptions for Each Receptor are Listed at the Bottom). od Dose per Event, mg/cm²-event Area Contact e Frequency equency

quation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

 $K_p$  = Permeability Coefficient, cm/hr EPC = EPC in Groundwater, mg/L C = Conversion Factor,  $10^3$  L/cm<sup>3</sup>

Dermal Chefficient   Surface   DaseEvent   Cancer   Intake   Hizarrd   Cancer   Intake   Hizarrd   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   Cancer   C		Dermal	Care Clone	Parmoshility	PPC	Absorbed		Industri	Industrial Worker			Construction Worker	Worker			Adolescent Tresnasser	SUBSSER
Marker   (mg/kg-day)	nalyte	R/D	Dermal	Coefficient	Surface	Dose/Event	l I	1	Hazard	Cancer	Inta	ke	Hazard	Cancer	Intak		Hazard
N/A   1.0E-03   2.31E-04   1.17E-07   3.10E-05   3.15E-04   3.15E-04   3.15E-04   3.15E-04   3.15E-04   3.15E-04   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15E-05   3.15				Κp	Water		(mg/l	kg-day)	Quotient	Risk	(mg/kg	-day)	Quotient	Risk	(mg/kg-c	(ay)	Quotiens
1.5E+00   1.0E-03   5.03.E-02   2.52E-08   Dermal Contact to Surface Water   1.26E-06   3.50E-09   1.29E-01   1.29E-07   3.50E-09   3.50E-09   4.39E   4.39E   4.39E   4.39E   4.39E   4.39E   4.29E-03   1.29E-07   1.29E-07   1.29E-07   3.50E-08   4.39E   4.29E   4.29E   4.39E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E   4.29E		(mg/kg-day)	(mg/kg-day)-1	(cm/hr)	(mg/L)	(mg/cm²-event)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	
1.0E-03 1.0E-03 5.03E-02 2.52E-08																	
N/A   1.0.E-03   1.95.E-02   9.75E-09   Dermal Contact to Surface Water   1.0.E-03   1.29E-01   1.29E-01   1.29E-01   1.29E-01   1.29E-01   1.29E-01   1.29E-01   1.29E-01   1.29E-01   1.00E-03   1.29E-01   1.00E-03   1.29E-03   1		3.0.E-04	1.5E+00	1.0.E-03	5.03.E-02	2.52E-08					2.45E-07	3.50E-09	8E-04	5E-09	1.13E-07	8 09E-09	4E-04
N/A   2.0E-03   1.29E-07   Dermai Contracto Surface Water   1.26E-06   2E-02   5.81E     N/A   1.0E-03   2.38E+00   1.19E-05   5.90E-05     N/A   1.0E-03   2.38E+00   1.19E-06		2.5.E-05	N/A	1.0.E-03	1.95.E-02	9.75E-09					9.50E-08		4E-03		4 39E-08		2F03
N/A   1.0.E-03   2.38 E+00   1.19E-06   for Industrial Worker   5.36E-04   2E-03   2.48E     N/A   1.0.E-03   2.38 E+00   1.19E-06   1.19E-06   1.10E-03   3.07E-08   5.605   1.42E     N/A   1.0.E-03   2.33.E-01   1.17E-07   1.14E-06   6E-03   5.49E     N/A   1.0.E-03   2.33.E-01   1.17E-07   1.17E-07   1.14E-06   6E-03   5.49E     N/A   1.0.E-03   2.33.E-01   1.17E-07   1.14E-06   6E-03   5.49E     N/A   1.0.E-03   1.17E-07   1.14E-06   6E-03   5.49E     N/A   1.0.E-03   1.14E-07   1.14E-06   6E-03   1.4EE     N/A   1.0.E-03   2.33.E-01   1.17E-07   1.14E-06   6E-03     N/A   1.0.E-03   2.33.E-01   1.17E-07   1.14E-06   6E-03   1.42E     N/A   1.0.E-03   2.33.E-01   1.17E-07   1.14E-06   6E-03   1.14E-07     N/A   1.0.E-03   2.33.E-01   1.17E-07   1.14E-06   6E-03   1.14E-07     N/A   1.0.E-03   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14E-07   1.14		7.5.E-05	A/X	2.0.E-03	1.29.E-01	1.29E-07		Dermai Contact	to Surface water		1.26E-06		2E-02		5 81E-07		8E-03
1,16E-05   2,38E+00   1,19E-06   3,07E-08   3,07E-08   5,00E-03   3,07E-08   5,00E-03   3,07E-08   5,00E-03   3,07E-08   5,00E-03   1,14E-06   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03   5,00E-03		3.0.E-01	N/A	1.0.E-03	1.10.E+02	5.50E-05		for Indust	rial Worker		5.36E-04		2E-03		2 48E-04		8E-04
1,1   N/A   1,0 E-03   3,15 E-09   3,0 TE-08   5,0 E-03   1,4 E-06   6,0 E-03   5,2 44   1,0 E-03   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07   1,1 TE-07		9.3.E-04	N/A	1.0.E-03	2.38.E+00	1.19E-06					1.16E-05		1E-02		5 36E-06		6E-03
N/A   1.0.E-03   2.33.E-01   1.17E-07   1.14E-06   6E-03   5.24E		6.5.E-04	N/A	1.0.E-03	6.30.E-03	3.15E-09					3.07E-08		\$E-05	_	1 42E-08		2E-05
Assumptions for Construction Worker   BW =   70 kg   SA =   70 kg   SA =   2,490 cm²   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year   EF =   100 days/year		1.8.E-04	N/A	1.0.E-03	2.33.E-01	1.17E-07					1.14E-06		6E-03		S 24E-07		3E-03
Assumptions for Construction Worker   BW																	
10 kg	Quotient and C	ancer Risk:											4E-02	SE-09			2E-02
70 kg BW = 55											Assump	tions for Con	nstruction W	orker	Assumpt	ions for Adole	scent Tre:
2,490 cm² SA = 5,867    verniday   EV =											BW =	70 \$	50		BW =	50 k	20
eventuday   EV=											SA =	2,490 6	;m²		SA =	5,867	"E
100 days/year   EF =   1 year   ED =     year   ED =											EV=	1	eventiday		EV=	-	l event/day
year   ED =   0.5 hr/event   $t_{veen} =   t_{veen} = $											EF =	100 6	days/year		EF=	14 0	14 days/year
$0.5 \text{ hr/event}$ $\text{t}_{\text{veom}} =$ $0.5 \text{ hr/event}$ $AT (Nc) =$ $1.8$ $AT (a) =$ $25,550 \text{ days}$ $AT (Car) =$ $25,550 \text{ days}$											ED =	1,	year		ED =	5,	ear
365 days $AT (Nc) = 25,550 days$ $AT (Car) = 2.5$											teven!	0.5 1	hr/event		fevent ==	0.5	ır/event
25,550 days AT (Car) =											AT (Nc) =	365	days		AT (Nc) ≈	1,825	lays
											AT (Car) =	25,550	days		AT (Car) =	25,550 c	lavs

this table were intentionally left blank due to a lack of toxicity data.

ion not available.
Exhibit 3-1 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health
Manual (Volume 1), August 16, 2004. For arsenic, iron, manganese, thallium, and vanadium the default inorganic value of 0.001 was used.
was used for chromium.

# TABLE E-7B CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SURFACE WATER CENTRAL TENDENCY (CT) - SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

ED = Exposure Duration BW = Bodyweight AT = Averaging Time ssumptions for Each Receptor are Listed at the Bottom): bed Dose per Event, mg/cm²-event e Area Contact ure Frequency Frequency

Dermal (mg/kg-day)

quation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Do Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor K<sub>p</sub> = Permeability Coefficient, cm/hr EPC = EPC in Groundwater, mg/L C = Conversion Factor, 10<sup>3</sup> L/cm<sup>3</sup> Equation for Absorbed Dose per Event (DA): or inorganics: DA = Kp x EPC x t<sub>avent</sub> x C DA×SA × EF×ED×EV BW×AT

	Dermal	Carc. Slope	Permeability	EPC	Absorbed		Industrial Worker	Worker			Construction Worker	Worker			Adolescen	Adolescent Trespasser
analyte	æ	Dermal	Coefficient Kp	Surface	Dose/Event	Intake (mg/kg-day)	ke -day)	Hazard	Cancer Risk	nI (/gm)	Intake (mg/kg-day)	Hazard	Cancer Risk	Int (mg/k	Intake (mg/kg-day)	Hazard
	(mg/kg-day)	(mg/kg-day)-1	(cm/hr)	(mg/L)	(mg/cm²-event)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car')	
	3.0.E-04	1.5E+00	1.0.E-03	5.03.E-02	2.52E-08				_	.95E-07	2.78E-09	6E-04	4E-09	1.13E-07	8.09E-09	4E-04
	2.5.E-05	N/A	1.0.E-03	1.95.E-02	9.75E-09	2	of fortact to	Curfore Wood	-	7.56E-08		3E-03		4.39E-08		2E-03
	7.5.E-05	N/A	2.0.E-03	1.29.E-01	1.29E-07	Del	May Contact to Surrac	Derma Contact to Surface Water	_	.00E-06		1E-02		5.81E-07		8E-03
	3.0.E-01	N/A	1.0.E-03	1.10.E+02	S.50E-05		for Industrial Worker	J Worker	4	.26E-04		1E-03		2.48E-04		8E-04
	9.3.E-04	N/A	1.0.E-03	2.38.E+00	1.19E-06				5	.22E-06		1E-02		5.36E-06		6E-03
	6.5.E-04	N/A	1.0.E-03	6.30.E-03	3.15E-09				74	2.44E-08		4E-05		1.42E-08		2E-05
	1.8.E-04	N/A	1.0,E-03	2.33,E-01	1.17E-07				<u>~</u>	.03E-07		SE-03		5.24E-07		3E+03
d Quotient and Cancer Risk:	Cancer Risk:											3E-02	4E-09			2E-02
										Assum	Assumptions for Construction Worker	ruction Worl	ker	Assı	umptions for A	Assumptions for Adolescent Trespon
									B	BW≈	70	70 kg		BW ≈	50	50 kg
									S	SA =	1,980 cm2	cm2	-	SA =	5,867 cm2	cm2
									Ш	EV=	1	1 event/day		EV=	-	l event/day
									E	EF =	100	100 days/year		EF ==	14	14 days/year
									田	ED =	1	l year	_	ED =	\$	5 year
									t <sub>ev</sub>	fevent =	0.5	0.5 hr/event		tevent ==	0.33	0.33 hr/event
									X	AT (Nc) =	365	365 days		AT(Nc) =	1,825 days	days
									¥	AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days

n this table were intentionally left blank due to a lack of toxicity data.
ation not available.

Exhibit 3-1 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health
of Manual (Volume 1), August 16, 2004. For arsenic, iron, manganese, thallium, and vanadium the default inorganic value of 0.001 was used.
) was used for chromium.

### Table E-8A

### Calculation of Blood Lead Concentration - Industrial Worker Exposed to Surface Soil at SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Calculations of Blood Lead Concentrations (PbBs)
U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03



	電影P	bB -		Sec.	Values f	or Non-Reside	ntial Exposure	Scenario
Exposure	Equ	attom			Using E	quation I	Using E	quation 2
Variable		200		Traffe .	GSDi = Hom	GSDi = Het	GSDi ≅ Hom	GSDi = He
PbS	х	х	Soil lead concentration	ug/g or ppm	735	735	735	735
R <sub>fetal/maternal</sub>	х	х	Fetal/maternal PbB ratio	_	0.9	0.9	0.9	0.9
BKSF	X	Х	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSDi	x	х	Geometric standard deviation PbB	_	2.1	2.3	2.1	2.3
PbB <sub>0</sub>	х	х	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR <sub>s</sub>	х		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	-	-
IR <sub>S+D</sub>		х	Total ingestion rate of outdoor soil and indoor dust	g/day	-		0.050	0.050
Ws		х	Weighting factor; fraction of IR <sub>S+D</sub> ingested as outdoor soil				1.0	1.0
K <sub>SD</sub>		х	Mass fraction of soil in dust				0.7	0.7
AF <sub>S, D</sub>	х	х	Absorption fraction (same for soil and dust)	_	0.12	0.12	0.12	0.12
EF <sub>S, D</sub>	х	х	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
AT <sub>S, D</sub>	х	х	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB <sub>adult</sub>			PbB of adult worker, geometric mean	ug/dL	2.6	2.8	2.6	2.8
PbB <sub>fetal, 0.95</sub>			95th percentile PbB among fetuses of adult workers	ug/dL	7.8	9.8	7.8	9.8
РьВ,			Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	10.0	10.0	10.0	10.0
P(PbB <sub>fetal</sub> > PbB <sub>t</sub> )	Probab	oility tha	t fetal PbB > PbB <sub>0</sub> assuming lognormal distribution	%	2.4%	4.7%	2.4%	4.7%

<sup>1</sup> Equation 1 does not apportion exposure between soil and dust ingestion (excludes W<sub>S</sub>, K<sub>SD</sub>).

\*Equation 1, based on Eq. 1, 2 in USEPA (1996).

PbB adult =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_{S}/AT_{S,D}) + PbB_{0}$
PbB fetal, 0.95 =	PbB <sub>aduli</sub> * (GSD <sub>i</sub> <sup>1.645</sup> * R)

\*\*Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).

PbB <sub>sdult</sub> =	$PbS*BKSF*([(IR_{S+D})*AF_{S}*EF_{S}*W_{S}]+[K_{SD}*(IR_{S+D})*(1-W_{S})*AF_{D}*EF_{D}])/365+PbB_{0}$
PbB fetal, 0.95 =	PbB <sub>adult</sub> * (GSD <sub>i</sub> <sup>1.645</sup> * R)

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

When  $IR_S = IR_{B+D}$  and  $W_B = 1.0$ , the equations yield the same PbB<sub>foot,0.95</sub>.

### TABLE E-8B

### CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO SURFACE SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

LEAD MODEL FOR WINDOWS Version 1.0

\_\_\_\_\_\_\_\_

Model Version: 1.0 Build 261

User Name:

Date:

Site Name: Operable Unit:

Run Mode: Research

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

\*\*\*\*\* Air \*\*\*\*\*

Indoor Air Pb Concentration: 30.000 percent of outdoor.

Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3 - 4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

\*\*\*\*\* Diet \*\*\*\*\*

Age	Diet Intake(ug/day)	
.5-1 1-2 2-3 3-4 4-5 5-6 6-7	5.530 5.780 6.490 6.240 6.010 6.340 7.000	

\*\*\*\*\* Drinking Water \*\*\*\*\*

Water Consumption:

Age	Water	(L/day)
.5-1	0.20	0
1-2	0.50	0

### TABLE E-8B

### CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO SURFACE SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

2-3	0.520
3 - 4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

\*\*\*\*\* Soil & Dust \*\*\*\*\*

Multiple Source Analysis Used

Average multiple source concentration: 524.500 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700 Outdoor airborne lead to indoor household dust lead concentration: 100.000 Use alternate indoor dust Pb sources? No

'Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	735.000	524.500
1-2	735.000	524.500
2-3	735.000	524.500
3-4	735.000	524.500
4-5	735.000	524.500
5-6	735.000	524.500
6-7	735.000	524.500

\*\*\*\*\* Alternate Intake \*\*\*\*\*

Age	Alternate	(ug	Pb/day)
.5-1	0.000		
1-2	0.000		
2-3	0.000		
3 - 4	0.000		
4-5	0.000		
5-6	0.000		
6-7	0.000		

\*\*\*\*\* Maternal Contribution: Infant Model \*\*\*\*\*

Maternal Blood Concentration: 2.500 ug Pb/dL

Year	Air	Diet	Alternate	Water
	(ug/day)	(ug/day)	(ug/day)	(ug/day)

### TABLE E-8B CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO SURFACE SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

### SENECA ARMY DEPOT ACTIVITY

.5-1 1-2 2-3 3-4 4-5	0.021 0.034 0.062 0.067 0.067	2.301 2.340 2.694 2.654 2.685	0.000 0.000 0.000 0.000 0.000	0.333 0.810 0.863 0.902 0.983
5-6	0.093	2.885	0.000	1.056
6-7	0.093	3.216	0.000	1.084
Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)	
.5-1	13.140	15.795 23.485	8.4 9.6	
1-2 2-3	20.302 20.821	24.441	9.0	
3-4	21.335	24.958	8.6	
4-5	16.598	20.333	7.2	
5-6	15.217	19.251	6.1	
6-7	14.509	18.902	5.4	

### Table E-9A

### Calculation of Blood Lead Concentration - Industrial Worker Exposed to Ditch Soil at SEAD-121C SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Calculations of Blood Lead Concentrations (PbBs)
U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03



PbB Exposure Equation.		THE STATE OF SHIP STATE	- 1000 1 -	Values for Non-Residential Exposure Scenario				
		7. 4. 深深 · · · · · · · · · · · · · · · · · ·			Using Ed	Using Equation I		Using Equation 2
Variable	_	2**	Description of Exposure Variable	Units	GSDi = Hom	GSDI Het	GSDI ≠ Hom	GSDI = He
PbS	X	х	Soil lead concentration	ug/g or ppm	144	144	144	144
R <sub>fetal/maternal</sub>	х	х	Fetal/maternal PbB ratio	-	0.9	0.9	0.9	0.9
BKSF	Х	Х	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSD <sub>i</sub>	x	х	Geometric standard deviation PbB	-	2.1	2.3	2.1	2.3
PbB <sub>0</sub>	х	х	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR <sub>S</sub>	х	Soil ingestion rate (including soil-derived indoor dust)		g/day	0.050	0.050		**
IR <sub>S+D</sub>		х	Total ingestion rate of outdoor soil and indoor dust	g/day	_	-	0.050	0.050
Ws		х	Weighting factor, fraction of IR <sub>S+D</sub> ingested as outdoor soil				1.0	1.0
K <sub>SD</sub>		x	Mass fraction of soil in dust	_			0.7	0.7
AF <sub>s, D</sub>	х	х	Absorption fraction (same for soil and dust)		0.12	0.12	0.12	0.12
EF <sub>S, D</sub>	х	х	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
AT <sub>S, D</sub>	х	х	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB <sub>edult</sub>		PbB of adult worker, geometric mean		ng/dL	1.7	1.9	1.7	1.9
PbB <sub>fetal, 0.95</sub>	95th percentile PbB among fetuses of adult workers		ug/dL	5.2	6.8	5.2	6.8	
PbB <sub>t</sub>	Target PbB level of concern (e.g., 10 ug/dL)		ug/dL	10.0	10.0	10.0	10.0	
P(PbB <sub>fetal</sub> > PbB <sub>t</sub> )	Probability that fetal PbB > PbB, assuming loguormal distribution			%	0.6%	1.7%	0.6% ·	1.7%

Equation 1 does not apportion exposure between soil and dust ingestion (excludes W<sub>S</sub>, K<sub>SD</sub>).

\*Equation 1, based on Eq. 1, 2 in USEPA (1996).

PbB <sub>adult</sub> =	(PbS*BKSF*IR <sub>S+D</sub> *AF <sub>S,D</sub> *EF <sub>S</sub> /AT <sub>S,D</sub> ) + PbB <sub>0</sub>
PbB fetal, 0.95 =	PbB <sub>abdt</sub> * (GSD <sub>i</sub> <sup>1.645</sup> * R)

\*\*Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).

PbB adult =	PbS*BKSF*([(IR <sub>S+D</sub> )*AF <sub>S</sub> *EF <sub>S</sub> *W <sub>S</sub> ]+[K <sub>SD</sub> *(IR <sub>S+D</sub> )*(1-W <sub>S</sub> )*AF <sub>D</sub> *EF <sub>D</sub> ])/365+PbB <sub>0</sub>
PbB fetal, 0.95 =	PbB <sub>adult</sub> * (GSD <sub>i</sub> <sup>1.645</sup> * R)

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

When  $IR_8 = IR_{s+D}$  and  $W_s = 1.0$ , the equations yield the same PbB  $_{seal,0.95}$ .

### TABLE E-9B

### CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO DITCH SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT SENECA ARMY DEPOT ACTIVITY

LEAD MODEL FOR WINDOWS Version 1.0

Model Version: 1.0 Build 261

User Name:

Date:

Site Name: Operable Unit:

Run Mode: Research

The time step used in this model run: 1 - Every 4 Hours (6 times a day).

\*\*\*\*\* Air \*\*\*\*\*

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

\*\*\*\*\* Diet \*\*\*\*\*

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

\*\*\*\*\*\* Drinking Water \*\*\*\*\*

Water Consumption:

Age	Water	(L/day)
.5-1	0.20	00
1-2	0.50	00

### TABLE E-9B

### CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO DITCH SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

### SENECA ARMY DEPOT ACTIVITY

2-3	0.520
3 - 4	0.530
4 - 5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

\*\*\*\*\* Soil & Dust \*\*\*\*\*

Multiple Source Analysis Used Average multiple source concentration: 110.800 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700 Outdoor airborne lead to indoor household dust lead concentration: 100.000 Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	144.000	110.800
1-2	144.000	110.800
2-3	144.000	110.800
3 - 4	144.000	110.800
4 - 5	144.000	110.800
5-6	144.000	110.800
6-7	144.000	110.800

\*\*\*\*\* Alternate Intake \*\*\*\*\*

Age	Alternate	(ug	Pb/day)
.5-1 1-2 2-3 3-4 4-5 5-6 6-7	0.000 0.000 0.000 0.000 0.000 0.000		

\*\*\*\*\* Maternal Contribution: Infant Model \*\*\*\*\*

Maternal Blood Concentration: 2.500 ug Pb/dL

Year	Air	Diet	Alternate	Water
	(ug/day)	(ug/day)	(ug/day)	(ug/day)

### TABLE E-9B CALCULATION OF BLOOD LEAD CONCENTRATION – RESIDENTIAL CHILD EXPOSED TO DITCH SOIL AT SEAD-121C SEAD-121C AND SEAD-121I RI REPORT

SENECA	ARMY	DEPOT	ACTIVITY
DLITLOIL	THUIT		71011111

.5-1	0.021	2.584	0.000	0.374
1-2	0.034	2.686	0.000	0.929
2-3	0.062	3.039	0.000	0.974
3 - 4	0.067	2.951	0.000	1.003
4-5	0.067	2.883	0.000	1.055
5-6	0.093	3.057	0.000	1.119
6-7	0.093	3.383	0.000	1.141
Year	Soil+Dust	Total	Blood	
	(ug/day)	(ug/day)	(ug/dL)	
				-
.5-1	2.996	5.974	3.3	
1-2	4.732	8.382	3.5	
2-3	4.770	8.845	3.3	
3-4	4.816	8.836	3.1	
4-5	3.619	7.625	2.7	
5-6	3.274	7.544	2.4	
6-7	3.099	7.717	2.2	٠.

### APPENDIX F

### SEAD-1211 HUMAN HEALTH RISK ASSESSMENT CALCULATION TABLES

F-1A	Calculation of Intake and Risk from the Ingestion of Soil – RME
F-1B	Calculation of Intake and Risk from the Ingestion of Soil – CT
F-2A	Calculation of Absorbed Dose and Risk from Dermal Contact to Soil – RME
F-2B	Calculation of Absorbed Dose and Risk from Dermal Contact to Soil – CT
F-3A	Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Soil – RME
F-3B	Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Soil – CT
F-4A	Calculation of Intake and Risk from the Ingestion of Ditch Soil – RME
F-4B	Calculation of Intake and Risk from the Ingestion of Ditch Soil – CT
F-5A	Calculation of Absorbed Dose and Risk from Dermal Contact to Ditch Soil – RME
F-5B	Calculation of Absorbed Dose and Risk from Dermal Contact to Ditch Soil - CT
F-6A	Calculation of Intake and Risk from Inhalation of Dust in Ambient Air - Ditch Soil -
	RME
F-6B	Calculation of Intake and Risk from Inhalation of Dust in Ambient Air – Ditch Soil – CT

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### TABLE F-1A CALCULATION OF INTAKE AND RISK FROM THE INCESTION OF SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211 SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Intake (mg/kg-day) =			EPC x IR x CF x FI x EF x ED	I × EF × ED										
sumptions for Each Receptor are Listed at the Bottom	or are Listed at	the Bottom):	BW×AI				Edua	Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose	Justient = Chron	nic Daily Intake (	/Nc)/Reference	Dose		
ure Point Concentration in Soil, mg/kg	Soil, mg/kg	7		EF = Exposure Frequency	Frequency		5			Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Carolina Car		2		
n Rate				ED = Exposure Duration	Duration		Eq	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	r Risk = Chronic	c Daily Intake (C	ar) x Slope Fac	ttor		
sion Factor Ingested				BW = Bodyweight AT = Averaging Time	ight ig Time									
	Oral	Carc, Slope	EPC		Industria	Industrial Worker			Construction Worker	20 Worker			Adolescent Trespasser	respasser
Analyte	R/D	Oral	Surface Soil	Int	Intake	Hazard	Cancer	Intake	ıke	Hazard	Cancer	Intake	ke	Hazard
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/kg)	(Nc)	(mg/kg-day)	Cuotient	RISK	(Nc) (mg/kg-day)	(Car)	Cuotient	RISK	(Nc) (Mg/Kg-day)	(Car)	Quotient
Organic Compounds														
racene	N/A	7.3E-01	1.0E+01		3.48E-06		3E-06		4.60E-07		3E-07		\$ 46E-08	
ine	Z/A	7.3E+00	8.5E+00		2.98E-06		2E-05		3.93E-07		3E-06		4 67E-08	
ranthene	N/A	7.3E-01	1.0E+01		3.50E-06		3E-06		4.62E-07		3E-07		\$ 49E-08	
ranthene	N/A	7.3E-02	8.7E+00		3.03E-06		2E-07		4,01E-07		3E-08		4.76E-08	
	N/A	7.3E-03	1.2E+01		4.20E-06		3E-08		5.55E-07		4E-09		6 59E-08	
nthracene	N/A	7.3E+00	1.2E+00		4.04E-07		3E-06		5.33E-08		4E-07		6 33E-09	
-cd)pyrene	N/A	7.3E-01	3.9E+00		1.35E-06		1E-06		1.79E-07		1E-07		2 12E-08	
	\$.0E-05	1.6E+01	6.8E-03	6.66E-09	2.38E-09	1E-04	4E-08	2 20E-08	3.14E-10	4E-04	5E-09	\$ 22E-10	3 73E-11	1E-05
poxide	5.0E-04	9.1E+00	2.3E-02	2.30E-08	8.20E-09	5E-05	7E-08	7 58E-08	1 08E-09	2E-04	1E-08	1 80E-09	1 29E-10	4E-06
	3.0E-04	1.5E+00	1.49E+01	1.46E-05	5.21E-06	SE-02	8E-06	4.82E-05	6 88E-07	2E-01	1E-06	1.14E-06	8 17E-08	4E-03
	3.0E-03	A/X	8.27E+01	8.09E-05		3E-02		2 67E-04		9E-02		6 35E-06		2E-03
	3.0E-01	N/A	2.1627E+04	2.12E-02		7E-02		6 98E-02		2E-01		1 66E-03		6E-03
	2.3E-02	N/A	1.06E+05	1.04E-01		4E+00		3 43E-01		1E+01		8 16E-03		3E-01
	6.5E-04	A/N	5.34E+01	5.23E-05		8E-02		1 73E-04		3E-01		4 10E-06		6E-03
	7.0E-03	N/A	4.27E+01	4.17E-05		6E-03		1 38E-04		2E-02		3 27E-06		SE-04
d Quotient and Cancer Risk:	sk:					5E+00	4E-05			2E+01	5E-06			4E-01
				Y	ssumptions for	Assumptions for Industrial Worker	er	Assu	amptions for Co	Assumptions for Construction Worker	.ker	Assu	Assumptions for Adolescent Trespas	lescent Trespas
				CF =	1E-06	1E-06 kg/mg		CF =	1E-06	1E-06 kg/mg		CF =	1F-00 kg/mg	2/010
				EPC=	EPC Surface Only	g:g. γlτ		EPC=	EPC Surface and Subsurface	d Subsurface		EPC=	EPC Surface Only	, d
				BW =	70	70 kg		BW=	70	70 kg		BW=	50 kg	29
				田=	100	100 mg/day		IR =	330	330 mg/day		IR =	1001	100 mg/day
				표	_	1 unitless		F1 =	-	l unitless		FI =	-	1 unitless
				EF #	250	250 days/year		E E	250	250 days/year		EF ==	4	14 days/year
				ED =	25	25 years		ED =	- ;	l years		ED ==	\$	5 years
				A I (Nc) =	9,125 days	days		A1 (Nc) =	365 days	Job days		A I (Nc) =	1,825 days	lays
				A1 (Car) =	055,52	days		A1 (Car) =	75,530	days		A1 (Car) =	22,330 days	lays

n this table were intentionally left blank due to a lack of toxicity data.

### TABLE F-1B CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL CENTRAL TENDENCY (CT) - SEAD-1211 SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

· Intake (mg/kg-day) =			EPC x IR x CF x F	CEXELX EEXED										
ssumptions for Each Receptor are Listed at the Bottom)	stor are Listed	at the Bottom);					Equi	Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose	Quotient = Chror	nic Daily Intake	(Nc)/Reference	Dose		
sure Point Concentration in Soil, mg/kg on Rate	n Soil, mg/kg			EF = Exposure Frequency ED = Exposure Duration	Frequency Duration		й	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	r Risk = Chronie	c Daily Intake (C	ar) x Slope Fac	tor		
rsion Factor n Ingested				BW = Bodyweight AT = Averaging Time	ght g Time		On the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the							
	Oral	Carc. Slope	EPC		Industrial Worker	Worker	-		Construction Worker	on Worker			Adolescent Trespasser	Frespasser
Analyte	R/D	Oral	Surface Soil	Int (ma/k	Intake (mo/ko-dav)	Hazard	Cancer	Intake	ake day)	Hazard	Cancer	Intake	ike	Hazard
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/kg)	(Nc)	(Car)	,		(Nc)	(Car)	,		(Nc)	(Car)	,
e Organic Compounds														
hracene	N/A	7.3E-01	1.0E+01		5.49E-07		4E-07		1.22E-07		9E-08		2.73E-08	·
ече.	A/A	7.3E+00	8.5E+00		4.70E-07		3E-06		1.04E-07		8E-07		2.34E-08	
oranthene	N/A	7.3E-01	1.0E+01		5.52E-07		4E-07		1.23E-07		9E-08		2.74E-08	
oranthene	N/A	7.3E-02	8.7E+00		4.79E-07		3E-08		1.06E-07		8E-09		2.38E-08	
	N/A	7.3E-03	1.2E+01		6.62E-07		5E-09		1.47E-07		1E-09		3.29E-08	
anthracene	N/A	7.3E+00	1.2E+00		6.36E-08		5E-07		1.41E-08		1E-07		3.16E-09	
8-cd)pyrene	N/A	7.3E-01	3.9E+00		2.13E-07		2E-07		4.74E-08		3E-08		1.06E-08	
	5.0E-05	1.6E+01	6.8E-03	2.92E-09	3.75E-10	6E-05	6E-09	5.83E-09	8.33E-11	1E-04	1E-09	2.61E-10	1.86E-11	\$E-06
epoxide	5.0E-04	9.1E+00	2.3E-02	1.01E-08	1.29E-09	2E-05	1E-08	2.01E-08	2.87E-10	4E-05	3E-09	9.01E-10	6.43E-11	2E-06
							,			į	i d	I.	i i	
	3.0E-04	1.55+00	1.495+01	0.39E-U0	8.22E-U/	7E-07	90-31	1.48E-U3	1.83E-07	4E-02	35-07	3.72E-07	4.09E-08	ZE-03
	3.0E-03	Ψ/X	8.27E+01	3.55E-05		1E-02		7.09E-05		2E-02		3.17E-06		1E-03
	3.0E-01	Y/X	2,1627E+04	9.27E-03		3E-02		1.85E-02		6E-02		8.30E-04		3E-03
	2.3E-02	N/A	1.06E+05	4.56E-02		2E+00		9.12E-02		4E+00		4.08E-03		2E-01
	7.0E-03	X X X	4.27E+01	1.83E-05		3E-03		3.66E-05		5E-03		1.64E-06		2E-03
rd Ouotient and Cancer Risk:	isk:					2E+00	6E-06			4E+00	1E-06			2E-01
				ď	ssumptions for	Assumptions for Industrial Worker	er	Ass	Assumptions for Construction Worker	instruction Wor	rker	Assu	Assumptions for Adolescent Trespa	olescent Trespa
				# H	1F-06	1F-06 kg/mg		CF =	1F-06	1F-06 kg/mg		# 40	1F-06	1F-06 kg/mg
				EPC=	EPC Surface Only	nly		EPC=	EPC Surface Only	lly		EPC=	EPC Surface Only	ly Is
				BW =	70	70 kg		BW=	70	70 kg		BW =	50	50 kg
				IR =	20	50 mg/day		R=	100	100 mg/day		R=	50	50 mg/day
				FI=		unitless		E II		unitless		#	-	unitless
				EF=	219	219 days/year		EF	219	219 days/year		= 41	14	14 days/year
				ED =	7 285	9 years		ED =	198	1 years		ED =	5 years	5 years
				AT (Car) =	25.550 days	days		AT (Car) =	25,550 days	davs		AT (Car) =	25.550 days	days

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## TABLE F-2A CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211 SEAD-121C AND SEAD-1211 RI REPORT

Seneca Army Depot Activity

Intake (mg/kg-day) =			EPC x CF x SA x	EPC x CF x SA x AF x ABS x EV x EF x ED BW x AT	EF x ED										
sumptions for Each Receptor are Listed at the Bottom).	or are Listed at	the Bottom):						Eaua	Equation for Hazard Opotion = Chronic Daily Intake (Ne)/Reference Dose	Ouotient = Chro	nic Daily Intake	(Nc)/Reference L	Jose		
ure Point Concentration in Soil, mg/kg	Soil, mg/kg			EV = Event Frequency	ıcy										
sion Factor	1			EF = Exposure Frequency	quenev			Eq	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	r Risk = Chronic	: Daily Intake (C	Car) x Slope Facto	JO		
Arca Contact				ED = Exposure Duration	ration										
nce Factor				BW = Bodyweight											
ption Factor				AT = Averaging Time	me										
	Dermal	Carc. Slope	Absorption	EPC		Industrial Worker	Worker			Construction Worker	on Worker			Adolescent Trespasser	respasser
Analyte	RD	Dermai	Factor*	Surface Soil	Absorbed Dose	d Dose	Hazard	Cancer	Absorbed Dose	ed Dose	Hazard	Cancer	Absorbed Dose	d Dose	Hazard
					(mg/kg-day)	-day)	Quotient	Risk	(mg/kg-day)	-day)	Quotient	Risk	(mg/kg-day)	-day)	Quotient
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(unitless)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	
Organic Compounds															
racenc	N/A	7.3E-01	1.3E-01	1.05+01		2.99E-06		2E-06		1.79E-07		1E-07		2 92E-08	
nc	A/X	7.3E+00	1.3E-01	8.5E+00		2.56E-06		2E-05		1 53E-07		1E-06		2.50E-08	
ranthene	N/A	7.3E-01	1.3E-01	1.0E+01		3.00E-06		2E-06		1.80E-07		1E-07		2 93E-08	
ranthene	N/A	7.3E-02	1.3E-01	8.7E+00		2.60E-06		2E-07		1.56E-07		1E-08		2 54E-08	
	N/A	7.3E-03	1.3E-01	1.2E+01		3.60E-06		3E-08		2.16E-07		2E-09		3 52E-08	
uthracene	N/A	7.3E+00	1.3E-01	1.2E+00		3.46E-07		3E-06		2.08E-08		2E-07		3 38E-09	
cd)pyrenc	N/A	7.3E-01	1.3E-01	3.9E+00		1.16E-06		8E-07		6.97E-08		SE-08		13E-08	
	5.0E-05	1.6E+01	1.0E-01	6.8E-03	4.39E-09	1.57E-09	9E-05	3E-08	6.59E-09	9.41E-11	1E-04	2E-09	2.14E-10	1.536-11	4E-06
oxide	5.0E-04	9.1E+00	1.0E-01	2.3E-02	1.52E-08	5.42E-09	3E-05	5E-08	2.27E-08	3.25E-10	\$E-05	3E-09	7.40E-10	5.28E-11	1 <b>E</b> -06
	3.0E-04	1.5E+00	3.0E-02	1.49E+01	2.89E-06	1.03E-06	1E-02	2E-06	4.34E-06	6.19E-08	1E-02	9E-08	1.41E-07	1.01E-08	5E-04
	7.5E-05	N/A	1.0E-03	8.27E+01	5.34E-07		7E-03		8.01E-07		1E-02		2.61E-08	ı	3E-04
	3.0E-01	ΑX	1.0E-03	2.1627E+04	1.40E-04		5E-04		2.09E-04		7E-04		6 81E-06		2E-05
	9.3E-04	A/X	1.0E-03	1.06E+05	6.87E-04		7E-01		1.03E-03		1E+00		3.35E-05		4E-02
	6.5E-04	X/A	1.0E-03	5.34E+01	3.45E-07		SE-04		5.18E-07		8E-04		1.68E-08		3E-05
	1.8E-04	N/A	1.0E-03	4.27E+01	2.76E-07		2E-03		4.13E-07		2E-03		1.34E-08		7E-03

171 (Car) - 25,500 days

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In this table were infentionally left blank due to a lack of toxicity data.

In this factors from Exhlibity and the state of the period of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state o SE-6

... for Industrial

IE-06 kg/mg

PR kg

1,300 cm

0,2 mg/cm²-event

1 event/day

25 fears

9,125 days

25,550 days

TE-06 hymg

EPC Surface Only
50 kg
5,867 cm²
0.07 mg/m²-cvcm
1 even/day
1 days/car
5 years
1,825 days

CF = EPC = BW = SA = AF = EV = EV = EV = EV = EV = AT (Nc) = AT (Car)

CF = EPC = 8W = SA = AF = EV = EF = ED = AT (Nr

CF = EPC = BW = SA = AF = EV = EP = AT (Nc) = AT (Car) =

4E-02 Assumptions for Adolescent Tresp

2E-06

Assumptions for Construction Worker

Assumptions for Industrial Worker

Quotient and Cancer Risk

SENECAIPID ArrealReport/Draft Finat/Risk Assessment/Human Health Risk Tables/1211-Cosmoline/soil assessment/DERMSOIL2.xls/RME

## TABLE F-2B CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL CENTRAL TENDENCY (CT) - SEAD-1211 SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

Equation for Hazard Quotient = Cancer Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character Risk = Character	Intake (mg/kg-day) =		ш	PC x CF x SA x	EPCxCFxSAxAFxABS x EVxEFxED	X EF X ED										
Dermal   Curt. Single   E = Exposure Duration   Soil, mg/kg   E = Exposure Duration   ED = Exposure Duration	sumptions for Each Receptor	r are Listed at	the Bottom):						Equa	ation for Hazard	Quotient = Chron	nic Daily Intake	(Nc)/Reference	Dose		
ED = Exposure Duration   EV	ure Point Concentration in S.	oil, mg/kg			EV = Event Freque EF = Exposure Fre	ncy			, <u>ப</u>	quation for Canco	T Risk = Chronic	: Daily Intake (C	'ar) x Slope Fac	tor		
Dermal   Care, Stope   Absorption   EPC   Absorbed Duse   Hazard   Cancer   Absorbed Cancer   Absorbed Duse   Cancer   Absorption   EPC   Absorbed Duse   Hazard   Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer   Absorbed Cancer	Area Contact				ED = Exposure Di	uration		2					-			
Curc. Slope   Permis   Curc. Slope   Permis   Permis   Curc. Slope   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Permis   Perm	otion Factor				AT = Averaging T	ime										
Care   Right   Dermal   Factor*   Surface Soil   Absorbed Dose   Hazard   Care   Absorbed Dose   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   Care   C		Dermal	Carc. Slone	Absorption	EPC		Industrial	Worker			Construction	n Worker			Adolescent Trespasser	respasser
Compounds   Complexed above   Complexed above   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Compounds   Comp	Analyte	RID	Dermal	Factor*	Surface Soil	Absorb	ed Dose	Hazard	Cancer	Absorb	ed Dose	Hazard	Cancer	Absorbed Dose	d Dose	Hazard
NA		(mg/kg-day)	(mg/kg-day)-1	(unitless)	(mg/kg)	(Nc)	(Car)	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Wein .	(Nc)	(Car)	A CONTRACT	4000	(Nc)	(Car)	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
N/A   73E-01   13E-01   10E+01   9.43E-08   7E-08   7E-08   N/A   73E-02   13E-01   12E+01   9.43E-08   8.2E-08   7E-08   72E-08   72E-09   8.2E-08   72E-08   72E-09   8.2E-09   8.2E-09   72E-09   8.2E-09   1.9E-09   8.2E-09   1.9E-09	Organic Compounds															
N/A   7.3E+00   1.3E+01   8.5E+00   8.0E+08   8.0E+08   6E+07     N/A   7.3E+01   1.3E+01   1.0E+01   8.2E+08   8.2E+08   6E+09     N/A   7.3E+02   1.3E+01   1.2E+01   1.14E+07   8.2E+08   8E+08   8E+08     N/A   7.3E+03   1.3E+01   1.2E+01   1.3E+01   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1.3E+09   1	accuc	N/A	7.3E-01	1.3E-01	1.0E+01		9.43E-08		7E-08		1.57E-07		1E-07		4.17E-09	
N/A   7.3E-01   1.0E+01   9.41E-08   7.5E-09   7.5E-09   N/A   7.3E-01   1.3E-01   1.2E+00   1.4E-07   1.4E-07   1.4E-07   1.4E-07   1.4E-07   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-01   1.3E-02   1.3E-03   1.7E-10   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3.6E-03   3	51	N/A	7.3E+00	1.3E-01	8.5E+00		8.06E-08		6E-07		1.34E-07		1E-06		3.56E-09	
NA	anthene	N/A	7.3E-01	1.3E-01	1.0E+01		9.47E-08		7E-08		1.58E-07		1E-07		4.19E-09	
N/A	anthone	N/A	7.3E-02	1.3E-01	8.7E+00		8,21E-08		6E-09		1.37E-07		1E-08		3.63E-09	
N/A   73E-00   1.3E-01   1.2E+00   1.09E-08   8E-08   3E-08   3.66E-08   3.66E-08   3.66E-08   3.66E-08   3.66E-08   3.66E-04   3.6E-01   1.0E-01   2.3E-02   1.3E-09   1.7E-10   3.6E-08   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-04   3.6E-0		N/A	7.3E-03	1.3E-01	1.2E+01		1.14E-07		8E-10		1.89E-07		1E-09		5.02E-09	
NIA   73E-01   1.3E-01   3.9E+00   3.66E-08   3.66E-08   3.60E-08   3.60E-08   3.60E-04   3.0E-04   1.0E-01   1.0E-01   2.3E-07   3.26E-08   3.60E-04   3.0E-04   1.0E-03   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.20E-04   3.	thracene	N/A	7.3E+00	1.3E-01	1.2E+00		1.09E-08		8E-08		1.82E-08		1E-07		4.83E-10	
5.0E-05         1.6E-01         1.0E-01         6.8E-03         3.85E-10         4.95E-11         8E-06         8E-09         1.71E-10         3E-06         2E-09         1.99E-08           5.0E-04         9.1E+00         1.0E-01         2.3E-02         1.49E+01         2.53E-07         3.26E-08         3E-04         5E-09         1.99E-08           7.5E-05         N/A         1.0E-03         8.27E+01         4.68E-08         8E-04         5E-08         3.80E-06           9.3E-04         N/A         1.0E-03         1.62T-60         1.22E-05         6E-04         5E-08         3.80E-08           6.5E-04         N/A         1.0E-03         1.0E-03         1.0E-03         1.0E-03         3.60E-08         3.80E-08         3.80E-08           6.5E-04         N/A         1.0E-03         1.0E-03         3.0E-05         5E-03         4.34E-08         1.0E-03         3.50E-03           1.8E-04         N/A         1.0E-03         4.27E-01         2.41E-08         5E-03         9E-07         4.34E-03           1.8E-04         N/A         1.0E-03         4.27E-01         2.41E-08         70 kg/m²         6E-03         9E-07           1.8E-04         N/A         1.0E-03         4.27E-01         2.4	od)pyrene	N/A	7.3E-01	1.3E-01	3.9E+00		3.66E-08		3E-08		6.10E-08		4E-08		1.62E-09	
3.0E-04   9.1E+00   1.0E-01   2.3E-02   1.31E-09   1.71E-10   3E-06   2E-09   1.99E-08     3.0E-04   1.5E+00   3.0E-02   1.49E+01   2.53E-07   3.26E-08   8E-04   5E-08   3.80E-06     3.0E-04   N/A   1.0E-03   2.7E+01   1.22E-03   6E-02   9.03E-04     3.0E-04   N/A   1.0E-03   1.0E-03   9.03E-03   6E-02   9.03E-04     3.0E-04   N/A   1.0E-03   1.0E-03   9.03E-03   9.03E-03     3.0E-04   N/A   1.0E-03   3.3E-04   3.02E-08   9.03E-03     3.0E-04   N/A   1.0E-03   3.3E-03   9.03E-03     3.0E-05   N/A   1.0E-03   3.3E-03   9.03E-03     3.0E-05   N/A   1.0E-03   3.3E-03   9.03E-03     3.0E-05   N/A   1.0E-03   9.03E-03   9.03E-03     3.0E-05   N/A   1.0E-03   9.03E-03     3.0E-07   AF =		5.0E-05	1.6E+01	1.06-01	6.8E-03	3.85E-10	4,95E-11	8E-06	8E-10	5.77E-09	8.25E-11	1E-04	1E-09	3.06E-11	2.19E-12	6.12E-07
3.0E-04   1.5E+00   3.0E-02   1.49E+01   2.53E-07   3.26E-08   8E-04   5E-08   3.80E-06     3.0E-04   1.0E-03   2.162TE+04   1.22E-05   6E-04   7.02E-07     3.0E-01   N/A   1.0E-03   1.0E-05   6.02E-05   6.02E-05     5.E-04   N/A   1.0E-03   1.0E-03   3.02E-08   1.0E-04   3.02E-07     5.E-04   N/A   1.0E-03   3.02E-08   1.0E-04   3.02E-07     5.E-04   N/A   1.0E-03   4.27E+01   2.41E-08   1.E-04   3.02E-07     5.E-04   N/A   1.0E-03   4.27E+01   2.41E-08   3.0E-07     5.E-05   8W = 3.300 cm²   8W = 8W = 8W = 8W = 8W = 8W = 8W = 8W	oxide	5.0E-04	9.1E+00	1.0E-01	2.3E-02	1.33E-09	1.71E-10	3E-06	2E-09	1.99E-08	2.85E-10	4E-05	3E-09	1.06E-10	7.55E-12	2.11E-07
3.0E-04 1.5E-05 N/A 1.0E-03 3.0E-08 8E-04 5E-08 3.80E-08 7.5E-05 N/A 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1.0E-03 1																
7.5E-05 N/A 1.0E-03 8.27E+01 4.68E-08 6.E-04 7.02E-07 8.0E-01 N/A 1.0E-03 2.1627E-04 1.22E-05 6.E-04 N/A 1.0E-03 1.0E-05 6.E-05 8.E-05 8.E-05 1.8E-04 N/A 1.0E-03 3.02E-08 1.E-04 S.34E-07 1.8E-04 N/A 1.0E-03 4.27E+01 2.41E-08 1.E-04 S.27E+01 2.41E-08 1.E-04 S.27E+01 2.41E-08 1.E-04 S.27E+01 2.41E-08 1.E-04 S.27E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.22E-07 S.		3.0E-04	1.5E+00	3.0E-02	1.49E+01	2.53E-07	3.26E-08	8E-04	5E-08	3.80E-06	5.43E-08	1E-02	8E-08	2.01E-08	1.44E-09	6.71E-05
1.0E-04		7.5E-05	N/A	1.0E-03	8.27E+01	4.68E-08		6E-04		7.02E-07		9E-03		3.72E-09		4.96E-05
9.3E-04 N/A 1.0E-03 1.0CE+05 6.0DE-05 5.5E-05 5.5E-05 9.03E-08 1.0CE-08 1.0CE-08 1.0CE-08 1.0CE-08 1.0CE-08 1.0CE-08 1.0CE-08 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0CE-09 1.0		3.0E-01	N/A	1.0E-03	2.1627E+04	1.22E-05		4E-05		1.84E-04		6E-04		9.73E-07		3.24E-06
18E-04   N/A   1.0E-03   4.27E+01   3.02E-08   1.0E-04   1.0E-04   1.0E-03   4.27E+01   2.41E-08   1.0E-04   1.0E-04   1.0E-07   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-04   1.0E-		9.3E-04	N/A	1.0E-03	1.06E+05	6.02E-05		6E-02		9.03E-04		1E+00		4.79E-06		5.13E-03
18E-04   N/A   1.0E-03   4.27E+01   2.41E-08   1E-04   3.62E-07     Assumptions for Industrial Worker   CF =   1E-06 kg/mg   CF =   CS =   EPC Surface Only   EPC =   BW =   3.300 cm²   SA =   3.300 cm²   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =		6.5E-04	N/A	1.0E-03	5.34E+01	3.02E-08		5E-05		4.54E-07		7E-04		2.41E-09		3.72E-06
7E-03   9E-07		1.8E-04	N/A	1.0E-03	4.27E+01	2.41E-08		1E-04		3.62E-07		2E-03		1.92E-09		1.06E-05
Assumptions for Industrial Worker    E-06 kg/mg   CF =     E-06 kg/mg   CF =     12.06 kg/mg   EPC =     13.00 cm²   SA =     0.02 mg/cm²-cvent   AF =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     10.02 mg/cm²-cvent   EV =     1	Quotient and Cancer Rish	2						7E-02				1E+00	1E-06			SE-03
EPC Surface Only   EPC =   EPC Surface Only   EPC =   EPC Surface Only   EPC =   EPC Surface Only   EPC =   EPC Surface Only   EPC =   EPC Surface Only   EPC =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =   SA =						Y	ssumptions for I	ndustrial Work	is is	Ass	umptions for Co	onstruction Wol	rker	Assu	Assumptions for Adolescent Tresp	descent Tresp.
EPC Surface Only   EPC						CF=	1E-06	kg/mg		CF =	1E-06	kg/mg			IE-06 kg/mg	g/mg
70 kg BW = 3,300 cm <sup>2</sup> 3,300 cm <sup>2</sup> 0,02 mg/cm <sup>2</sup> -event AF = 3, 1 even/day EV = EV = EV = 219 days/car EF = 9 years 5 = 3,288 days AT (Co.) = 35,550 days						CS =	EPC Surface Or	ylr.		EPC =	EPC Surface On	lly .			EPC Surface Only	ly
3,300 cm <sup>2</sup> 0,02 mg/cm <sup>2</sup> -event AF = 3,  (even/day EV = EV = EV = 19 days/year EF = ED = 9 years ED = 3, 288 days AT (Cool = 2)						BW=	70	k8		BW =	70	k <sub>8</sub>		BW=	50 kg	30
0.02 mg/cm <sup>2</sup> -ovent AF = 10 cventday EV = 19 dayd/oear EF = 9 years ED = 3.288 days AT (Co.) = 25 cc. of do.e. A cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of do.e. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc. of cc.						SA =	3,300	cm <sup>2</sup>		SA =	3,300	cm <sup>2</sup>		SA =	5,867 cm <sup>2</sup>	sm²
1   0 \curr/day						AF =	0.02	mg/cm <sup>2</sup> -event		AF≈	0.3	0.3 mg/cm2-cvent		AF	10.0	0.01 mg/cm²-event
219 days/year						EV=	-	event/day		EV	-	l event/day		EV⇒	-	1 event/day
() = 3,285 days AT(Nc) = 3 () = 3,685 days AT(Nc) = 3						田子	219	days/year		EF =	219	days/ycar		EF =	4	14 days/year
3,285 days AT (Nc) = 25,585 days AT (Nc) = 25,585 days						ED=	2	years		ED=	1	years		ED =	0	5 years
23.330 days						AT (Nc) = AT (Car) =	25,285	days		AT (Nc) = AT (Car) =	25.550	days		AT (Nc) =	1,825 days 25,550 days	lays

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## TABLE F-3A CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211 SOIL SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

ake (mg/kg-day) **			EPC x IR x EF x ED BW x AT	a						Equ	Bouation for Hazard Quotient = Chronic Daily Inlake (Ne//Reference Dose	uotient = Chronic	Daily Intake (No	)/Reference Dose	
inplicits for Each Receptor are Listed at the Bottom):	or are Listed at	the Bottom):									,				
cir, mg/m³					ED = Exposure Duration	Duration				M	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	Risk = Chronic D	aily Intake (Car)	x Slope Factor	
Frequency					AT = Averaging Time	Time									
	Inhologion	Care Slone	Air FPC from	Air EPC from		Industrial Worker	Worker			Construc	Construction Worker			Adolescent Trespasser	respasser
Analyte	RD	Inhalation	Surface Soil	Surface Soil		Intake	Hazard	Cancer	Intake		Hazard	Cancer	Intake	ke	Hazard
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	п)	(mg/m³)	(Nc	(Car)	Tonon A	No.	(Nc)	(Car)			(Nc)	(Car)	
rganic Compounds	;	;													
cene	<b>∀</b>	3 10P+00	1.75-07	1.1E-06 9.4F-07		1015-08		3F-08		2 62 B-09		8E-09		1.27E-11	
ithene	N/A	N/A	1.7E-07	1.1E-06				2				:			
ithene	N/A	N/A	1.5E-07	9.6E-07			-								
4 124 0 124	<b>∀</b> × ×	V ×	2.0E-07	1.3E-06										-	
Dyrenc	X X	K K	6.6E-08	4.3E-07			_			_					
	X/A	1.61E+01	1.2B-10	7.5B-10		8.08E-12		1E-10		2.09E-12		3E-11		1.01E-14	
cide	Z/A	9.10E+00	4.0E-10	2.6E-09		2.79E-11		3E-10		7.22B-12		7E-11		3.50E-14	
	A/N	1.51E+01	2.5E-07	1.6E-06		1.77E-08		3E-07		4.59E-09		7E-08		2.22E-11	
	2.86E-05	4.20E+01	1.4B-06	9.1B-06	2.75B-07	9.83E-08	1B-02	4E-06	1.78E-06	2.54E-08	6E-02	1E-06	1.73E-09	1.23E-10	6E-05
	N/A	K X	3.7E-04	2.4E-03	2 648 04		10.00		200000	•	20702		אט שננ נ		2E-01
	N/A	N/A	9.1E-07	5.9E-06	1001		10.13		0.277.7		4				
Quotient and Cancer Rick:	1	K/K	/35-0/	4.75-00			2E+01	4F-06			2E+02	1E-06			2E-01
					A	Assumptions for Industrial Worker	ndustrial Worke	١.	¥	ssumptions for (	Assumptions for Construction Worker	1	Assu	Assumptions for Adolescent Tresp	lescent Tresp
					EPC=	EPC Surface Only	ly			EPC Surface On	EPC Surface Only for Construction Worker	Vorker		EPC Surface Only	
					BW m	70 kg	kg		BW=	70 kg	83		BW =	50 kg	80
					R=	20 1	20 m³/day		IR =	20 1	20 m³/day		IR ==	1.6 ח	1.6 m³/day
					五子 ==	250	250 days/year		EF =	250 (	250 days/year		EF ==	14 d	14 days/year
					ED =	25 years	25 years		ED=	1 year	1 year		ED =	5 years	5 years
					AT (Car) =	25.550 days	days		AT (Car) ==	25.550 days	davs		AT (Car) =	25.550 days	ays
his table more intentionally left blank due to a lack of foxicity data	by last blant de	a to a last of the	vinite data												

his table were intentionally left blank due to a lack of toxicity data.

on not available.

as used for the industrial worker and the adolescent trespasser.

as used for the construction worker.

## TABLE F.3B CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR CENTRAL TENDENCY (CT) - SEAD-1211 SOIL SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

ake (mg/kg-day) = EPC_x RR x EF x RD  BW x A T  Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose	cih Receptor are Listet at the Bottom):	ED = Exposure Duration ED = Exposure Duration S x Slope Factor	BW = Bodyweight	AT = Averaging Time
stake (mg/kg-day) ==	umptions for Each Receptor are List	Air, mg/m³	Rate	e Frequency

e Frequency					A I = Averaging 1 mc	I mc						0.000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	Inhalation	Carc. Slope	Air EPC from	Air EPC from		Industrial Worker	Worker		-	Construction Worker	n Worker			Adolescent Trespasser	respasser
Analyte	C C C	Inhalation	Surface Soll (1)	Surface Soil Const. Worker (2)	Intake (mg/kg-day)	ake day)	Hazard	Cancer Risk	Intake (mg/kg-day)	(ke -day)	Hazard	Cancer Risk	Intake (mg/kg-day)	ike -day)	Hazard Quotient
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/m <sub>3</sub> )	(mg/m <sub>3</sub> )	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	
Organic Compounds															
acene	N/A	N/A	1.7E-07	1.1E-06											
9	N/A	3.10E+00	1.4E-07	9.4E-07		1.66E-09		5E-09		2.30E-09		7E-09		1.27E-11	
unthene	N/A	N/A	1.7E-07	1.1E-06							-				
anthene	N/A	N/A	1.5E-07	9.6B-07	_						_				
	N/A	N/A	2.0E-07	1.3E-06										-	
thracene	N/A	N/A	2.0E-08	1.3E-07									_		
d)pyrene	N/A	N/A	6.6E-08	4.3E-07											
															_
	A/A	1.61E+01	1.2B-10	7.5E-10		1.33E-12		2E-11		1.83E-12		3B-11		1.01E-14	
oxide	N/A	9.10E+00	4.0E-10	2.6E-09		4.57E-12		4B-11		6.32E-12		6E-11		3.50E-14	
													_		
	N/A	1.51E+01	2.5E-07	1.6B-06		2.91E-09		4E-08		4.02E-09		6E-08		2.22E-11	
	2.86E-05	4.20E+01	1.4E-06	9.1E-06	1.25E-07	1.61E-08	4E-03	7E-07	1.56E-06	2.23E-08	5B-02	9B-07	1.73E-09	1.23E-10	6E-05
	N/A	N/A	3.7E-04	2.4E-03							_				
	1.43B-05	N/A	1.8E-03	1.2B-02	1.61E-04		1E+01		2.01E-03		1E+02		2.22E-06		2E-01
	A X	N/A A/N	9.1E-07	5.9E-06 4.7E-06											
Onotient and Cancer Risk:	ł						1E+01	7E-07			1E+02	1E-06			2E-01
					As	Assumptions for Industrial Worker	ndustrial Worl	I.	ASSU	imptions for Co	Assumptions for Construction Worker	ker	Assur	Assumptions for Adolescent Trespan	escent Trespar
				•	EPC =	HPC Surface Only	2		PPC =	PPC Surface On	PPC Surface Only for Construction Worker	Τ	EPC -	RPC Surface Only	
						70 kg	kg.			70 kg	kg			50 kg	. 60
					E	10.4	10.4 m <sup>3</sup> /day		В	20 1	20 m³/day		IR=	1.6 n	1.6 m³/day
					■ 43	219	219 days/year		是开 ==	219	219 days/year		五子二	14 0	14 days/year
					ED=	6	9 years		ED=	-	1 year		ED =	5 years	ears
					AT (Nc) =	3,285 days	days		AT (Nc) =	365 days	days		AT (Nc) =	1,825 days	ays
					AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	ays
Innochementa ansert al dot nide	Ily left blonk de	and blank due to a lack of toxicity data	inite data												

this table were intentionally left blank due to a lack of toxicity data. ion not available. was used for the industrial worker and the adolescent trespasser. was used for the construction worker.

## TABLE F-4A CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211 SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

symptions for Each Recentor are Listed at the Bottom)														
Tarana and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sam	re Listed at	the Bottom):					Eq	uation for Hazan	d Quotient = Chr	Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose	(Nc)/Reference I	Oose		
ure Point Concentration in Ditch Soil, mg/kg	ch Soil, mg/	kg		EF = Exposure Frequency	Frequency	•			1.0	O cilculation	Total State Page			
n Kate sion Factor				BW = Bodyweight	ght			Equation for Car	icer Kisk = Chrol	Equation for Cancer Kisk = Chronic Dally intake (Car) x Slope Factor	ar) x Siope racti	LO .		
Ingested				AT = Averaging Time	g Time									TO THE PERSON NAMED IN COLUMN
	Oral	Carc. Slope	EPC	-	Industrial Worker	Worker			Construct	Construction Worker			Adolescent Trespasser	Frespasser
Analyte	R/D	Oral	Ditch Soil	Int (mo/k	Intake (mo/ko-dov)	Hazard	Cancer	Int	Intake	Hazard	Cancer	Intake	ike	Hazard
u)	ng/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)	,		(Nc)	(Car)	
Organic Compounds														
racene	N/A	7.3E-01	5.9E+00		4.11E-07		3E-07		2.71E-07		2E-07		3 22E-08	
ne	N/A	7.3E+00	6.2E+00		4.36E-07		3E-06		2.88E-07		2E-06		3.42E-C8	
ranthene	N/A	7.3E-01	1.1E+01		7.90E-07		6E-07		5.21E-07		4E-07		6 19E-08	
ranthene	N/A	7.3E-02	8.9E+00		6.20E-07		5E-08		4.09E-07		3E-08		4 86E-08	
	N/A	7.3E-03	8.6E+00		6.03E-07		4E-09		3.98E-07		3E-09		4.73E-08	
thracene	N/A	7.3E+00	2.4E+00		1.65E-07		1E-06		1.09E-07		8E-07		1 29E-08	
cd)pyrene	N/A	7.3E-01	1.1E+01		7.70E-07		6E-07		5.08E-07		4E-07		6 04E-08	
	3E-04	1.5E+00	6.1E+01	1.19E-05	4.24E-06	4E-02	6E-06	1.96E-04	2.80E-06	7E-01	4E-06	4.65E-06	3.32E-07	2E-02
	3E-01	N/A	2.1E+04	4.13E-03		1E-02		6.82E-02		2E-01		1.62E-03		SE-03
	2E-02	N/A	1.15+04	2.12E-03		9E-02		3.49E-02		1E+00		8.29E-04		4E-02
	6E-04	N/A	1.2E+01	2.28E-06		4E-03		3.76E-05		6E-02		8 92E-07		1E-03
d Quotient and Cancer Risk:						1E-01	1E-05			2E+00	8E-06			6E-02
				¥	Assumptions for Industrial Worker	ndustrial Work	er	A	ssumptions for (	Assumptions for Construction Worker	ker	Assu	Assumptions for Adolescent Tresp	olescent Tresp
				CF=	1E-06 kg/mg	ca/ma		CF =	1E-06 kg/mg	ku/mg		CF ==	1E-06 ku/mu	co/mo
				EPC=	EPC Surface Only	, A		EPC=	EPC Surface Only	ly o		EPC=	EPC Surface Only	ly o
				BW=	70 kg	kg		BW=	70 kg	kg		BW=	50 kg	K 00
				吊=	100	100 mg/day		IR ==	330	330 mg/day		IR =	100	100 mg/day
				FI	-	1 unitless		三 三	-	1 unitless		= 1		1 unitless
				EF=	20	50 days/year		EF=	250	250 days/year		日日	14	14 days/year
				ED =	25	25 years		ED=	-	1 years		ED =	\$	5 years
				AT (Car) =	9,125 days	days		AT (Nc) =	365 days	365 days		AT (Nc) =	1,825 days	days
	1 1 1			(ma)	200	- Caro		(m)	20104	calo		(Va)	0000	days

### TABLE F-4B CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF DITCH SOIL CENTRAL TENDENCY (CT) - SEAD-1211 SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time EPCxIRx CFxF1 x EFxED BW x AT ssumptions for Each Receptor are Listed at the Bottom):
uer Point Concentration in Ditch Soil, mg/kg
sion Factor
Ingested Intake (mg/kg-day) =

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	R/D	Oral	Ditch Soil	Int	Intake	Hazard	Cancer	Intake	ake	Hazard	Cancer	Intake	1	
										-	-	-	INC	Hazard
				(mg/kg-day)	g-day)	Quotient	Risk	(mg/k)	(mg/kg-day)	Quotient	Risk	(mg/kg-day)	-day)	Quotient
(mg/)	(mg/kg-day) (mg/kg-day)-1	2/kg-day)-1	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	
Organic Compounds														
racene	N/A	7.3E-01	5.9E+00		7.39E-08		SE-08		7.19E-08		SE-08		1.61E-08	
ene N	N/A	7.3E+00	6.2E+00		7.85E-08		6E-07		7.64E-08		6E-07		1.71E-08	
oranthene N	_	7.3E-01	1,16+01		1.42E-07		1E-07		1.38E-07		1E-07		3.10E-08	
	_	7.3E-02	8.9E+00		1.12E-07		8E-09		1.09E-07		8E-09		2.43E-08	
	_	7.3E-03	8.6E+00		1.09E-07		8E-10		1.06E-07		8E-10		2.36E-08	
Inthracene	_	7.3E+00	2.4E+00		2.97E-08		2E-07		2.89E-08		2E-07		6.46E-09	
0	_	7.3E-01	1.1E+01		1.39E-07		1E-07		1.35E-07		1E-07		3.02E-08	
	3 0F-04	1 \$F+00	6 18+01	\$ 035-06	7.63E-07	2E-02	1E-06	\$ 20E-0\$	7 42F-07	2F-01	1E-06	2.33E-06	1.66E-07	8E-03
300	_	A/N	2.1E+04	2.07E-03		7E-03	!	1.81E-02		6E-02		8.10E-04		3E-03
2.3	2.3E-02	N/A	1.1E+04	1.06E-03		\$E-02		9.27E-03		4E-01		4.15E-04		2E-02
6.3	6.5E-04	N/A	1.2E+01	1.14E-06		2E-03		9.97E-06		2E-02		4.46E-07		7E-04
rd Quotient and Cancer Risk:						7E-02	2E-06			6E-01	2E-06			3E-02
				As	Assumptions for Industrial Worker	ndustrial Work	ier	Y	ssumptions for	Assumptions for Construction Worker	rker	Assu	Assumptions for Adolescent Trespa	olescent Trespa
				CF=	1E-06 kg/mg	kg/mg		CF=	1E-06 kg/mg	kg/mg		CF=	1E-06 kg/mg	kg/mg
				EPC=	EPC Surface Only	, A		EPC=	EPC Surface Only	ly (i		EPC=	EPC Surface Only	· A
				BW=	70	70 kg		BW =	. 70 kg	kg		BW≖	50 kg	Kg X
				IR =	20	50 mg/day		民=	001	100 mg/day		IR =	20	50 mg/day
				FI =	-	1 unitless		FI=		l unitless		=======================================	****	1 unitless
				EF =	20	50 days/year		田子品	219	219 days/year		EF =	14	14 days/year
				ED =	6	9 years		ED=	-	l years		ED =	S	5 years
				AT (Nc) =	3,285 days	days		AT (Nc) =	365	365 days		AT (Nc) =	1,825 days	days
				AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days

# TABLE F-5A CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211 SEAD-121C AND SEAD-121I RI REPORT Seneca Army Depot Activity

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor EPC x CF x SA x AF x ABS x EV x EF x ED BW x AT EV = Event Frequency
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time umpijons for Each Receptor are Listed at the Bottom); re Point Concentration in Ditch Soil, mg/kg on Factor Area Contact ce Factor itake (mg/kg-day) =

	Dermal	Carc. Slope	Absorption	EPC		Industrial Worker	Worker			Construction Worker	n Worker			Adolescent Trespasser	respasser
Analyte	R/D	Dermal	_	Ditch Soil	Absorbed Dose	ed Dose	Hazard	Cancer	Absorbed Dose	d Dose	Нахяго	Cancer	Absorbed Dose	d Dose	Hazard
					(mg/kg-day)	g-day)	Quotient	Risk	(mg/kg-day)	-day)	Quotient	Risk	(mg/kg-day)	-day)	Quotient
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(unitless)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(NC)	(Car)	
Organic Compounds															
acene	N/A	7.35-01	1.3E-01	5.9E+00		3.52E-07		3E-07	_	1.06E-07		8E-08		1 72E-08	
e	N/A	7.3E+00	1.3E-01	6.2E+00		3.74E-07		3E-06	-	1.12E-07		8E-07		1 82E-08	
anthene	K/Z	7.3E-01	1.3E-01	1.1E+01		6.78E-07		SE-07		2.03E-07		1E-07		3.31E-08	
anthene	N/A	7.3E-02	1.3E-01	8.9E+00		5.32E-07		4E-08		1.60E-07		1E-08		2 59E-08	
	N/A	7.3E-03	1.3E-01	8.6E+00		5.17E-07		4E-09		1.55E-07		1E-03		2 52E-08	
thracene	N/A	7.3E+00	1.3E-01	2.4E+00		1.41E-07		1E-06		4.24E-08		3E-07	_	6 90E-09	
d)pyrene	N/A	7.3E-01	1.3E-01	1.1E+01		6.61E-07		SE-07		1.98E-07		1E-07		3 22E-08	
	3E-04	1.5E+00	3.0E-02	6.1E+01	2.35E-06	8.39E-07	8E-03	1E-06	1.76E-05	2 52E-07	6E-02	4E-07	\$ 73E-07	4 09E-08	2E-03
	3E-01	N/A	1.0E-03	2.1E+04	2.73E-05		9E-05		2 04E-04		7E-04		6.65E-06		2E-05
	9E-04	N/A	1.0E-03	1.1E+04	1.40E-05		1E-02		1.05E-04		1E-01		3 41 E-06		4E-03
	6E-04	N/A	1.0E-03	1.2E+01	1.50E-08		2E-05		1.13E-07		2E-04		3 66E-09		6E-06
Quotient and Cancer Risk:	ä						2E-02	6E-06			2E-01	2E-06			6E-03
					AS	Assumptions for Industrial Worker	dustrial Work	er	Assu	Assumptions for Construction Worker	nstruction Wo	rker	Assun	Assumptions for Adolescent Tresp	lescent Tresp
					CF =	1E-06 kg/mg	sg/mg		CF =	1E-06 kg/mg	kg/mg			1E-06 kg/mg	y/mg
					EPC =	<b>EPC Surface Only</b>	ly		EPC =	EPC Surface Only	ly			EPC Surface Only	5.
					BW =	70 kg	8,		BW =	70 kg	k.g		BW ==	50 kg	8
					SA =	3,300 cm <sup>2</sup>	cm²		SA =	3,300 cm <sup>2</sup>	cm <sup>2</sup>		SA ==	5,867 cm <sup>2</sup>	m²
					AF=	0.2 1	0.2 mg/cm²-event		AF =	0.3	0.3 mg/cm²-event		AF=	0.07	0.07 mg/cm²-event
					EV =	1 6	1 event/day		EV =	_	l event/day		EV =	, e	1 even/day
					EF ==	20 6	50 days/year		EF =	250	250 days/year		EF =	71	14 days/year
					ED =	25 )	25 years		ED ≈	_	l years		ED =	۷. ۷	5 years
					AT (Nc) =	9,125 days	days		AT (Nc) =	365 days	days		AT (Nc) =	1,825 days	27.5
					AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	2 \ 5

this table were intentionally left blank due to a fact of toxicity data.

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Lack CONDEA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

Lacks From Exhibit 3-40 (USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance with the USEPA Region 4 (2000).

Lacks Group of the Action of Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

# TABLE F-5B CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO DITCH SOIL CENTRAL TENDENCY (CT) - SEAD-1211 SEAD-121C AND SEAD-1211 RI REPORT Seneca Army Depot Activity

EPC x CF x SA x AF x ABS x EV x EF x ED BW x AT EV = Event Frequency
EF = Exposure Frequency
ED ≈ Exposure Duration
BW = Bodyweight
AT = Averaging Time ssumptions for Each Recoptor are Listed at the Bottom):
sure Point Concentration in Ditch Soil, mg/kg
sion Factor
Avea Contact
noe Factor
pption Factor intake (mg/kg-day) =

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Angivte	֡	Car Carone	Absorbtion	EPC		Industrial Worker	Worker			Construction Worker	on Worker			Adolescent Trespasser	Frespasser
	RID	Dermal	Factor*	Ditch Soil	Absorbed Dose (mg/kg-day)	ed Dose	Hazard	Cancer	Absorb (mg/k	Absorbed Dose (mg/kg-day)	Hazard	Cancer Risk	Absorbed Dos (mg/kg-day)	Absorbed Dose (mg/kg-day)	Hazard
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(unitless)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	
Organic Compounds															
racene	NA	7.35-01	1.3E-01	5.9E+00		1.27E-08		9E-09		9.26E-08		7E-08		2.46E-09	
me	N/A	7.3E+00	1.3E-01	6.2E+00		1.35E-08		1E-07		9.83E-08		7E-07		2.61E-09	
ranthene	N/A	7.3E-01	1.3E-01	1.1E+01		2.44E-08		2E-08		1.78E-07		1E-07		4.72E-09	
ranthene	N/A	7.3E-02	1.3E-01	8.9E+00		1.91E-08		1E-09		1.40E-07		1E-08		3.71E-09	
	NA	7.3E-03	1.3E-01	8.6E+00		1.86E-08		1E-10		1.36E-07		1E-09		3.60E-09	
nthracene	N/A	7.3E+00	1.3E-01	2.4E+00		5.09E-09		4E-08		3.72E-08		3E-07		9.86E-10	
-cd)pyrene	N/A	7.3E-01	1.3E-01	1.1E+01		2.38E-08		2E-08		1.74E-07		16-07		4.60E-09	
	3.00E-04	1.55+00	3.0E-02	6.1E+01	2.35E-07	3.02E-08	8E-04	5E-08	1.54E-05	2.20E-07	5E-02	3E-07	8.18E-08	5.85E-09	2.73E-04
	3.00E-01	N/A	1.0E-03	2.1E+04	2,73E-06		9E-06		1.79E-04		6E-04		9.50E-07		3.17E-06
	9.33E-04	N/A	1.0E-03	1.1E+04	1.40E-06		1E-03		9.17E-05		1E-01		4.87E-07		5.21E-04
	6.47E-04	N/A	1.0E-03	1.2E+01	1.50E-09		2E-06		9.87E-08		2E-04		5.23E-10		8.10E-07
d Ouotient and Cancer Risk:	ų.						2E-03	2E-07			2E-01	2E-06			8E-04
					As	Assumptions for Industrial Worker	ndustrial Work	e.	As	Assumptions for Construction Worker	onstruction Wo	rker	Assı	Assumptions for Adolescent Tresp.	olescent Trespo
					CRE	1E-06 kg/mg	colmo		CF.	1E-06	1E-06 kg/mg		CF =	IE-06 ke/me	ke/me
-					EPC =	EPC Surface Only	N N		EPC =	EPC Surface Only	nlv vin		EPC ≈	EPC Surface Only	N
					BW =	70 kg	. 99		BW =	70	70 kg		BW=	50 kg	. 60
					SA =	3,300 cm <sup>2</sup>	cm <sup>2</sup>		SA =	3,300 cm²	cm <sup>2</sup>		SA =	5,867 cm <sup>2</sup>	cm <sup>2</sup>
					AF=	0.02	0.02 mg/cm²-event		AF=	0.3	0.3 mg/cm²-event		AF =	0.01	0.01 mg/cm2-cvent
					EV =	1,	1 event/day		EV =	_	l event/day		EV=	-	i event/day
					EF=	50	50 days/year		EF=	219	219 days/year		EF =	14	14 days/year
					ED =	0	9 years		ED =	-	1 years		ED =	2	5 years
					AT (Nc) =	3,285 days	days		AT (Nc) =	365	365 days		AT (Nc) =	1,825 days	days
					AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days

in this table were intentionally left blank due to a lack of toxicity data.

In this table were intentionally left blank due to a lack of toxicity data.

Include to available.

Include Schibit 3-4 of USEP A (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Yolume I).

Includence for iron, mangances, and thallium were assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

In Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.opa.gov/region4/waste/ots/ficaltbul.htm).

nent/DERM DITCH SOIL2.xls/CT s\SENECA\PID Area\Report\Draft Fina\Risk Assessment\Human Health Risk Tables\1211-Cosmoline\soil assessr

### TABLE F-6A CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-1211 RI REPORT . Seneca Army Depot Activity

ske (mg/kg-day) =			EPCxIRx EFxED BWxAT	a						a a	Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose	Puotient = Chronic	: Daily Intake (No	c)/Reference Dose	
mptions for Each Receptor are Listed at the Bottom):	are Listed at the	: Bottom):													
ir, mg/m³					ED = Exposure Duration	Duration					Equation for Cancer Risk - Chronic Daily Intake (Car) x Slope Factor	r Risk = Chronic 1	Daily Intake (Car)	x Slope Factor	
Sate					BW - Bodyweight	þ									
Frequency					AT = Averaging Time	Time									
	Inhalation	Care. Slone	Air EPC from	Air EPC from		Industrial Worker	Worker			Construc	Construction Worker			Adolescent Trespasser	respasser
Analyte	RD	Inhalation	Ditch Soil	Ditch Soil	Intake	1	Hazard	Cancer	Intake	1	Hazard	Cancer	Inti	Intake	Hazard
			(1)	Coast. Worker (2)	(mg/kg-day)	-day)	Quotient	Risk	(mg/kg-day)	(-day)	Quotient	Rusk	(mg/kg-day)	g-day)	Quotient
	(mg/kg-day)	(mg/kg-day) (mg/kg-day)-1	(mg/m³)	(mg/m <sup>3</sup> )	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)	
ganic Compounds															
che	N/A	N/A	1.0E-07	6.5E-07					-						
	N/A	3.10E+00	1.1B-07	6.9E-07		7.41E-09		2E-08		1.92E-09		6E-09		9.30E-12	
thene	N/A	N/A	1.9E-07	1.2E-06											
thene	N/A	N/A	1.5E-07	9.8E-07											
	N/A	N/A	1.5E-07	9.5E-07											
racene	N/A	N/A	4.0E-08	2.6E-07											
рутеле	N/A	N/A	1.9E-07	1.2E-06											
	N/A	1.51E+01	1.05-06	6.7E-06		7.20E-08		1E-06		1.86E-08		3E-07		9.03E-11	
	Y/X	N/A	3.6E-04	2.3E-03											
	1.43E-05 N/A	N/A	1.8E-04 2.0E-07	1.2E-03 1.3E-06	3.60E-05		3E+00		2.33E-04		2E+01		2.26E-07		2E-02
Suotient and Cancer Risk:							3E+00	1E-06			2E+01	3E-07			2E-02
					As	Assumptions for Industrial Worker	ndustrial Work	er	<b>V</b>	ssumptions for	Assumptions for Construction Worker	ker	Assu	Assumptions for Adolescent Tres	lescent Tresp
					EPC =	EPC Surface Only			EPC=	EPC Surface On	EPC Surface Only for Construction Worker	Worker	EPC =	EPC Surface Only	>
						70 kg	88			70 kg	kg		BW≈	50 kg	9
					R.	20 1	20 m³/day		IR.	20	20 m³/day		IR =	1.6 1	1.6 m³/day
					= 사크	250 (	250 days/year		EF=	250	250 days/year		EF =	14	14 days/year
					ED ×	25	25 years		ED ≃	_	1 year		ED =	8	5 years
					AT (Nc) =	9,125 days	days		AT (Nc) =	365 days	days		AT (Nc) =	1,825 days	lays
					AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	lays

is table were intentionally left blank due to a lack of toxicity data.

n not available,
as used for the industrial worker and the adolescent trespasser.
as used for the construction worker.

# TABLE F-6B CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR CENTRAL TENDENCY (CT) - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-1211 RI REPORT Seneca AFMY Depot Activity

ntake (mg/kg-day) =			EPC x IR x EF x ED RW x AT	Œ						Щ ф	ion for Hazard	Onotion! = Chro	nic Daily Intake	Fourtier for Hazard Quotient = Chronic Daily Intake $\mathbb{N}^2\mathbb{N}$ eference Does	950
sumptions for Each Receptor are Listed at the Bottom):	eceptor are	Listed at the Botto	(ma							1			and the case of		360
t Air, mg/m³					ED = Exposure Duration	Duration	-	_		ъ́В	uation for Cance	r Risk = Chroni	c Daily Intake (C	Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor	or Or
n Rate re Frequency					BW = Bodyweight AT = Averaging Time	zht Time				•					
									2000						
	Inhalation	L.,	Air EPC from	Alr EPC from		Industria	Industrial Worker			Construction Worker	n Worker			Adolescent Trespasser	respasser
Analyte	æ	Inhalation	Ditch Soil	Ditch Soil		Intake	Hazard	Cancer	Intake	ike	Hazard	Cancer	Int	Intake	Hazard
	(me/ke-day	(me/ke-dav) (me/ke-dav)-1	(1) (me/m³)	Const. Worker (4)	(Mg/kg-day)	(Car)	Anoment	KISK	(Mg/kg-day)	(Car)	Cuotient	KISK	(Ne)	(mg/kg-day)	Quotient
Organic Compound		V/A	1.0E-07	6 5E-07											
je je	N/A	3.10E+00	1.1E-07	6.9B-07		1.22E-09		4B-09		1.68E-09		SE-09		9.30E-12	
anthene	N/A	N/A	1.9E-07	1.2E-06											
anthene	A/A	A/A	1.5E-07	9.8E-07										-	
	N/A	N/A	1.5B-07	9.5B-07					_						-
thracene	N/A	N/A	4.0E-08	2.6E-07											
cd)pyrene	N/A	A/N	1.9E-07	1.2B-06											
	N/A	1.51E+01	1.0E-06	6.7E-06		1.18E-08		2R-07		1.63E-08		2B-07		9.03E-11	
	N/A		3.6E-04	2.3E-03				 ;				;			
	1.43E-05 N/A	X X V Y	1.8E-04 2.0E-07	1.2E-03 1.3E-06	1.64E-05		1E+00		2.04E-04		1E+01		2.26E-07		2E-02
Quotient and Cancer Risk:	er Risk:						1E+00	2E-07			1E+01	3E-07			2E-02
					AS	sumptions for I	Assumptions for Industrial Worker	ker	· Assu	· Assumptions for Construction Worker	nstruction Wo	rker	Assu	Assumptions for Adolescent Trespas	descent Trespas
					EPC =	EPC Surface Only	ĄI		EPC =	EPC Surface Only for Construction Worker	dy for Construct	non Worker	EPC =	EPC Surface Only	2
						70 kg	kg			70 kg	kg		BW=	50 kg	. 99
					IR=	10.4	10.4 m <sup>3</sup> /day		IR=	20	20 m³/day		R=	1.6	1.6 m³/day
					EF ==	219	219 days/year		EF =	219	219 days/year		EF =	14	14 days/year
					ED=	6	9 years		ED=	1 year	year		ED=	5.	5 years
					AT (Nc) =	3,285 days	days		AT (Nc) =	365 days	days		AT (Nc) =	1,825 days	lays
					AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	days		AT (Car) =	25,550 days	lays

this table were intentionally left blank due to a lack of toxicity data-tion not available.

was used for the industrial worker and the adolescent trespasser.

was used for the construction worker.

SENECAIPID ArealReport/Draft Final/Risk AssessmentHuman Health Risk Tables/1211-Cosmoline/soil assessment/AMBAIR DITCH2.xls/CT

## APPENDIX G

# ECOLOGICAL RISK ASSESSMENT CALCULATION TABLES

- G-1 Chemical-Specific Uptake Factors
- G-2A SEAD-121C Soil Deer Mouse (Peromyscus maniculatus) Exposure
- G-2B SEAD-121C Soil American Robin (Turdus migratorius) Exposure
- G-2C SEAD-121C Soil Short-Tailed Shrew (Blarina brevicauda) Exposure
- G-2D SEAD-121C Soil Meadow Vole (Microtus pennsylvanicus) Exposure
- G-2E SEAD-121C Soil Red Fox (Vulpes vulpes) Exposure
- G-3A SEAD-121C Ditch Soil Deer Mouse (Peromyscus maniculatus) Exposure
- G-3B SEAD-121C Ditch Soil American Robin (Turdus migratorius) Exposure
- G-3C SEAD-121C Ditch Soil Short-Tailed Shrew (Blarina brevicauda) Exposure
- G-3D SEAD-121C Ditch Soil Meadow Vole (Microtus pennsylvanicus) Exposure
- G-3E SEAD-121C Ditch Soil Red Fox (Vulpes vulpes) Exposure
- G-3F SEAD-121C Ditch Soil Great Blue Heron (Ardea herodias) Exposure
- G-4A SEAD-121I Soil Deer Mouse (Peromyscus maniculatus) Exposure
- G-4B SEAD-121I Soil American Robin (Turdus migratorius) Exposure
- G-4C SEAD-121I Soil Short-Tailed Shrew (Blarina brevicauda) Exposure
- G-4D SEAD-121I Soil Meadow Vole (Microtus pennsylvanicus) Exposure
- G-4E SEAD-121I Soil Red Fox (Vulpes vulpes) Exposure
- G-5A SEAD-121I Ditch Soil Deer Mouse (Peromyscus maniculatus) Exposure
- G-5B SEAD-121I Ditch Soil American Robin (Turdus migratorius) Exposure
- G-5C SEAD-121I Ditch Soil Short-Tailed Shrew (Blarina brevicauda) Exposure
- G-5D SEAD-121I Ditch Soil Meadow Vole (Microtus pennsylvanicus) Exposure
- G-5E SEAD-121I Ditch Soil Red Fox (Vulpes vulpes) Exposure
- G-5F SEAD-121I Ditch Soil Great Blue Heron (Ardea herodias) Exposure
- G-6A SEAD-121C Soil Deer Mouse (*Peromyscus maniculatus*) Exposure Based on Mean Concentration
- G-6B SEAD-121C Soil American Robin (*Turdus migratorius*) Exposure Based on Mean Concentration
- G-6C SEAD-121C Soil Short-Tailed Shrew (*Blarina brevicauda*) Exposure Based on Mean Concentration
- G-6D SEAD-121C Soil Meadow Vole (*Microtus pennsylvanicus*) Exposure Based on Mean Concentration
- G-6E SEAD-121C Soil Red Fox (Vulpes vulpes) Exposure Based on Mean Concentration
- G-7A SEAD-121C Ditch Soil Deer Mouse (*Peromyscus maniculatus*) Exposure Based on Mean Concentration
- G-7B SEAD-121C Ditch Soil American Robin (*Turdus migratorius*) Exposure Based on Mean Concentration
- G-7C SEAD-121C Ditch Soil Short-Tailed Shrew (*Blarina brevicauda*) Exposure Based on Mean Concentration
- G-7D SEAD-121C Ditch Soil Meadow Vole (*Microtus pennsylvanicus*) Exposure Based on Mean Concentration
- G-7E SEAD-121C Ditch Soil Red Fox (Vulpes vulpes) Exposure Based on Mean Concentration

# APPENDIX G

# ECOLOGICAL RISK ASSESSMENT CALCULATION TABLES

(Continued)

- G-7F SEAD-121C Ditch Soil Great Blue Heron (*Ardea herodias*) Exposure Based on Mean Concentration
- G-8A SEAD-121I Soil Deer Mouse (*Peromyscus maniculatus*) Exposure Based on Mean Concentration
- G-8B SEAD-121I Soil American Robin (Turdus migratorius) Exposure Based on Mean Concentration
- G-8C SEAD-121I Soil Short-Tailed Shrew (*Blarina brevicauda*) Exposure Based on Mean Concentration
- G-8D SEAD-121I Soil Meadow Vole (*Microtus pennsylvanicus*) Exposure Based on Mean Concentration
- G-8E SEAD-121I Soil Red Fox (Vulpes vulpes) Exposure Based on Mean Concentration
- G-9A SEAD-121I Ditch Soil Deer Mouse (*Peromyscus maniculatus*) Exposure Based on Mean Concentration
- G-9B SEAD-121I Ditch Soil American Robin (*Turdus migratorius*) Exposure Based on Mean Concentration
- G-9C SEAD-121I Ditch Soil Short-Tailed Shrew (*Blarina brevicauda*) Exposure Based on Mean Concentration
- G-9D SEAD-121I Ditch Soil Meadow Vole (*Microtus pennsylvanicus*) Exposure Based on Mean Concentration
- G-9E SEAD-121I Ditch Soil Red Fox (Vulpes vulpes) Exposure Based on Mean Concentration
- G-9F SEAD-121I Ditch Soil Great Blue Heron (Ardea herodias) Exposure Based on Mean Concentration

# TABLE G-1 CHEMICAL-SPECIFIC UPTAKE FACTORS SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

COPC	Soil-To-Soil Invertebrate 1 (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Small Mammal BAF <sup>2</sup> (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Soil-To-Plant <sup>3</sup> (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)
Volatile Organic Compounds			
Benzene	0.20	1.07E+00	2.27
Ethyl benzene	0.24	7.61E-01	0.59
Meta/Para Xylene	0.24	7.48E-01	0.55
Semivolatile Organic Compounds	5		
3 or 4-Methylphenol	0.10	1.14E+00	2.89
Acenaphthene	0.07	4.61E-04	0.21
Acenaphthylene	0.07	4.61E-04	0.17
Anthracene	0.07	4.61E-04	0.104
Benzo(a)anthracene	0.03	1.46E-04	0.0202
Benzo(a)pyrene	0.07	4.61E-04	0.011
Benzo(b)fluoranthene	0.07	5.46E-04	0.0101
Benzo(ghi)perylene	0.07	4.61E-04	0.0057
Benzo(k)fluoranthene	0.08	5.43E-04	0.0101
Bis(2-Ethylhexyl)phthalate	0.040	5.50E-05	0.038
Butylbenzylphthalate	0.050	4.49E-01	0.07
Carbazole	0.060	6.29E-01	0.27
Chrysene	0.04	1.88E-04	0.0187
Dibenz(a,h)anthracene	0.07	1.21E-03	0.0064
Dibenzofuran	. 0.050	5.50E-01	0.16
Di-n-octylphthalate	0.010	7.32E-01	0.000157
Fluoranthene	0.07	4.61E-04	0.0372
Fluorene	0.07	4.61E-04	0.149
Hexachlorobenzene	0.040	1.09E-04	0.0255
Indeno(1,2,3-cd)pyrene	0.08	2.82E-03	0.0039
Naphthalene	0.07	4.61E-04	0.42
Phenanthrene	0.07	4.61E-04	0.102
Phenol	0.110	1.34E+00	5.55
Pyrene	0.07	4.61E-04	0.0443
PCBs			L
Aroclor-1242	1.1	5.52E-04	0.01
Aroclor-1254	1.1	5.52E-04	0.01
Aroclor-1260	1.1	5.52E-04	0.01
Pesticides			
4,4'-DDD	1.3	6.18E-04	0.00937
4,4'-DDE	1.3	6.18E-04	0.00937
4,4'-DDT	1.3	6.18E-04	0.00937
Aldrin	0.070	7.97E-01	0.705
Alpha-Chlordane	0.040	3.51E-01	0.027
Delta-BHC	0.050	5.47E-01	0.157
Dieldrin	0.050	4.75E-01	0.090
Endosulfan I	0.060	6.06E-01	0.237
Endosulfan II	0.060	6.06E-01	0.237
Endrin	0.050	4.75E-01	0.090

# TABLE G-1 CHEMICAL-SPECIFIC UPTAKE FACTORS SEAD-121C and SEAD-121I RI Report

**Seneca Army Depot Activity** 

COPC	Soil-To-Soil Invertebrate <sup>1</sup> (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Small Mammal BAF <sup>2</sup> (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Soil-To-Plant <sup>3</sup> (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)
Endrin ketone	0.050	4.75E-01	0.090
Gamma-Chlordane	0.040	3.51E-01	0.027
Heptachlor	1.40	3.55E-05	0.049
Heptachlor epoxide	1.40	3.55E-05	0.029
Inorganics			
Aluminum	0.22	1.50E-03	0.004
Antimony	0.22	1.00E-03	0.2
Arsenic	0.11	2.00E-03	0.036
Barium	0.091	1.50E-04	0.15
Cadmium	0.96	5.50E-04	0.364
Chromium	0.01	5.50E-03	0.0075
Chromium, Hexavalent	0.01	5.50E-03	. 0.0075
Cobalt	0.122	2.00E-02	0.081
Copper	0.04	1.00E-02	0.4
Cyanide	1.12	1.00E+00	1
Iron	0.22	2.00E-02	0.004
Lead	0.03	3.00E-04	0.045
Manganese	0.054	4.00E-04	0.25
Mercury	0.04	2.50E-01	0.0375
Nickel	0.02	6.00E-03	0.032
Selenium	0.22	1.50E-02	0.016
Silver	0.22	3.00E-03	0.4
Thallium	0.22	4.00E-02	0.004
Vanadium	0.22	2.50E-03	0.0055
Zinc	0.56	1.00E-01	1.2E-12

COPC = Chemicals of Potential Concern

BAF = Bioaccumulation factor

SP = Soil-to-plant uptake factor

1. Values from USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities.

Peer Review Draft.

Values for VOCs or SVOCs not available in USEPA 1999 were calculated using the following equation

based on the equations presented in USEPA 2005 Eco-SSL, Attachment 4-1 and USEPA 1996 Soil

Screening Guidance Technical Background Document. Fraction of organic carbon in soil

was assumed to be 1% and earthworm water content was assumed to be 84%.

For SVOC: BCF=(16%x10<sup>0.87logKow-2</sup>)/(1%x10<sup>0.983logkow+0.00028</sup>)

For VOC: BCF=(16%x10<sup>0.87logKow-2</sup>)/(1%x10<sup>0.7919logkow+0.0784</sup>)

LogKow from USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, USEPA (1999), or

RAIS (http://risk.lsd.ornl.gov/tox/tox\_values.shtml).

The values for bis(2-ethylhexyl)phthalate, di-n-octylphthalate, and hexachlorobenze were based on the above equations as the values presented in USEPA (1999) were based on equation published from earlier literature.

The value for Benzo(a)pyrene was used for PAHs with no bioaccumulation values in the USEPA document.

The value for 4,4'-DDE was used for 4,4'-DDT and 4,4'-DDD.

The value for total chromium was used for chromium and chromium (VI).

# TABLE G-1 CHEMICAL-SPECIFIC UPTAKE FACTORS

# SEAD-121C and SEAD-121I RI Report

Seneca Army Depot Activity

COPC	Soil-To-Soil Invertebrate 1 (mg COPC/kg wet	Small Mammal BAF <sup>2</sup> (mg COPC/kg wet	Soil-To-Plant <sup>3</sup> (mg COPC/kg dry
	tissue)/(mg COPC/kg dry soil)	( 0	tissue)/(mg COPC/kg dry soil)

The value for endrin was used for endrin ketone

The value for mercuric chloride was used for mercury

For metals without USEPA recommended values, the median value from USEPA (2003) Table 8 (Attachment 4-1) or the arithmetic mean of the recommended values for the available metals was used.

The value for endosulfan I was used for endosulfan II.

The value for alpha chlordane was used for gamma chlordane.

 Values for inorganics were from Baes, et al., 1984. A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides through Agriculture.

Values for organics were from USEPA (1999) Table D-3. The highest value for terrestrial mammals was used.

BCF for Aroclor 1254 was used for Aroclor 1260 and 1242. BCF for 4,4'-DDE was used for 4,4'-DDD and 4,4'-DDT.

BCF for heptachlor was used for heptachlor epoxide.

Values for organics were based on equation provided in USEPA (2003), attachment 4-1. lgBAF=0.338-0.145lgKow.

The value for endrin was used for endrin ketone.

The value for endosulfan I was used for endosulfan II.

The value for alpha chlordane was used for gamma chlordane.

No BCF data were available for cyanide and a default value of 1 was assumed.

Values from USEPA. 1999. Screening Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities.
 Peer Review Draft. 1999.

For PAHs and pesticides, the values were calculated based on the model presented in Travers et al., 1988: logBCF=1.588-0.578xlogKow,

The value for 4,4'-DDE was used for 4,4'-DDT and 4,4'-DDD.

The value for Aroclor 1254 was used for Aroclor 1260 and 1242.

The value for total chromium was used for chromium and chromium (VI).

Values for cobalt and iron were from NRC. 1992. US Nuclear Regulatory Commission. Residual Radioactive Contamination

from Decommissioning: Technical Basis for Translating Contamination Levels to Annual Total Effective Dose Equivalent.

The value for mercuric chloride was used for mercury

A default value of 1 was used for cyanide.

Values for manganese and vanadium were from Baes, et al., 1984. A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides through Agriculture.

# DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-2A

OAOO	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Total Soil (0-4 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	SP (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Terrestrial Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Deer Mouse Surface Soil Exposure (mg/kg/day)	Deer Mou Total Soil Exp (mg/kg/da
e Organic Compounds							
le le	0.041	1.8	A 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H. 111 H.	2.27E+00	2.0E-01	7.20E-03	3.16E-0
enzene	3.3	24		5.85E-01	2.4E-01	3.79E-01	2.76E+0
ara Xylene	4.4	130		5.48E-01	2.4E-01	4.98E-01	1.47E+0
olatile Organic Compounds							
ohthene	2.6	2.6		2.10E-01	7.0E-02	9.43E-02	9.43E-0
ohthylene	2.5	2.5		1.72E-01	7.0E-02	8.65E-02	8.65E-07
cene	7.1	7.1		1.04E-01	7.0E-02	2.24E-01	2.24E-0
(a)anthracene	10	10	W	2.02E-02	3.0E-02	1.33E-01	1.33E-0
(a)pyrene	8.7	8.7		1.10E-02	7.0E-02	2.38E-01	2.38E-0
b)fluoranthene	12	12		1.01E-02	7.0E-02	3.28E-01	3.28E-0
(ghi)perylene	3.15	3.15		5.70E-03	7.0E-02	8.56E-02	8.56E-0
k)fluoranthene	7.5	7.5		1.01E-02	8.0E-02	2.33E-01	2.33E-0
Ethylhexyl)phthalate			0.0042	3.80E-02	4.0E-02	6.34E-04	6.34E-0
ole	4.2	4.2		2.74E-01	6.0E-02	1.49E-01	1.49E-0
ne	9.1	9.1		1.87E-02	4.0E-02	1.53E-01	1.53E-0
(a,h)anthracene	0.47	0.47		6.40E-03	7.0E-02	1.28E-02	1.28E-0
ofuran	1.7	1.7		1.61E-01	5.0E-02	4.56E-02	4.56E-0
ctylphthalate	0.0232	0.0232		1.57E-04	1.0E-02	1.18E-04	1.18E-0
nthene	27	27		3.72E-02	7.0E-02	7.72E-01	7.72E-0
ne	3.5	3.5		1.49E-01	7.0E-02	1.17E-01	1.17E-0
nlorobenzene	0.0085	0.0085		2.55E-02	4.0E-02	1.46E-04	1.46E-0
(1,2,3-cd)pyrene	0.97	0.97		3.90E-03	8.0E-02	2.98E-02	2.98E-0
nalene	0.4	1.9		4.20E-01	7.0E-02	1.83E-02	8.67E-0
threne	29	29		1.02E-01	7.0E-02	9.13E-01	9.13E-0
	34	34		4.43E-02	7.0E-02	9.82E-01	9.82E-0
r-1242	0.058	0.058		1.00E-02	1.1E+00	2.40E-02	2.40E-0
r-1254	0.93	0.93		1.00E-02	1.1E+00	3.84E-01	3.84E-0
r-1260	0.085	0.2		1.00E-02	1.1E+00	3.51E-02	8.26E-0
ides							
QQ	0.044	0.044		9.37E-03	1.3E+00	2.03E-02	2.03E-0
OE	690.0	0.069		9.37E-03	1.3E+00	3.18E-02	3.18E-0

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# DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-2A

COPC	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Total Soil (0-4 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	SP (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Deer Mouse Surface Soil Exposure (mg/kg/day)	Deer Mou Total Soil Exy (mg/kg/d8
DT	0.1	0.1		9.37E-03	1.3E+00	4.60E-02	4.60E-0
	0.01445	0.01445		7.05E-01	7.0E-02	8.43E-04	8.43E-0
Chlordane	0.063	0.063		2.67E-02	4.0E-02	1.08E-03	1.08E-0.
внс	0.002	0.002		1.57E-01	5.0E-02	5.33E-05	5.33E-0.
.u	0.041	0.041		8.96E-02	5.0E-02	9.69E-04	9.69E-0
ılfan I	0.19	0.19		2.37E-01	6.0E-02	6.43E-03	6.43E-0
ılfan II	0.009	0.009		2.37E-01	6.0E-02	3.05E-04	3.05E-04
	0.0215	0.023		8.96E-02	5.0E-02	5.08E-04	5.44E-0
ketone	0.0075	0.0097		8.96E-02	5.0E-02	1.77E-04	2.29E-0
a-Chlordane	0.0012	0.0012		2.67E-02	4.0E-02	2.06E-05	2.06E-0.
hlor	0.014	0.014		4.89E-02	1.4E+00	7.18E-03	7.18E-0
thlor epoxide	0.0028	0.0028		2.93E-02	1.4E+00	1.43E-03	1.43E-0.
unu			8.76	4.00E-03	2.2E-01	1.32E+00	1.32E+0
ync	236	236		2.00E-01	2.2E-01	2.13E+01	2.13E+0
S	11.6	11.6	0.0503	3.60E-02	1.1E-01	5.07E-01	5.07E-0
	2030	2030		1.50E-01	9.1E-02	8.37E+01	8.37E+0
nm	29.1	29.1	0.0195	3:64E-01	9.6E-01	1.07E+01	1.07E+0
ium	74.8	74.8	0.129	7.50E-03	1.0E-02	4.24E-01	4.24E-0
	17	19.7	0.047	8.10E-02	1.2E-01	8.48E-01	9.81E-0
	9750	9750	1.16	4.00E-01	4.0E-02	3.30E+02	3.30E+0
			110	4.00E-03	2.2E-01	1.66E+01	1.66E+0
	18900	18900	0.839	4.50E-02	3.0E-02	2.72E+02	2.72E+0
nese	858	858		2.50E-01	5.4E-02	2.77E+01	2.77E+0
ry.	0.47	0.47	0.0021	3.75E-02	4.0E-02	8.62E-03	8.62E-0
	224	224	0.154	3.20E-02	2.0E-02	2.30E+00	2.30E+0
m	1.3	1.3	0.0046	1.60E-02	2.2E-01	1.08E-01	1.08E-0
	21.8	21.8	0.008	4.00E-01	2.2E-01	2.17E+00	2.17E+0
m	1.1	1.8		4.00E-03	2.2E-01	8.99E-02	1.47E-0
ium	25,4	27	0.233	5.50E-03	2.2E-01	2.11E+00	2.24E+0
	3610	3610	6.91	1.20E-12	5.6E-01	7.42E+02	7.42E+0

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# DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-2A

(mg/kg/da	(mg/kg/day)	COPC/kg dry soil) COPC/kg dry soil)	COPC/kg dry soil)	(mg/L)	bgs) EPC (mg/kg)	EPC (mg/kg)	COPC
Total Soil Exp	Exposure	tissue)/(mg	dry tissue)/(mg	ft bgs) Total Soil (0-4 ft Surface Water EPC dry tissue)/(mg	Total Soil (0-4 ft	Surface Soil (0-2 ft bgs)	
Deer Mou	Surface Soil	SP (mg COPC/kg (mg COPC/kg wet	SP (mg COPC/kg				
	Deer Mouse	Invertebrate BAF					
		Terrestrial					

= Chemical of Potential Concern
Exposure Point Concentration, the maximum detected concentration
Bioaccumulation Factor (unitless)
solution plant uptake factor (unitless)
solution = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW
PC in the appropriate soil exposure interval (mg COPC/kg dry soil)
soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))
ry weight to wet weight plant matter conversion factor = 0.2 (unitless)
Plant dietary fraction (unitless)

eeding rate (kg/day)

nvertebrate dietary fraction (unitless)

Il dietary (kg dry/day) PC in surface water (mg COPC/L)

Water intake rate (L/day)

Site foraging frequency = 1 (unitless)

30dy weight (kg)

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AMERICAN ROBIN (Turdus migratorius) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity TABLE G-2B

Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle   Particle	COPC	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Total Soil (0-4 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant Uptake Factor (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	American Robin Surface Soil Exposure (mg/kg/day)	American Robin Total Soil Exposure (mg/kg/day)
teneme         0.041         1.8         2.7E+00         2.0E-01         4.5E-03           teneme         3.3         2.4         5.85E-01         2.40E-01         3.8E-01         1.2           tear Xylene         3.3         2.4         130         5.85E-01         2.40E-01         3.8E-01         1.1           phthylene         2.6         2.6         2.6         1.70E-01         7.00E-02         1.1E-01         1.1           phthylene         2.5         2.5         3.5         3.5         1.72E-01         7.00E-02         1.1E-01         1.1           cene         7.1         7.1         1.0         1.0         1.0         1.0         2.02E-02         3.00E-02         3.1E-01           actor         8.7         8.7         1.04E-01         7.00E-02         3.1E-01         1.1E-01           Oblinoranthene         1.7         1.2         1.04E-02         3.00E-02         3.5E-01         2.5E-01           Ek/Blucranthene         7.5         7.5         7.5         7.4         7.00E-02         3.5E-01           Rollorestrate         3.15         1.2         2.74E-01         4.00E-02         3.5E-01           Rollorestrate         9.1 <t< td=""><td>Volatile Organic Compoun</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Volatile Organic Compoun							
benzene         3.3         24         5.85E-01         2.40E-01         3.86E-01         2.86E-01         2.40E-01         3.86E-01         2.40E-01         5.85E-01         2.40E-01         5.14E-01         5.14E-0	Senzene		1.8	The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa	2.27E+00	2.00E-01	4.55E-03	2.00E-01
vara Xylene         44         130         5.48E-01         2.40E-01         5.14E-01         1           obatile Organic Compounds         2.5         2.6         2.6         2.0         1.10E-01         1.10E-01         1.10E-01           phthene         2.5         2.5         2.5         2.5         1.72E-01         7.00E-02         1.11E-01           cene         7.1         7.1         7.1         7.1         7.1         1.10E-02         3.00E-02         2.68E-01           cene (see         7.1         7.1         7.1         1.0         1.00E-02         3.11E-01           cene (spincarditache         1.0         1.0         1.0         1.00E-02         3.11E-01           (a)phrene         3.15         3.15         3.15         3.15         3.15E-01         3.00E-02         3.18E-01           (a)phrocarditache         1.2         1.2         1.2         1.0         1.00E-02         3.18E-01           (a)phrocarditache         3.15         3.15         3.15         3.15         3.00E-02         3.18E-01           (a)phrocarditache         3.15         3.15         3.15         3.10E-03         3.18E-01         3.18E-01           (a)phrocarditache	Ethyl benzene	3.3	24		5.85E-01	2.40E-01	3.86E-01	2.81E+00
oblithe organic Compounds         2.6         2.6         2.10E-01         7.00E-02         1.16E-01           publishene         2.5         2.5         2.5         1.72E-01         7.00E-02         1.11E-01           publishene         2.5         2.5         2.5         2.5         2.5         1.11E-01           cene         7.1         7.1         7.1         7.1         7.1         7.1E-01           apprished         8.7         8.7         8.7         1.00E-02         3.00E-02         2.68E-01           apprished         1.0         1.0         1.0         2.02E-02         3.00E-02         2.68E-01           apprished         8.7         8.7         1.10E-02         7.00E-02         3.76E-01           apprished         7.5         7.5         0.0042         3.80E-02         3.00E-02         3.76E-01           Chilocaranthene         7.5         7.5         0.0042         3.80E-02         4.00E-02         3.75E-01           Ethylhexyllpthalate         7.5         4.2         0.0042         3.80E-02         4.00E-02         3.75E-01           chle         9.1         9.1         1.7         1.7         1.7E-01         3.00E-02         2.03E-02 <td>Meta/Para Xylene</td> <td>4.4</td> <td>130</td> <td></td> <td>5.48E-01</td> <td>2.40E-01</td> <td>5.14E-01</td> <td>1.52E+01</td>	Meta/Para Xylene	4.4	130		5.48E-01	2.40E-01	5.14E-01	1.52E+01
phthene         2.6         2.6         2.6         1.6E-01         1.16E-01           phthylene         2.5         2.5         1.7E-01         7.00E-02         1.11E-01           cene         7.1         7.1         7.1         1.0E-02         3.10E-01           cene         7.1         7.1         1.0E-02         3.00E-02         2.68E-01           (a)phyrene         8.7         8.7         8.7         8.7         8.7         8.7           (b)fluoranthene         1.2         1.2         1.0DE-02         3.00E-02         3.16E-01           (b)fluoranthene         1.2         1.2         1.0DE-02         3.00E-02         3.16E-01           (b)fluoranthene         1.2         7.5         7.5         7.5         7.5         7.5           (b)fluoranthene         1.2         1.0         1.0DE-02         3.00E-02         3.16E-01           (b)fluoranthene         7.5         7.5         7.5         7.5         7.5         7.5E-01           (a)fluoranthene         1.2         1.0         1.0DE-02         3.00E-02         3.18E-01           (b)fluoranthene         4.2         4.2         4.0         4.00E-02         3.18E-01           <	Semivolatile Organic Comp	spunoc						
ohthylene         2.5         2.5         1.11E-01         1.11B-01           cene         7.1         7.1         7.1         1.11B-01         1.11B-01           cene         7.1         7.1         7.1         1.11B-01         1.11B-01           capartene         1.0         1.0         1.0         1.0         2.68E-01         2.68E-01           dayrene         8.7         8.7         8.7         1.10B-02         3.0B-02         2.68E-01           Ohltocanthene         1.2         1.2         1.2         1.2         1.2         1.5E-01           Ohltocanthene         7.5         7.5         0.0042         3.0B-02         7.00E-02         3.18E-01           Chillocanthene         7.5         7.5         0.0042         3.0B-02         3.5E-01         3.5E-01           Ethyllhexylphthalate         7.5         7.5         7.4         0.0B-02         3.5E-04         4.0B-02         3.5E-04           Galphathalate         0.47         0.47         0.47         0.47         0.44B-02         3.5E-04         4.0B-02         3.5E-04           Achiphthalate         0.0232         0.0232         0.0232         0.0232         1.5E-04         1.0B-02         2.0B	Acenaphthene		2.6		2.10E-01	7.00E-02	1.16E-01	1.16E-01
Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Compact   Comp	Acenaphthylene	2.5	2.5		1.72E-01	7.00E-02	1.11E-01	1.11E-01
(a)anthracene         10         10         10         2.02E-02         3.00E-02         2.68E-01           (a)pyrene         8.7         8.7         8.7         1.10E-02         7.00E-02         3.15E-01           (b)fluoranthene         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15E-01         3.16E-01         3.16E-01 <th< td=""><td>Anthracene</td><td>7.1</td><td>7.1</td><td></td><td>1.04E-01</td><td>7.00E-02</td><td>3.11E-01</td><td>3.11E-01</td></th<>	Anthracene	7.1	7.1		1.04E-01	7.00E-02	3.11E-01	3.11E-01
(a)pyrene         8.7         8.7         8.7         1.10E-02         7.00E-02         3.76E-01           (b)fluoranthene         1.2         1.2         1.2         1.2         1.2         1.10E-02         7.00E-02         5.19E-01           (ghil)perylene         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15E-01         3.15E	Benzo(a)anthracene	10	10		2.02E-02	3.00E-02	2.68E-01	2.68E-01
Objinocanthene   12   12   12   12   13   13   14   15   15   15   15   15   15   15	Benzo(a)pyrene	8.7	8.7		1.10E-02	7.00E-02	3.76E-01	3.76E-01
(k)fluoranthene         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.15         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25         3.25	Benzo(b)fluoranthene	12	12		1.01E-02	7.00E-02	5.19E-01	5.19E-01
(k)fluoranthene         7.5         7.5         1.01E-02         8.00E-02         3.55E-01           Ethylhexyl)phthalate         4.2         4.2         4.2         4.2         5.75E-04           sole         9.1         9.1         9.1         1.71E-01         5.75E-04           sole         9.1         9.1         9.1         1.87E-02         4.00E-02         2.75E-04           (a,b)anthracene         0.47         0.47         0.47         0.47         0.47         1.71E-01           softran         1.7         1.7         1.7         1.61E-02         2.01E-02         2.81E-01           softran         1.7         1.7         0.64DE-03         7.00E-02         2.81E-01           ctylphthalate         0.0232         0.0232         0.0232         1.57E-04         1.00E-02         1.1E-02           nthene         2.7         2.7         1.57E-04         1.00E-02         1.7E-04         1.7De-02         1.7E-04           nflorobenzene         0.008s         0.008s         0.008s         2.5E-02         4.00E-02         2.53E-04           stelene         0.97         0.97         4.43E-01         7.00E-02         1.48E+00           stelene         0.98 </td <td>Benzo(ghi)perylene</td> <td>3.15</td> <td>3.15</td> <td></td> <td>5.70E-03</td> <td>7.00E-02</td> <td>1.36E-01</td> <td>1.36E-01</td>	Benzo(ghi)perylene	3.15	3.15		5.70E-03	7.00E-02	1.36E-01	1.36E-01
Ethylhexyl)phthalate         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.0         2.74E-01         6.00E-02         1.71E-01         1.71E-01         1.71E-01         1.71E-01         1.71E-01         2.81E-01         2.81E-02         2.81E	Benzo(k)fluoranthene	7.5	7.5		1.01E-02	8.00E-02	3.55E-01	3.55E-01
sole         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         4.2         1.7         1.7         1.7         1.7         1.7         1.7         1.7         1.7         1.7         1.7         1.7         1.7         1.7         1.61E-01         5.00E-02         2.03E-02         4.23E-04         2.03E-02         2.03E-02         2.03E-02         4.23E-01         2.03E-02         1.74E-01         1.75E-02         1.75E-02 <t< td=""><td>Bis(2-Ethylhexyl)phthalate</td><td></td><td></td><td>0.0042</td><td>3.80E-02</td><td>4.00E-02</td><td>5.75E-04</td><td>5.75E-04</td></t<>	Bis(2-Ethylhexyl)phthalate			0.0042	3.80E-02	4.00E-02	5.75E-04	5.75E-04
nne         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         9.1         1.87E-02         4.00E-02         2.03E-02         2.03E-02         2.03E-02         2.03E-02         2.03E-02         2.03E-02         2.03E-02         2.03E-02         2.03E-04	Carbazole	4.2	4.2		2.74E-01	6.00E-02	1.71E-01	1.71E-01
Ca,h)anthracene         0.47         0.47         0.47         0.47         0.47         0.47         0.47         0.47         0.47         0.47         0.47         0.47         0.47         0.47         0.47         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.0242         0.02	Chrysene	9.1	9.1		1.87E-02	4.00E-02	2.81E-01	2.81E-01
octuan         1.7         1.7         1.7         1.61E-01         5.00E-02         6.11E-02           ctylphthalate         0.0232         0.0232         0.0232         1.57E-04         1.00E-02         4.28E-04           nthene         27         27         3.72E-02         7.00E-02         1.17E+00           nthene         3.5         3.5         3.5         3.5         1.49E-01         7.00E-02         1.54E-01           hlorobenzene         0.0085         0.0085         0.0085         2.55E-02         4.00E-02         1.54E-01           hlorobenzene         0.07         0.97         3.90E-03         8.00E-02         4.59E-02           nalene         0.97         0.97         4.20E-01         7.00E-02         1.83E-02           nthrene         29         29         1.02E-01         7.00E-02         1.48E+00           st         34         34         4.43E-02         7.00E-02         1.148E+00           nr-1242         0.058         0.058         0.058         1.00E-02         1.13E+00         4.77E-01           nr-1254         0.085         0.093         1.00E-02         1.13E+00         4.00E-02         4.00E-02           nr-1260         0.085 <td>Dibenz(a,h)anthracene</td> <td>0.47</td> <td>0.47</td> <td></td> <td>6.40E-03</td> <td>7.00E-02</td> <td>2.03E-02</td> <td>2.03E-02</td>	Dibenz(a,h)anthracene	0.47	0.47		6.40E-03	7.00E-02	2.03E-02	2.03E-02
ctylphthalate         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0232         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342         0.0342	Dibenzofuran	1.7	1.7		1.61E-01	5.00E-02	6.11E-02	6.11E-02
nthene         27         27         3.72E-02         7.00E-02         1.17E+00           ne         3.5         3.5         3.5         1.49E-01         7.00E-02         1.17E+00           nlorobenzene         0.0085         0.0085         0.0085         0.0085         2.55E-02         4.00E-02         1.54E-01           (1,1,3,3-cd)pyrene         0.97         0.97         0.97         3.90E-03         8.00E-02         4.59E-02           nthrene         29         29         29         1.02E-01         7.00E-02         1.27E+00           string         34         34         4.43E-02         7.00E-02         1.48E+00           nr-1242         0.058         0.058         1.00E-02         1.13E+00         4.47E-01           nr-1254         0.085         0.2         1.00E-02         1.13E+00         4.09E-02	Di-n-octylphthalate	0.0232	0.0232		1.57E-04	1.00E-02	4.28E-04	4.28E-04
ne         3.5         3.5         3.5         1.49E-01         7.00E-02         1.54E-01           hlorobenzene         0.0085         0.0085         0.0085         0.0085         2.55E-02         4.00E-02         2.63E-04           roll-1,2,3-cd)pyrene         0.97         0.97         3.90E-03         8.00E-02         4.59E-02         4.59E-02           nalene         29         29         29         1.02E-01         7.00E-02         1.27E+00           transpace         34         34         34         4.43E-02         7.00E-02         1.48E+00           nr-1242         0.058         0.058         0.058         1.00E-02         1.13E+00         2.79E-02           nr-1254         0.93         0.93         0.93         1.00E-02         1.13E+00         4.47E-01           nr-1260         0.085         0.2         1.00E-02         1.13E+00         4.09E-02	Fluoranthene	27	27		3.72E-02	7.00E-02	1.17E+00	1.17E+00
hlorobenzene         0.0085         0.0085         0.0085         2.55E-02         4.00E-02         2.63E-04           (1,2,3-cd)pyrene         0.97         0.97         3.90E-03         8.00E-02         4.59E-02           nalene         29         29         29         1.02E-01         7.00E-02         1.33E-02           nthrene         34         34         4.43E-02         7.00E-02         1.27E+00           nr-1242         0.058         0.058         1.00E-02         1.13E+00         2.79E-02           nr-1254         0.93         0.93         1.00E-02         1.13E+00         4.47E-01           nr-1260         0.085         0.2         1.00E-02         1.13E+00         4.09E-02	Fluorene	3.5	3.5		1.49E-01	7.00E-02	1.54E-01	1.54E-01
v(1,2,3-cd)pyrene         0.97         0.97         3.90E-03         8.00E-02         4.59E-02           halene         0.4         1.9         4.20E-01         7.00E-02         1.83E-02           hathrene         29         29         1.02E-01         7.00E-02         1.27E+00           hathrene         34         34         4.43E-02         7.00E-02         1.48E+00           har-1242         0.058         0.058         1.00E-02         1.13E+00         2.79E-02           har-1254         0.93         0.93         1.00E-02         1.13E+00         4.47E-01           har-1260         0.085         0.2         1.00E-02         1.13E+00         4.09E-02	Hexachlorobenzene	0.0085	0.0085		2.55E-02	4.00E-02	2.63E-04	2.63E-04
nalene         0.4         1.9         4.20E-01         7.00E-02         1.83E-02           nthrene         29         29         1.02E-01         7.00E-02         1.27E+00           r-1242         0.058         0.058         0.058         1.00E-02         1.13E+00         2.79E-02           nr-1254         0.93         0.93         0.03         1.00E-02         1.13E+00         4.47E-01           nr-1260         0.085         0.2         0.2         1.00E-02         1.13E+00         4.09E-02	Indeno(1,2,3-cd)pyrene	0.97	. 0.97		3.90E-03	8.00E-02	4.59E-02	4.59E-02
nthrene         29         29         1.02E-01         7.00E-02         1.27E+00           strict         34         34         34         4.43E-02         7.00E-02         1.48E+00           nr-1242         0.058         0.058         1.00E-02         1.13E+00         2.79E-02           nr-1254         0.93         0.93         1.00E-02         1.13E+00         4.47E-01           nr-1260         0.085         0.2         1.00E-02         1.13E+00         4.09E-02	Naphthalene	0.4	1.9		4.20E-01	7.00E-02	1.83E-02	8.70E-02
rate         34         34         34         4.43E-02         7.00E-02         1.48E+00           rate         1.242         0.058         0.058         0.058         1.00E-02         1.13E+00         2.79E-02           rate         0.03         0.93         0.03         1.00E-02         1.13E+00         4.47E-01           rate         0.085         0.2         0.2         1.00E-02         1.13E+00         4.09E-02	Phenanthrene	29	29		1.02E-01	7.00E-02	1.27E+00	1.27E+00
pr-1242         0.058         0.058         0.058         0.00E-02         1.13E+00         2.79E-02           pr-1254         0.93         0.93         1.00E-02         1.13E+00         4.47E-01           pr-1260         0.085         0.2         1.00E-02         1.13E+00         4.09E-02	Pyrene	34	34		4.43E-02	7.00E-02	1.48E+00	1.48E+00
0.058         0.058         0.058         1.00E-02         1.13E+00         2.79E-02           0.93         0.93         1.00E-02         1.13E+00         4.47E-01           0.085         0.2         1.00E-02         1.13E+00         4.09E-02	PCBs							
0.93         0.93         1.00E-02         1.13E+00         4.47E-01           0.085         0.2         1.00E-02         1.13E+00         4.09E-02	Aroclor-1242	0.058	0.058		1.00E-02	1.13E+00	2.79E-02	2.79E-02
0.085 0.2 1.00E-02 1.13E+00 4.09E-02	Aroclor-1254	0.93	0.93		1.00E-02	1.13E+00	4.47E-01	4.47E-01
	Aroclor-1260	0.085	0.2		1.00E-02	1.13E+00	4.09E-02	9.62E-02

ects\SENECA\PID Area\Report\Draft Final\Risk Assessment\Eco Risk Tables\SEAD-121C\Ecorisk\_121C\_soil.xls\ROBINEXP

AMERICAN ROBIN (Turdus migratorius) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-2B

COPC   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt   Copt					Soil-To-Plant Uptake	Soil-To-Soil		
COPC   COPC   COPC   COPC   COPC   COPC   COPC   COPC		Surface Soil	Total Soil		Factor	Invertebrate BAF	American Robin	American Robin
COPC         EPC         Surface Water EPC (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issue)(mg COPC/kg (issu		(0-2 ft bgs)	(0-4 ft bgs)		(mg COPC/kg dry	(mg COPC/kg wet	Surface Soil	Total Soil
COPC         (mg/kg)         (mg/Lg)         (		EPC	EPC	Surface Water EPC	tissue)/(mg COPC/kg	tissue)/(mg COPC/kg	Exposure	Exposure
Hest         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.044         0.069         0.069         9.37E-03         1.26E+00           Tr         0.1         0.1         0.1         0.1         1.26E+00         1.26E+00           Chlordane         0.063         0.063         0.063         2.066         2.02         4.00E-02           HC         0.041         0.041         8.96E-02         5.00E-02         4.00E-02           HG         0.091         0.099         0.099         2.37E-01         6.00E-02           Ifan I         0.0075         0.0092         2.37E-01         6.00E-02         5.00E-02           Ifan II         0.0075         0.0075         0.0075         0.0075         0.0075         0.0092         8.96E-02         5.00E-02         1.40E+00           Ifan II         0.0075         0.0075         0.0075         0.0012         2.37E-01         6.00E-02         1.40E+00           Information         0.0124         0.0128         8.76E-02         4.00E-02         1.00E-02           Info	COPC	(mg/kg)	(mg/kg)	(mg/L)	dry soil)	dry soil)	(mg/kg/day)	(mg/kg/day)
DD         0.044         0.044         0.044         0.044         0.044         0.049         0.069         0.069         0.069         0.069         0.069         0.069         0.069         0.069         0.069         0.069         0.072-0         0.01445         0.01445         0.01445         0.01445         0.01445         0.01445         0.01445         0.01445         0.01445         0.01445         0.01445         0.01445         0.01445         0.0042         0.063         0.063         0.063         0.063         0.0641         0.041         0.041         0.014         0.014         0.014         0.014         0.014         0.014         0.014         0.014         0.014         0.0012         0.002         0.002         0.002         0.0012         0.002         0.0012         0.002         0.0012         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002         0.002	Pesticides							
DE         0.069         0.069         0.069         1.26E+00           OfT         0.11         0.11         0.11         0.126E+00           OfT         0.01445         0.01445         1.26E+00         1.26E+00           Chlordane         0.0022         0.0022         0.002         2.07E-02         4.00E-02           HIC         0.041         0.041         0.041         0.041         0.019         2.37E-01         5.00E-02           HIC         0.021         0.042         0.042         0.042         0.042         0.062         2.06E-02           Iffan I         0.019         0.19         2.37E-01         6.00E-02         5.00E-02           Ketone         0.0075         0.0029         2.37E-01         6.00E-02         5.00E-02           Chlordane         0.0012         0.0012         0.0012         0.0012         0.00E-02         5.00E-02           Chlordane         0.0014         0.014         0.014         8.76E-02         2.0E-02         5.00E-02           chlordane         0.0015         0.0028         0.0028         0.0028         0.0029         2.0E-02         2.00E-02           my         2.36         2.37E-01         4.00E-02	,4'-DDD	0.044	0.044		9.37E-03	1.26E+00	2.35E-02	2.35E-02
ryT         0.1         0.1         0.1         1.26E+00           ryC         0.01445         0.01445         0.01445         1.26E+01         1.26E+02           Chlordane         0.063         0.063         0.063         0.062         0.002         0.002           HFC         0.002         0.002         0.002         0.002         0.002         0.006-02           Iffall         0.019         0.19         0.19         0.19         0.09         0.009         0.009         0.009         0.009         0.009         0.009         0.009         0.009         0.009         0.009         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02         0.006-02<	t,4'-DDE	690.0	0.069		9.37E-03	1.26E+00	3.69E-02	3.69E-02
0.01445   0.01445   0.01445   0.01445   0.01445   0.0633   0.0633   0.0633   0.0633   0.0634   0.06202   0.0002   0.0002   0.0002   0.0002   0.0004   0.041   0.041   0.041   0.049   0.059   0.0009   0.0009   0.0009   0.0009   0.0009   0.0009   0.0001   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012   0.0012	t,4'-DDT	0.1	0.1		9.37E-03	1.26E+00	5.35E-02	5.35E-02
Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Coloridation   Colo	Aldrin	0.01445	0.01445		7.05E-01	7.00E-02	6.88E-04	6.88E-04
HCC         0.002         0.002         0.002         0.002         0.004         0.0041         0.0041         0.0041         0.0041         0.0041         0.0041         0.0041         0.0041         0.0040         0.0090         0.0090         0.0090         0.0090         0.0090         0.0090         0.0090         0.0090         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005         0.0005	Alpha-Chlordane	0.063	0.063		2.67E-02	4.00E-02	1.95E-03	1.95E-03
The color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the	Delta-BHC	0.002	0.002		1.57E-01	5.00E-02	7.18E-05	7.18E-05
Ifan I         0.19         0.19         0.19         0.19         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         0.00         <	Dieldrin	0.041	0.041		8.96E-02	5.00E-02	1.46E-03	1.46E-03
Ifan II         0.009         0.009         0.009         0.009         0.0052         0.0023         0.00215         0.0023         0.0025         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052         0.0052 <td>Endosulfan I</td> <td>0.19</td> <td>0.19</td> <td></td> <td>2.37E-01</td> <td>6.00E-02</td> <td>7.70E-03</td> <td>7.70E-03</td>	Endosulfan I	0.19	0.19		2.37E-01	6.00E-02	7.70E-03	7.70E-03
ketone         0.0215         0.025         0.025         0.025         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.005         0.006         0.005         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         0.006         <	Endosulfan II	0.009	0.009		2.37E-01	6.00∑-62	3.65E-04	3.65E-04
cetone         0.0075         0.0057         8.96E-02         5.00E-02           Chlordane         0.0012         0.0012         2.67E-02         4.00E-02           Ulor         0.014         0.014         0.014         0.014         0.014           Ilor epoxide         0.0028         0.0028         1.40E+00         1.40E+00           um         2.36         2.36         2.06E-01         1.40E+00           ny         2.36         2.36         2.00E-01         2.20E-01           m         2.030         2.030         1.0E-01         9.10E-02           m         2.9.1         0.047         8.10E-02         1.10E-01           m         2.9.1         0.047         8.10E-02         1.00E-02           m         7.4.8         74.8         0.129         7.50E-01         9.60E-01           m         1.7         19.7         0.047         8.10E-02         1.0E-02           m         9750         1.16         4.00E-01         2.20E-01           exise         858         8.10E-02         1.00E-02           n         0.47         0.0021         3.75E-02           n         0.47         0.0021         3.75E-02	Endrin	0.0215	0.023		8.96E-02	5.00E-02	7.63E-04	8.17E-04
Chlordane         0,0012         0,0012         0,0012         4,00E-02           ilor         0,014         0,014         0,014         1,40E+00           ilor         0,0028         0,0028         1,40E+00           um         236         236         2,00E-01         2,20E-01           ny         236         236         2,00E-01         2,20E-01           m         29.1         29.1         0,0195         3,60E-02         1,10E-01           m         29.1         29.1         0,0195         3,60E-01         9,10E-02           m         29.1         29.1         0,0195         3,64E-01         9,60E-01           m         29.1         29.1         0,0195         3,64E-01         9,60E-01           m         29.1         29.1         0,0195         3,64E-01         9,60E-01           m         74.8         74.8         0,129         7,50E-03         1,00E-02           m         17         19,7         0,047         8,10E-02         1,22E-01           gise         858         858         4,50E-02         3,00E-02           riss         224         224         224         3,20E-02         2,00E-01	Endrin ketone	0.0075	0.0097		3.96E-02	5.00E-02	2.66E-04	3.44E-04
lor         0.014         0.014         0.014         0.014         0.014         0.0028         1.40E+00           lor epoxide         0.0028         0.0028         0.0028         1.40E+00         1.40E+00           um         236         236         2.06E-01         2.20E-01         2.20E-01           ny         236         236         3.60E-02         1.10E-01         1.10E-01           m         29.1         29.1         0.0129         7.50E-01         9.10E-02           mm         74.8         74.8         0.129         7.50E-01         9.0E-01           mm         74.8         74.8         0.129         7.50E-01         9.0E-01           mm         74.8         74.8         0.047         8.10E-02         1.22E-01           p         9750         9750         1.16         4.00E-01         4.00E-02           risse         858         858         4.50E-02         3.00E-02           y         0.47         0.054         3.25E-02         4.00E-02           y         0.47         0.054         3.25E-02         2.06E-01           m         0.47         0.044         3.25E-02         2.06E-01	Gamma-Chlordane	0.0012	0.0012		2.67E-02	4.00E-02	3.72E-05	3.72E-05
um         8.76         4.00E-03         2.20E-01           ny         236         236         236         2.06E-01         2.20E-01           ny         236         236         236         2.030         2.030         2.030         2.030         2.030         2.030         1.16E-01         2.20E-01         2.00E-01         2.20E-01         2.00E-01         2.20E-01         2.00E-01         2.00E-02         2.00E-01         2.00E-02         2	Heptachlor	0.014	0.014		4.89E-02	1.40E+00	8.30E-03	8.30E-03
um         8.76         4.00E-03         2.20E-01           ny         236         236         2.0E-01         2.00E-01           n         11.6         11.6         0.0503         3.60E-02         1.10E-01           m         2030         2030         1.50E-01         9.10E-02           m         29.1         29.1         0.0195         3.64E-01         9.60E-01           um         74.8         74.8         0.129         7.50E-03         1.00E-02           n         17         19.7         0.047         8.10E-02         1.22E-01           p         9750         1.16         4.00E-01         4.00E-02         3.00E-02           n         18900         0.339         4.50E-02         3.00E-02         3.00E-02           v         0.47         0.0021         3.75E-02         4.00E-02         2.50E-01           v         2.24         2.24         0.045         1.60E-02         2.00E-02           m         1.3         1.3         0.0046         1.50E-02         2.00E-02	Heptachlor epoxide	0.0028	0.0028		2.93E-02	1.40E+00	1.66E-03	1.66E-03
um         8.76         4.00E-03         2.20E-01           ny         236         236         236         2.00E-01         2.20E-01           m         11.6         11.6         0.0503         3.60E-02         1.10E-01           m         2030         2030         1.50E-01         9.10E-02           m         29.1         29.1         0.0195         3.64E-01         9.00E-01           um         74.8         74.8         0.129         7.50E-03         1.00E-02           um         17         19.7         0.047         8.10E-02         1.22E-01           p         9750         9750         1.16         4.00E-01         4.00E-02           iris         4.50E-02         3.00E-02         3.00E-02           iris         858         2.50E-01         4.00E-02           y         0.47         0.0021         3.75E-02           y         0.47         0.0021         3.50E-02           y         1.3         0.0046         1.60E-02	Metals							
ny         236         236         236         236         2.00E-01         2.20E-01           m         11.6         11.6         11.6         0.0503         3.60E-02         1.10E-01           m         2030         2030         0.0195         3.64E-01         9.10E-02           m         29.1         29.1         0.0129         7.50E-01         9.00E-01           m         17         19.7         0.047         8.10E-02         1.00E-02           n         17         19.7         0.047         8.10E-02         1.22E-01           n         9750         1.16         4.00E-01         4.00E-02           n         18900         0.33.9         4.50E-02         3.00E-12           n         0.47         0.47         0.0021         3.75E-02         4.00E-02           n         224         224         0.046         1.60E-02         2.00E-02           n         1.3         1.3         0.0046         1.60E-02         2.00E-01	Aluminum			8.76	4.00E-03	2.20E-01	1.20E+00	1.20E+00
m         11.6         11.6         11.6         11.6         11.6         11.6         11.0E-01           m         2030         2030         1.50E-01         9.10E-02           um         29.1         29.1         0.0195         3.64E-01         9.60E-01           um         74.8         74.8         0.129         7.50E-03         1.00E-02           17         19.7         0.047         8.10E-02         1.22E-01           9750         9750         1.16         4.00E-01         4.00E-02           ivise         858         8.58         2.20E-02         3.00E-12           y         0.47         0.0021         3.75E-02         4.00E-02           13         13         0.0046         1.60E-02         2.00E-02	Antimony	236	236		2.00E-01	2.20E-01	2.51E+01	2.51E+01
m         2030         2030         1.50E-01         9.10E-02           m         29.1         29.1         0.0195         3.64E-01         9.10E-02           um         74.8         74.8         0.129         7.50E-03         1.00E-02           17         19.7         0.047         8.10E-02         1.22E-01           9750         9750         1.16         4.00E-01         4.00E-02           iesse         18900         0.339         4.50E-02         3.00E-12           y         0.47         0.0021         3.75E-02         4.00E-02           y         0.47         0.0046         1.60E-02         2.00E-02	Arsenic	11.6	11.6	0.0503	3.60E-02	1.10E-01	7.02E-01	7.02E-01
m         29.1         29.1         0.0195         3.64E-01         9.60E-01           um         74.8         74.8         0.129         7.50E-03         1.00E-02           n         17         19.7         0.047         8.10E-02         1.22E-01           n         9750         9750         1.16         4.00E-01         4.00E-02           n         1.00         1.16         4.00E-01         4.00E-02         2.20E-01           n         1.00         1.16         4.50E-02         3.00E-02         3.00E-02           n         0.47         0.47         0.0021         3.75E-02         4.00E-02           n         2.24         2.24         0.154         3.20E-02         2.00E-02           n         1.3         1.3         0.0046         1.60E-02         2.00E-02	Barium	2030	2030		1.50E-01	9.10E-02	1.07E+02	1.07E+02
um         74.8         74.8         0.129         7.50E-03         1.00E-02           17         19.7         0.047         8.10E-02         1.22E-01           9750         9750         1.16         4.00E-01         4.00E-02           icse         878         4.50E-02         3.00E-02           v         0.47         0.021         3.75E-02         4.00E-02           v         0.47         0.47         0.0021         3.75E-02         4.00E-02           n         1.3         1.3         0.0046         1.60E-02         2.00E-02	Cadmium	29.1	29.1	0.0195	3.64E-01	9.60E-01	1.20E+01	1.20E+01
17   19.7   0.047   8.10E-02   1.22E-01     9750   9750   1.16   4.00E-01   4.00E-02     1.650	Chromium	74.8	74.8	0.129	7.50E-03	1.00E-02	1.40E+00	1.40E+00
9750   9750   1.16   4.00E-01   4.00E-02     1.16   4.00E-02   2.20E-01     1.690c   1890o   0.839   4.50E-02   3.00E-102     1.58   858   2.50E-01   5.40E-02     2.50E-01   5.40E-02   4.00E-02     2.50E-02   2.50E-02   2.00E-02     2.50E-02   2.00E-02   2.00E-02     3.50E-02   3.50E-02   2.00E-02     3.50E-03   3.50E-03   2.00E-02     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50E-03     3.50E-03   3.50E-03   3.50	Cobalt	17	19.7	0.047	8.10E-02	1.22E-01	1.11E+00	1.29E+00
rise         6.58         858         1.30         4.00E-02         2.00E-01           v         0.47         0.47         0.0021         3.20E-02         4.00E-02           x         0.47         0.0021         3.75E-02         4.00E-02           x         0.47         0.154         3.20E-02         2.00E-02           x         1.3         1.3         0.0046         1.60E-02         2.00E-02	Copper	9750	9750	1.16	4.00E-01	4.00E-02	3.25E+02	3.25E+02
sanese         658         858         0.0021         3.00E-02         3.00E-02           ury         0.47         0.47         0.0021         3.75E-02         4.00E-02           sil         224         224         0.154         3.20E-02         2.00E-02           imm         13         13         0.046         1.60E-02         2.00E-01	ron			110	4.00E-03	2.20E-01	1.51E+01	1.51E+01
nieże         %58         858         2.50E-01         5.40E-02           ry         0.47         0.47         0.0021         3.75E-02         4.00E-02           ry         224         224         0.154         3.20E-02         2.00E-02           ry         1.3         1.3         0.046         1.60E-02         2.00E-01	ירמל	16900	18900	0.839	4.50E-02	3.00E-(32	5.10E+02	5.10E+02
cy         0.47         0.47         0.0021         3.75E-02         4.00E-02           224         224         0.154         3.20E-02         2.00E-02           13         13         0.0046         1.60E-02         2.00E-01	Manganese	858	858	annument of the plant of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the st	2.50E-01	5.40E-02	3.27E+01	3.27E+01
224 224 0.154 3.20E-02 2.00E-02	Mercury	0.47	0.47	0.0021	3.75E-02	4.00E-02	1.49E-02	1.49E-02
13 13 0.0046 1.60E-02 2.20E-01	Vickel	224	224	0.154	3.20E-02	2.00E-02	5.12E+00	5.12E+00
5.1	Selenium	1.3	1.3	0.0046	1.60E-02	2.20E-01	1.37E-01	1.37E-01

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AMERICAN ROBIN (Turdus migratorius) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report TABLE G-2B

Activity
Depot
Army
Seneca

				Soil-To-Plant Uptake	Soil-To-Soil		
	Surface Soil	Total Soil		Factor	Invertebrate BAF	American Robin	American Robin
	(0-2 ft bgs)	(0-4 ft bgs)		(mg COPC/kg dry	(mg COPC/kg wet	Surface Soil	Total Soil
	EPC	EPC	Surface Water EPC	tissue)/(mg COPC/kg	tissue)/(mg COPC/kg	Exposure	Exposure
COPC	(mg/kg)	(mg/kg)	(mg/L)	dry soil)	dry soil)	(mg/kg/day)	(mg/kg/day)
ilver	21.8	21.8	0.008	4.00E-01	2.20E-01	2.35E+00	2.35E+00
hallium	1.1	1.8		4.00E-03	2.20E-01	1.16E-01	1.89E-01
/anadium	25.4	27	0.233	5.50E-03	2.20E-01	2.70E+00	2.87E+00
linc	3610	3610	6.91	1.20E-12	5.60E-01	8.87E+02	8.87E+02

OPC = Chemical of Potential Concern

PC = Exposure Point Concentration, the maximum detected concentration

AF = Bioaccumulation Factor (unitless)

P = Soil to plant uptake factor (unitless)

 $\label{eq:control} \text{I) Exposure} = [((\text{Cs*SP*CF*PDF*FR}) + (\text{Cs*IDF*BAF*FR}) + (\text{Cs*Is}) + (\text{Cw*WR})) * \text{SFF}] / \text{BW} + (\text{Cs*Is}) + (\text{Cw*WR})) * \text{SFF} / \text{BW} + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR}) + (\text{Com*WR})$ 

's = Soil concentration (mg/kg)

 $P=Soil\ tp$  plant uptake factor from literature  $\mbox{\it F}=Dry\ weight$  to wet weight plant matter conversion factor = 0.2 (unitless)

DF = Plant dietary fraction (unitless)

R = Feeding rate (kg/day)

DF = Invertebrate dietary fraction (unitless)

s = Soil dietary (kg dry/day) Solution = SpC in surface water (mg COPC/L)

VR = Water intake rate (L/day)

FF = Site foraging frequency = 1 (unitless)

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SHORT-TAILED SHREW (Blarina brevicauda) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-2C

Small Mammal

rganic Compounds  0.041 ene	(mg/kg)	Total Soil (0-4 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	dry tissue)/(mg COPC/kg dry soil)	(mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	wet tissue)/(mg COPC/kg dry soil)	Shrew Surface Soil Exposure (mg/kg/day)	Short-Tailed Total Soil Ex (mg/kg/d
e ganic Compounds								
e ganic Compounds	11	1.8		2.27E+00	2.00E-01	1.07E+00	7.78E-03	3.42E-0
e ganic Compounds	~	24		5.85E-01	2.40E-01	7.61E-01	6.09E-01	4.43E+0
ganic Compounds	+	130		5.48E-01	2.40E-01	7.48E-01	8.08E-01	2.39E+0
	2	2.6		2.10E-01	7.00E-02	4.61E-04	1.37E-01	1.37E-0
	16	2.5		1.72E-01	7.00E-02	4.61E-04	1.31E-01	1.31E-0
7.1		7.1		1.04E-01	7.00E-02	4.61E-04	3.68E-01	3.68E-0
thracene 10		10		2.02E-02	3.00E-02	1.46E-04	2.98E-01	2.98E-0
rene 8.7	7	8.7		1.10E-02	7.00E-02	4.61E-04	4.46E-01	4.46E-0
uoranthene 12		12		1.01E-02	7.00E-02	5.46E-04	6.15E-01	6.15E-0
perylene 3.15	5	3.15		5.70E-03	7.00E-02	4.61E-04	1.61E-01	1.61E-0
uoranthene 7.5	2	7.5		1.01E-02	8.00E-02	5.43E-04	4.24E-01	4.24E-0
[hexyl]phthalate			0.0042	3.80E-02	4.00E-02	5.50E-05	6.34E-04	6.34E-0
4.2	2	4.2		2.74E-01	6.00E-02	6.29E-01	3.33E-01	3.33E-0
9.1		9.1		1.87E-02	4.00E-02	1.88E-04	3.20E-01	3.20E-0
)anthracene 0.47	7	0.47		6.40E-03	7.00E-02	1.21E-03	2.41E-02	2.41E-0
an 1.7	7	1.7		1.61E-01	5.00E-02	5.50E-01	1.18E-01	1.18E-0
ohthalate 0.0232	32	0.0232		1.57E-04	1.00E-02	7.32E-01	1.29E-03	1.29E-0
ne 27		27		3.72E-02	7.00E-02	4.61E-04	1.39E+00	1.39E+0
3.5	2	3.5		1.49E-01	7.00E-02	4.61E-04	1.83E-01	1.83E-0
benzene 0.0085	85	0.0085		2.55E-02	4.00E-02	1.09E-04	2.99E-04	2.99E-0
,3-cd)pyrene 0.97	7	0.97		3.90E-03	8.00E-02	2.82E-03	5.50E-02	5.50E-0
ne 0.4	4	1.9		4.20E-01	7.00E-02	4.61E-04	2.16E-02	1.03E-0
me 29	~	29		1.02E-01	7.00E-02	4.61E-04	1.50E+00	1.50E+0
34		34		4.43E-02	7.00E-02	4.61E-04	1.75E+00	1.75E+(
42 0.058	28	0.058		1.00E-02	1.13E+00	5.52E-04	3.59E-02	3.59E-0
54 0.93	3	0.93		1.00E-02	1.13E+00	5.52E-04	5.76E-01	5.76E-0
60 0.085	85	0.2		1.00E-02	1.13E+00	5.52E-04	5.27E-02	1.24E-0

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SHORT-TAILED SHREW (Blarina brevicauda) EXPÒSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-2C

(	Surface Soil (0-2 ft bgs) EPC	<u>7</u> 0	Surface Water EPC	Soil-To-Plant (mg COPC/kg dry tissue)/(mg COPC/kg dry	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/(mg	Small Mammal BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry	Short-Tailed Shrew Surface Soil Exposure	Short-Tailed Total Soil Ex
COPC	(mg/kg)	(mg/kg)	(mg/L)	soil)	COPC/kg dry soil)	SOIL)	(mg/kg/day)	(mg/kg/d
	0.044	0.044		9.37E-03	1.26E+00	6.18E-04	3.03E-02	3.03E-0
	690'0	690.0		9.37E-03	1.26E+00	6.18E-04	4.76E-02	4.76E-0
	0.1	0.1		9.37E-03	1.26E+00	6.18E-04	6.89E-02	6.89E-0
	0.01445	0.01445		7.05E-01	7.00E-02	7.97E-01	1.39E-03	1.39E-0
ordane	0.063	0.063		2.67E-02	4.00E-02	3.51E-01	3.33E-03	3.33E-0
()	0.002	0.002		1.57E-01	5.00E-02	5.47E-01	1.38E-04	1.38E-0
	0.041	0.041		8.96E-02	5.00E-02	4.75E-01	2.66E-03	2.66E-0
n I	0.19	0.19		2.37E-01	6.00E-02	6.06E-01	1.48E-02	1.48E-0
n II	0.009	0.00		2.37E-01	6.00E-02	6.06E-01	7.00E-04	7.00E-0
	0.0215	0.023		8.96E-02	5.00E-02	4.75E-01	1.39E-03	1.49E-0
one	0.0075	0.0097		8.96E-02	5.00E-02	4.75E-01	4.87E-04	6.29E-0
hlordane	0.0012	0.0012		2.67E-02	4.00E-02	3.51E-01	6.34E-05	6.34E-0
	0.014	0.014		4.89E-02	1.40E+00	3.55E-05	1.07E-02	1.07E-0
r epoxide	0.0028	0.0028		2.93E-02	1.40E+00	3.55E-05	2.14E-03	2.14E-0
				,				
			8.76	4.00E-03	2.20E-01	1.50E-03	1.32E+00	1.32E+(
	236	236		2.00E-01	2.20E-01	1.00E-03	3.14E+01	3.14E+
	11.6	11.6	0.0503	3.60E-02	1.10E-01	2.00E-03	8.54E-01	8.54E-(
	2030	2030		1.50E-01	9.10E-02	1.50E-04	1.29E+02	1.29E+
	29.1	29.1	0.0195	3.64E-01	9.60E-01	5.50E-04	1.55E+01	1.55E+
	74.8	74.8	0.129	7.50E-03	1.00E-02	5.50E-03	1.46E+00	1.46E+
	17	19.7	0.047	8.10E-02	1.22E-01	2.00E-02	1.38E+00	1.59E+
	9750	9750	1.16	4.00E-01	4.00E-02	1.00E-02	3.73E+02	3.73E+
			110	4.00E-03	2.20E-01	2.00E-02	1.66E+01	1.66E+
	18900	18900	0.839	4.50E-02	3.00E-02	3.00E-04	5.67E+02	5.67E+
43	858	858		2.50E-01	5.40E-02	4.00E-04	3.80E+01	3.80E+
	0.47	0.47	0.0021	3.75E-02	4.00E-02	2.50E-01	2.28E-02	2.28E-(
	224	224	0.154	3.20E-02	2.00E-02	6.00E-03	5.59E+00	5.59E+
	1.3	1.3	0.0046	1.60E-02	2.20E-01	1.50E-02	1.73E-01	1.73E-(

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# SHORT-TAILED SHREW (Blarina brevicauda) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity TABLE G-2C

						Small Mammal		
				Soil-To-Plant	Soil-To-Soil	BAF		
	Surface Soil			(mg COPC/kg	Invertebrate BAF	(mg COPC/kg	Short-Tailed	
	(0-2 ft bgs)	(0-2 ft bgs) Total Soil (0-4		dry tissue)/(mg	(mg COPC/kg wet	wet tissue)/(mg	Shrew Surface	Short-Tailed
	EPC	ft bgs) EPC	ft bgs) EPC Surface Water EPC COPC/kg dry	COPC/kg dry	tissue)/(mg	COPC/kg dry	Soil Exposure	Total Soil Ex
COPC	(mg/kg)	(mg/kg)	(mg/L)	(lios	COPC/kg dry soil)	soil)	(mg/kg/day)	(mg/kg/c
	21.8	21.8	0.008	4.00E-01	2.20E-01	3.00E-03	2.93E+00	2.93E+
	1.1	1.8		4.00E-03	2.20E-01	4.00E-02	1.47E-01	2.41E-(
	25.4	27	0.233	5.50E-03	2.20E-01	2.50E-03	3.38E+00	3.59E+(
	3610	3610	6.91	1.20E-12	5.60E-01	1.00E-01	1.15E+03	1.15E+

mical of Potential Concern

ure Point Concentration, the maximum detected concentration

cumulation Factor (unitless)

:=[((Cs\*SP\*CF\*PDF\*FR)+(Cs\*IDF\*BAF\*FR)+(Cs\*ADF\*BAF\*FR)+(Cs\*Is)+(Cw\*WR))\*SFFI/BW]

centration (mg/kg) slant uptake factor from literature ight to wet weight plant matter conversion factor = 0.2 (unitless) dietary fraction (unitless)

g rate (kg/day) ebrate dietary fraction (unitless) nal dietary fraction (unitless)

ary (kg/day) oraging frequency = 1 (unitless)

weight (kg)

•		

MEADOW VOLE (Microtus pennsylvanicus) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-2D

	Surface Soil (0-2 ft bgs)	<b>—</b>		Soil-To-Plant Uptake Factor (mg COPC/kg dry	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet	Meadow Vole Surface Soil	Meadow Vol Total Soil
COPC	EPC (mg/kg)	ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	tissue)/(mg COPC/kg dry soil)	tissue)/(mg COPC/kg dry soil)	Exposure (mg/kg/day)	Exposure (mg/kg/day)
latile Organic Compounds				-			
nzene	0.041	1.8	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	2.27E+00	2.00E-01	1.11E-02	4.87E-01
yl benzene	3.3	24		5.85E-01	2.40E-01	4.06E-01	2.95E+00
ta/Para Xylene	4.4	130		5.48E-01	2.40E-01	5.27E-01	1.56E+01
nivolatile Organic Compounds	spu						
enaphthene	2.6	2.6		2.10E-01	7.00E-02	2.34E-01	2.34E-01
enaphthylene	2.5	2.5		1.72E-01	7.00E-02	2.17E-01	2.17E-01
thracene	7.1	7.1		1.04E-01	7.00E-02	5.74E-01	5.74E-01
nzo(a)anthracene	10	10		2.02E-02	3.00E-02	7.36E-01	7.36E-01
nzo(a)pyrene	8.7	8.7		1.10E-02	7.00E-02	6.33E-01	6.33E-01
nzo(b)fluoranthene	12	12		1.01E-02	7.00E-02	8.72E-01	8.72E-01
nzo(ghi)perylene	3.15	3.15		5.70E-03	7.00E-02	2.28E-01	2.28E-01
nzo(k)fluoranthene	7.5	7.5		1.01E-02	8.00E-02	5.45E-01	5.45E-01
(2-Ethylhexyl)phthalate			0.0042	3.80E-02	4.00E-02	8.82E-04	8.82E-04

3.40E-02 1.46E-01

3.40E-02 1.46E-01 1.67E-03

7.00E-02 5.00E-02

6.40E-03 1.61E-01

0.47

0.47

enz(a,h)anthracene

0.0232

n-octylphthalate

oranthene

orene

enzofuran

4.2

9.1

rbazole

2.74E-01 1.87E-02

4.02E-01 6.68E-01

4.02E-01 6.68E-01

4.00E-02 6.00E-02 4.00E-02 2.03E+00

2.03E+00

7.00E-02

7.00E-02 4.00E-02

1.00E-02

1.57E-04 3.72E-02 1.49E-01

2.97E-01

1.67E-03

6.29E-04

7.00E-02

6.29E-04 7.00E-02

8.00E-02

2.55E-02 3.90E-03

0.0085

0.0085

0.97 0.4

eno(1,2,3-cd)pyrene

xachlorobenzene

3.5

27

1.9

29 34

37 28

enanthrene

ene Bs

ohthalene

3.5

7.00E-02

2.97E-01

2.06E-01 2.34E+00 2.57E+00

2.57E+00

2.34E+00 4.34E-02

7.00E-02

1.02E-01

4.43E-02

4.20E-01

7.00E-02

4.21E-03 6.76E-02 1.45E-02

4.21E-03 6.76E-02 6.18E-03

1.13E+00 1.13E+00 1.13E+00

1.00E-02 1.00E-02

1.00E-02

0.058 0.93

0.058 0.93

oclor-1242 oclor-1254 oclor-1260

0.2

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MEADOW VOLE (Microtus pennsylvanicus) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-2D

				Soil-To-Plant	Soil-To-Soil		
	Surface Soil			Uptake Factor	Invertebrate BAF	Meadow Vole	Meadow Vole
	(0-2 it bgs)	Total Soil (0-4		(mg COPC/kg dry	(mg COPC/kg wet	Surface Soil	Total Soil
O A O O	EPC	tt bgs) EPC	Surface Water EPC	tissue)/(mg	tissue)/(mg COPC/kg	Exposure	Exposure
COPC	(mg/kg)	(mg/kg)	(mg/L)	COPC/kg dry soil)	dry soil)	(mg/kg/day)	(mg/kg/day)
ticides							
-DDD	0.044	0.044		9.37E-03	1.26E+00	3.20E-03	3.20E-03
-DDE	0.069	0.069		9.37E-03	1.26E+00	5.01E-03	5.01E-03
-DDT	0.1	0.1		9.37E-03	1.26E+00	7.26E-03	7.26E-03
rin	0.01445	0.01445		7.05E-01	7.00E-02	1.93E-03	1.93E-03
ha-Chlordane	0.063	0.063		2.67E-02	4.00E-02	4.67E-03	4.67E-03
ta-BHC	0.002	0.002		1.57E-01	5.00E-02	1.71E-04	1.71E-04
ldrin	0.041	0.041		8.96E-02	5.00E-02	3.27E-03	3.27E-03
losulfan I	0.19	0.19		2.37E-01	6.00E-02	1.76E-02	1.76E-02
losulfan II	0.009	0.009		2.37E-01	6.00E-02	8.33E-04	8.33E-04
rin	0.0215	0.023		8.96E-02	5.00E-02	1.71E-03	1.83E-03
rin ketone	0.0075	0.0097		8.96E-02	5.00E-02	5.97E-04	7.72E-04
nma-Chlordane	0.0012	0.0012		2.67E-02	4.00E-02	8.90E-05	8.90E-05
otachlor	0.014	0.014		4.89E-02	1.40E+00	1.07E-03	1.07E-03
otachlor epoxide	0.0028	0.0028		2.93E-02	1.40E+00	2.08E-04	2.08E-04
tals				•			
minum			8.76	4.00E-03	2.20E-01	1.84E+00	1.84E+00
imony	236	236		2.00E-01	2.20E-01	2.11E+01	2.11E+01
enic	11.6	11.6	0.0503	3.60E-02	1.10E-01	8.80E-01	8.80E-01
ium	2030	2030		1.50E-01	9.10E-02	1.72E+02	1.72E+02
mium	29.1	29.1	0.0195	3.64E-01	9.60E-01	3.02E+00	3.02E+00
omium	74.8	74.8	0.129	7.50E-03	1.00E-02	5.45E+00	5.45E+00
alt	17	19.7	0.047	8.10E-02	1.22E-01	1.35E+00	1.56E+00
yper	9750	9750	1.16	4.00E-01	4.00E-02	1.04E+03	1.04E+03
			110	4.00E-03	2.20E-01	2.31E+01	2.31E+01
ק	18900	18900	0.839	4.50E-02	3.00E-02	1.43E+03	1.43E+03
nganese	858	858		2.50E-01	5.40E-02	8.04E+01	8.04E+01
rcury	0.47	0.47	0.0021	3.75E-02	4.00E-02	3.57E-02	3.57E-02
kel	224	224	0.154	3.20E-02	2.00E-02	1.67E+01	1.67E+01
enium	1.3	1.3	0.0046	1.60E-02	2.20E-01	9.61E-02	9.61E-02

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MEADOW VOLE (Microtus pennsylvanicus) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report TABLE G-2D

# Seneca Army Depot Activity

				Soil-To-Plant	Soil-To-Soil		
	Surface Soil			Uptake Factor	Invertebrate BAF	Meadow Vole	Meadow Vole
	(0-2 ft bgs)	(0-2 ft bgs) Total Soil (0-4		(mg COPC/kg dry	(mg COPC/kg wet	Surface Soil	Total Soil
	EPC	ft bgs) EPC	Surface Water EPC	tissue)/(mg	tissue)/(mg COPC/kg	Exposure	Exposure
COPC	(mg/kg)	(mg/kg)	(mg/L)	COPC/kg dry soil)	dry soil)	(mg/kg/day)	(mg/kg/day)
ıa	21.8	21.8	0.008	4.00E-01	2.20E-01	2.33E+00	2.33E+00
lium	1.1	1.8		4.00E-03	2.20E-01	7.94E-02	1.30E-01
adium	25.4	27	0.233	5.50E-03	2.20E-01	1.88E+00	2.00E+00
	3610	3610	6.91	1.20E-12	5.60E-01	2.61E+02	2.61E+02

'C = Chemical of Potential Concern

<sup>=</sup> Exposure Point Concentration, the maximum detected concentration

<sup>=</sup> Bioaccumulation Factor (unitless)

<sup>:</sup> Soil to plant uptake factor (unitless) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

<sup>·</sup> Soil concentration (mg/kg)

Soil tp plant uptake factor from literature Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

<sup>=</sup> Plant dietary fraction (unitless)

<sup>=</sup> Invertebrate dietary fraction (unitless) = Feeding rate (kg/day)

Soil dietary (kg dry/day) = EPC in surface water (mg COPC/L)

<sup>=</sup> Water intake rate (L/day)

<sup>=</sup> Site foraging frequency = 1 (unitless)

<sup>=</sup> Body weight (kg)

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# RED FOX (Vulpes vulpes) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity

Small Mammal

	gs)	ė		dry tissue)/(mg	(mg COPC/kg wet	wet tissue)/(mg	Surface Soil	Red Fox Total
COPC	(mg/kg)	(mg/kg)	EPC (mg/L)	soil)	COPC/kg dry soil)	soil)	(mg/kg/day)	(mg/kg/day
Organic Compounds								
4)	0.041	1.8		2.27E+00	2.00E-01	1.07E+00	6.72E-03	2.95E-01
nzene	3.3	24		5.85E-01	2.40E-01	7.61E-01	3.82E-01	2.78E+00
ra Xylene	4.4	130		5.48E-01	2.40E-01	7.48E-01	5.01E-01	1.48E+01
latile Organic Compounds	nuds							and the second speciments are at the second
nthene	2.6	2.6		2.10E-01	7.00E-02	4.61E-04	7.46E-03	7.46E-03
nthylene	2.5	2.5		1.72E-01	7.00E-02	4.61E-04	6.95E-03	6.95E-03
ene	7.1	7.1		1.04E-01	7.00E-02	4.61E-04	1.86E-02	1.86E-02
)anthracene	10	10		2.02E-02	3.00E-02	1.46E-04	1.92E-02	1.92E-02
)pyrene	8.7	8.7		1.10E-02	7.00E-02	4.61E-04	2.09E-02	2.09E-02
)fluoranthene	12	12		1.01E-02	7.00E-02	5.46E-04	2.90E-02	2.90E-02
thi)perylene	3.15	3.15		5.70E-03	7.00E-02	4.61E-04	7.53E-03	7.53E-03
()fluoranthene	7.5	7.5		1.01E-02	8.00E-02	5.43E-04	1.89E-02	1.89E-02
thylhexyl)phthalate			0.0042	3.80E-02	4.00E-02	5.50E-05	3.62E-04	3.62E-04
le	4.2	4.2		2.74E-01	6.00E-02	6.29E-01	3.94E-01	3.94E-01
e	9.1	9.1		1.87E-02	4.00E-02	1.88E-04	1.85E-02	1.85E-02
a,h)anthracene	0.47	0.47		6.40E-03	7.00E-02	1.21E-03	1.17E-03	1.17E-03
ofuran	1.7	1.7		1.61E-01	5.00E-02	5.50E-01	1.40E-01	1.40E-01
tylphthalate	0.0232	0.0232		1.57E-04	1.00E-02	7.32E-01	2.50E-03	2.50E-03
thene	27	27		3.72E-02	7.00E-02	4.61E-04	6.65E-02	6.65E-02
9	3.5	3.5		1.49E-01	7.00E-02	4.61E-04	9.54E-03	9.54E-03
orobenzene	0.0085	0.0085		2.55E-02	4.00E-02	1.09E-04	1.74E-05	1.74E-05
1,2,3-cd)pyrene	0.97	0.97		3.90E-03	8.00E-02	2.82E-03	2.76E-03	2.76E-03
lene	0.4	1.9		4.20E-01	7.00E-02	4.61E-04	1.35E-03	6.39E-03
hrene	29	29		1.02E-01	7.00E-02	4.61E-04	7.59E-02	7.59E-02
	34	34		4.43E-02	7.00E-02	4.61E-04	8.43E-02	8.43E-02
-1242	0.058	0.058		1.00E-02	1.13E+00	5.52E-04	8.42E-04	8.42E-04
-1254	0.93	0.93		1.00E-02	1.13E+00	5.52E-04	1.35E-02	1.35E-02
-1260	0.085	0.2		1.00E-02	1.13臣+00	5.52E-04	1.23E-03	2.90E-03

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# RED FOX (Vulpes vulpes) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

	Surface Soil	Total Soil		Soil-To-Plant (mg COPC/kg	Soil-To-Soil Invertebrate BAF	Small Mammal BAF (mg COPC/kg	Red Fox	
	(0-2 ft bgs) EPC	(0-4 ft bgs) EPC	Surface Water	dry tissue)/(mg COPC/kg dry	(mg COPC/kg wet tissue)/(mg	wet tissue)/(mg COPC/kg dry	Surface Soil Exposure	Red Fox Total Exposure
COPC	(mg/kg)	(mg/kg)	EPC (mg/L)	soil)	COPC/kg dry soil)	soil)	(mg/kg/day)	(mg/kg/day
les								
Q	0.044	0.044		9.37E-03	1.26E+00	6.18E-04	7.05E-04	7.05E-04
E	690.0	690.0		9.37E-03	1.26E+00	6.18E-04	1.11E-03	1.11E-03
T	0.1	0.1		9.37E-03	1.26E+00	6.18E-04	1.60E-03	1.60E-03
	0.01445	0.01445		7.05E-01	7.00E-02	7.97E-01	1.73E-03	1.73E-03
Chlordane	0.063	0.063		2.67E-02	4.00E-02	3.51E-01	3.33E-03	3.33E-03
HC	0.002	0.002		1.57E-01	5.00E-02	5.47E-01	1.63E-04	1.63E-04
ı	0.041	0.041		8.96E-02	5.00E-02	4.75E-01	2.91E-03	2.91E-03
Ifan I	0.19	0.19		2.37E-01	6.00E-02	6.06E-01	1.72E-02	1.72E-02
Ifan II	0.009	600.0		2.37E-01	6.00E-02	6.06E-01	8.15E-04	8.15E-04
	0.0215	0.023		8.96E-02	5.00E-02	4.75E-01	1.53E-03	1.64E-03
ketone	0.0075	0.0097		8.96E-02	5.00E-02	4.75E-01	5.33E-04	6.90E-04
-Chlordane	0.0012	0.0012		2.67E-02	4.00E-02	3.51E-01	6.34E-05	6.34E-05
ılor	0.014	0.014		4.89E-02	1.40E+00	3.55E-05	2.47E-04	2.47E-04
ılor epoxide	0.0028	0.0028		2.93E-02	1.40E+00	3.55E-05	4.92E-05	4.92E-05
um			8.76	4.00E-03	2.20E-01	1.50E-03	7.56E-01	7.56E-01
ny	236	. 236		2.00E-01	2.20E-01	1.00E-03	1.09E+00	1.09E+00
	11.6	11.6	0.0503	3.60E-02	1.10E-01	2.00E-03	4.08E-02	4.08E-02
	2030	2030		1.50E-01	9.10E-02	1.50E-04	5.94E+00	5.94E+00
m	29.1	29.1	0.0195	3.64E-01	9.60E-01	5.50E-04	3.92E-01	3.92E-01
mn	74.8	74.8	0.129	7.50E-03	1.00E-02	5.50E-03	1.94E-01	1.94E-01
	17	19.7	0.047	8.10E-02	1.22E-01	2.00E-02	1.06E-01	1.22E-01
	9750	9750	1.16	4.00E-01	4.00E-02	1.00E-02	4.26E+01	4.26E+01
			110	4.00E-03	2.20E-01	2.00E-02	9.49E+00	9.49E+00
	18900	18900	0.839	4.50E-02	3.00E-02	3.00E-04	3.79E+01	3.79E+01
iese	858	858		2.50E-01	5.40E-02	4.00E-04	2.38E+00	2.38E+00
y	0.47	0.47	0.0021	3.755-02	4.00E-02	2.50E-Ui	1.82E-02	1.82E-02
	224	224	0.154	3.20E-02	2.00E-02	6.00E-03	6.14E-01	6.14E-01
m	1.3	1.3	0.0046	1.60E-02	2.20E-01	1.50E-02	8.50E-03	8.50E-03

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# RED FOX (Vulpes vulpes) EXPOSURE - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-2E

8.14E+01	8.14E+01	1.00E-01	5.60E-01	1.20E-12	6.91	3610	3610	
1.39E-01	1.32E-01	2.50E-03	2.20E-01	5.50E-03	0.233	27	25.4	m
1.77E-02	1.08E-02	4.00E-02	2.20E-01	4.00E-03		1.8	1.1	U
1.18E-01	1.18E-01	3.00E-03	2.20E-01	4.00E-01	0.008	21.8	21.8	
(mg/kg/day)	(mg/kg/day)	(lios	COPC/kg.dry soil)	soil)	EPC (mg/L)	(mg/kg)	(mg/kg)	COPC
Exposure	Exposure	COPC/kg dry	tissue)/(mg	COPC/kg dry	Surface Water	EPC	EPC	
Red Fox Total	Surface Soil	wet tissue)/(mg	(mg COPC/kg wet	dry tissue)/(mg		(0-4 ft bgs)	(0-2 ft bgs) (0-4 ft bgs)	
	Red Fox	(mg COPC/kg	Invertebrate BAF	(mg COPC/kg		Total Soil	Surface Soil Total	
		BAF	Soil-To-Soil	Soil-To-Plant				
		Small Mammal						

hemical of Potential Concern

osure Point Concentration, the maximum detected concentration

accumulation Factor (unitless) ure =  $[((Cs^*E)^*E)^*E] + (Cs^*E)^*E] + (Cs^*E)^*E] + (Cs^*E)^*E] + (Cs^*E)^*EF] + (Cs^*E)^*EF] + (Cs^*E)^*EFB$  concentration (mg/kg)

to plant uptake factor from literature weight to wet weight plant matter conversion factor =  $0.2\,$  (unitless)

nt dietary fraction (unitless)

ing rate (kg/day)

ertebrate dietary fraction (unitless) imal dietary fraction (unitless)

PC in surface water (mg COPC/L) ietary (kg dry/day)

/ater intake rate (L/day) foraging frequency = 1 (unitless) by weight (kg)

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# **TABLE G-3A**

# DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

# Seneca Army Depot Activity

СОРС	Ditch Soil EPC (mg/kg)	Surface Water EPC (mg/L)	SP (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Terrestrial Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Deer Mouse Ditch Soil Exposure (mg/kg/day)
Semivolatile Organic Compour	ıds				
3 or 4-Methylphenol	0.79		2.89E+00	1.0E-01	1.32E-01
Anthracene	0.25		1.04E-01	7.0E-02	7.89E-03
Benzo(a)anthracene	1.1		2.02E-02	3.0E-02	1.46E-02
Benzo(a)pyrene	0.9		1.10E-02	7.0E-02	2.47E-02
Benzo(b)fluoranthene	1.1		1.01E-02	7.0E-02	3.01E-02
Benzo(ghi)perylene	0.29		5.70E-03	7.0E-02	7.88E-03
Benzo(k)fluoranthene	0.58		1.01E-02	8.0E-02	1.80E-02
Bis(2-Ethylhexyl)phthalate		0.0042	3.80E-02	4.0E-02	6.34E-04
Chrysene	1.2		1.87E-02	4.0E-02	2.02E-02
Fluoranthene	2.1		3.72E-02	7.0E-02	6.00E-02
Indeno(1,2,3-cd)pyrene	0.27		3.90E-03	8.0E-02	8.30E-03
Phenanthrene	1.1		1.02E-01	7.0E-02	3.46E-02
Pyrene	2.1		4.43E-02	7.0E-02	6.07E-02
Metals					
Aluminum		8.76	4.00E-03	2.2E-01	1.32E+00
Antimony	4.9		2.00E-01	2.2E-01	4.43E-01
Arsenic	6.1	0.0503	3.60E-02	1.1E-01	2.70E-01
Cadmium	14.3	0.0195	3.64E-01	9.6E-01	5.25E+00
Chromium	29.8	0.129	7.50E-03	1.0E-02	1.81E-01
Cobalt	15.8	0.047	8.10E-02	1.2E-01	7.89E-01
Copper	1,190	1.16	4.00E-01	4.0E-02	4.04E+01
Cyanide	2.36		1.00E+00	1.1E+00	1.07E+00
Iron		110	4.00E-03	2.2E-01	1.66E+01
Lead	436	0.839	4.50E-02	3.0E-02	6.39E+00
Manganese	918		2.50E-01	5.4E-02	2.96E+01
Mercury	0.3	0.0021	3.75E-02	4.0E-02	5.62E-03
Nickel	42.7	0.154	3.20E-02	2.0E-02	4.57E-01
Selenium	2.5	0.0046	1.60E-02	2.2E-01	2.06E-01
Silver	2.6	0.008	4.00E-01	2.2E-01	2.60E-01
Vanadium	29.1	0.233	5.50E-03	2.2E-01	2.41E+00
Zinc	566	6,91	1.20E-12	5.6E-01	1.17E+02

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# TABLE G-3B

# AMERICAN ROBIN (Turdus migratorius) EXPOSURE - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

# Seneca Army Depot Activity

			Soil-To-Plant	Soil-To-Soil	
1			Uptake Factor	Invertebrate BAF	American Robin
	Ditch Soil		(mg COPC/kg dry	(mg COPC/kg wet	Ditch Soil
	EPC	Surface Water EPC	tissue)/(mg COPC/kg	tissue)/(mg	Exposure
COPC	(mg/kg)	(mg/L)	dry soil)	COPC/kg dry soil)	(mg/kg/day)
Semivolatile Organic Comp	ounds			4	
3 or 4-Methylphenol	0.79		2.89E+00	1.00E-01	5.81E-02
Anthracene	0.25		1.04E-01	7.00E-02	1.10E-02
Benzo(a)anthracene	1.1		2.02E-02	3.00E-02	2.95E-02
Benzo(a)pyrene	0.9		1.10E-02	7.00E-02	3.89E-02
Benzo(b)fluoranthene	1.1		1.01E-02	7.00E-02	4.76E-02
Benzo(ghi)perylene	0.29		5.70E-03	7.00E-02	1.25E-02
Benzo(k)fluoranthene	0.58		1.01E-02	8.00E-02	2.75E-02
Bis(2-Ethylhexyl)phthalate		0.0042	3.80E-02	4.00E-02	5.75E-04
Chrysene	1.2		1.87E-02	4.00E-02	3.71E-02
Fluoranthene	2.1		3.72E-02	7.00E-02	9.12E-02
Indeno(1,2,3-cd)pyrene	0.27		3.90E-03	8.00E-02	1.28E-02
Phenanthrene	1.1		1.02E-01	7.00E-02	4.82E-02
Pyrene	2.1		4.43E-02	7.00E-02	9.13E-02
Metals		,			· .
Aluminum		8.76	4.00E-03	2.20E-01	1.20E+00
Antimony	4.9		2.00E-01	2.20E-01	5.21E-01
Arsenic	6.1	0.0503	3.60E-02	1.10E-01	3.73E-01
Cadmium	14.3	0.0195	3.64E-01	9.60E-01	5.91E+00
Chromium	29.8	0.129	7.50E-03	1.00E-02	5.68E-01
Cobalt	15.8	0.047	8.10E-02	1.22E-01	1.04E+00
Соррег	1,190	1.16	4.00E-01	4.00E-02	3.98E+01
Cyanide	2.36		1.00E+00	1.12E+00	1.14E+00
Iron		110	4.00E-03	2.20E-01	1.51E+01
Lead	436	0.839	4.50E-02	3.00E-02	1.19E+01
Manganese	918		2.50E-01	5.40E-02	3.50E+01
Mercury	0.3	0.0021	3.75E-02	4.00E-02	9.60E-03
Nickel	42.7	0.154	3.20E-02	2.00E-02	9.93E-01
Selenium	2.5	0.0046	1.60E-02	2.20E-01	2.64E-01
Silver	2.6	0.008	4.00E-01	2.20E-01	2.81E-01
Vanadium	29.1	0.233	5.50E-03	2.20E-01	3.09E+00
Zinc	566	6.91	1.20E-12	5.60E-01	1.40E+02

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# TABLE G-3C

# $SHORT-TAILED\ SHREW\ (\textit{Blarina brevicauda}\ )\ EXPOSURE\ -\ SEAD-121C\ DITCH\ SOIL$

# SEAD-121C AND SEAD-121I RI Report

Seneca Army Depot Activity

				Soil-To-Soil		
			Soil-To-Plant	Invertebrate BAF	Small Mammal BAF	Short-Tailed
	Ditch Soil		(mg COPC/kg dry	(mg COPC/kg wet	(mg COPC/kg wet	Shrew Ditch
	EPC	Surface Water EPC	tissue)/(mg COPC/kg	tissue)/(mg COPC/kg	tissue)/(mg COPC/kg	Soil Exposure
СОРС	(mg/kg)	(mg/L)	dry soil)	dry soil)	dry soil)	(mg/kg/day)
Semivolatile Organic Comp	ounds					
3 or 4-Methylphenol	0.79		2.89E+00	1.00E-01	1.14E+00	1.13E-01
Anthracene	0.25		1.04E-01	7.00E-02	4.61E-04	1.30E-02
Benzo(a)anthracene	1.1		2.02E-02	3.00E-02	1.46E-04	3.28E-02
Benzo(a)pyrene	0.9		1.10E-02	7.00E-02	4.61E-04	4.61E-02
Benzo(b)fluoranthene	1.1		1.01E-02	7.00E-02	5.46E-04	5.64E-02
Benzo(ghi)perylene	0.29		5.70E-03	7.00E-02	4.61E-04	1.48E-02
Benzo(k)fluoranthene	0.58		1.01E-02	8.00E-02	5.43E-04	3.28E-02
Bis(2-Ethylhexyl)phthalate		0.0042	3.80E-02	4.00E-02	5.50E-05	6.34E-04
Chrysene	1.2		1.87E-02	4.00E-02	1.88E-04	4.22E-02
Fluoranthene	2.1		3.72E-02	7.00E-02	4.61E-04	1.08E-01
Indeno(1,2,3-cd)pyrene	0.27		3.90E-03	8.00E-02	2.82E-03	1.53E-02
Phenanthrene	1.1		1.02E-01	7.00E-02	4.61E-04	5.70E-02
Pyrene	2.1		4.43E-02	7.00E-02	4.61E-04	1.08E-01
Metals						
Aluminum		8.76	4.00E-03	2.20E-01	1.50E-03	1.32E+00
Antimony	4.9		2.00E-01	2.20E-01	1.00E-03	6.52E-01
Arsenic	6.1	0.0503	· 3.60E-02	1.10E-01	2.00E-03	4.52E-01
Cadmium	14.3	0.0195	3.64E-01	9.60E-01	5.50E-04	7.59E+00
Chromium	29.8	0.129	7.50E-03	1.00E-02	5.50E-03	5.94E-01
Cobalt	15.8	0.047	8.10E-02	1.22E-01	2.00E-02	1.28E+00
Copper	1,190	1.16	4.00E-01	4.00E-02	1.00E-02	4.57E+01
Cyanide	2.36		1.00E+00	1.12E+00	1.00E+00	1.58E+00
Iron		110	4.00E-03	2.20E-01	2.00E-02	1.66E+01
Lead	436	0.839	4.50E-02	3.00E-02	3.00E-04	1.32E+01
Manganese	918		2.50E-01	5.40E-02	4.00E-04	4.06E+01
Mercury	0.3	0.0021	3.75E-02	4.00E-02	2.50E-01	1.47E-02
Nickel	42.7	0.154	3.20E-02	2.00E-02	6.00E-03	1.08E+00
Selenium	2.5	0.0046	1.60E-02	2.20E-01	1.50E-02	3.32E-01
Silver	2.6	0.008	4.00E-01	2.20E-01	3.00E-03	3.51E-01
Vanadium	29.1	0.233	5.50E-03	2.20E-01	2.50E-03	3.87E+00
Zinc	566	6.91	1.20E-12	5.60E-01	1.00E-01	1.82E+02

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cs*Is) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR)$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor  $\approx 0.2$  (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg/day)

SFF = Site foraging frequency = 1 (unitless)

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# **TABLE G-3D**

# MEADOW VOLE (Microtus pennsylvanicus) EXPOSURE - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

# Seneca Army Depot Activity

	Ditch Soil		Soil-To-Plant Uptake Factor (mg COPC/kg dry	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet	Meadow Vole
	EPC	Surface Water EPC	tissue)/(mg COPC/kg	tissue)/(mg COPC/kg	Exposure
COPC	(mg/kg)	(mg/L)	dry soil)	dry soil)	(mg/kg/day)
Semivolatile Organic Comp	ounds				
3 or 4-Methylphenol	0.79		2.89E+00	1.00E-01	2.56E-01
Anthracene	0.25		1.04E-01	7.00E-02	2.02E-02
Benzo(a)anthracene	1.1		2.02E-02	3.00E-02	8.09E-02
Benzo(a)pyrene	0.9		1.10E-02	7.00E-02	6.55E-02
Benzo(b)fluoranthene	1.1		1.01E-02	7.00E-02	7.99E-02
Benzo(ghi)perylene	0.29		5.70E-03	7.00E-02	2.10E-02
Benzo(k)fluoranthene	0.58		1.01E-02	8.00E-02	4.22E-02
Bis(2-Ethylhexyl)phthalate		0.0042	3.80E-02	4.00E-02	8.82E-04
Chrysene	1.2		1.87E-02	4.00E-02	8.81E-02
Fluoranthene	2.1		3.72E-02	7.00E-02	1.58E-01
Indeno(1,2,3-cd)pyrene	0.27		3.90E-03	8.00E-02	1.95E-02
Phenanthrene	1.1		1.02E-01	7.00E-02	8.88E-02
Pyrene	2.1		4.43E-02	7.00E-02	1.59E-01
Metals					
Aluminum		8.76	4.00E-03	2.20E-01	1.84E+00
Antimony	4.9		2.00E-01	2.20E-01	4.38E-01
Arsenic	6.1	0.0503	3.60E-02	1.10E-01	4.68E-01
Cadmium	14.3	0.0195	3.64E-01	9.60E-01	1.49E+00
Chromium	29.8	0.129	7.50E-03	1.00E-02	2.19E+00
Cobalt	15.8	0.047	8.10E-02	1.22E-01	1.26E+00
Copper	1,190	1.16	4.00E-01	4.00E-02	1.27E+02
Cyanide	2.36		1.00E+00	1.12E+00	3.76E-01
Iron		110	4.00E-03	2.20E-01	2.31E+01
Lead	436	0.839	4.50E-02	3.00E-02	3.32E+01
Manganese	918		2.50E-01	5.40E-02	8.60E+01
Mercury	0.3	0.0021	3.75E-02	4.00E-02	2.30E-02
Nickel	42.7	0.154	3.20E-02	2.00E-02	3.22E+00
Selenium	2.5	0.0046	1.60E-02	2.20E-01	1.84E-01
Silver	2.6	0.008	4.00E-01	2.20E-01	2.79E-01
Vanadium	29.1	0.233	5.50E-03	2.20E-01	2.15E+00
Zinc	566	6.91	1.20E-12	5.60E-01	4.21E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

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# TABLE G-3E RED FOX (Vulpes vulpes) EXPOSURE - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

Seneca Army Depot Activity

COPC	Ditch Soil EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Small Mammal BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Red Fox Ditch Soil Exposure (mg/kg/day)
Semivolatile Organic Comp	oounds				,	,
3 or 4-Methylphenol	0.79	L	2.89E+00	1.00E-01	1.14E+00	1.37E-01
Anthracene	0.25		1.04E-01	7.00E-02	4.61E-04	6.55E-04
Benzo(a)anthracene	1.1		2.02E-02	3.00E-02	1.46E-04	2.11E-03
Benzo(a)pyrene	0.9		1.10E-02	7.00E-02	4.61E-04	2.16E-03
Benzo(b)fluoranthene	1.1		1.01E-02	7.00E-02	5.46E-04	2.65E-03
Benzo(ghi)perylene	0.29		5.70E-03	7.00E-02	4.61E-04	6.93E-04
Benzo(k)fluoranthene	0.58		1.01E-02	8.00E-02	5.43E-04	1.47E-03
Bis(2-Ethylhexyl)phthalate		0.0042	3.80E-02	4.00E-02	5.50E-05	3.62E-04
Chrysene	1.2		1.87E-02	4.00E-02	1.88E-04	2.45E-03
Fluoranthene	2.1		3.72E-02	7.00E-02	4.61E-04	5.17E-03
Indeno(1,2,3-cd)pyrene	0.27		3.90E-03	8.00E-02	2.82E-03	7.67E-04
Phenanthrene	1.1		1.02E-01	7.00E-02	4.61E-04	2.88E-03
Pyrene	2.1		4.43E-02	7.00E-02	4.61E-04	5.21E-03
Metals						
Aluminum		8.76 ,	4.00E-03	2.20E-01	1.50E-03	7.56E-01
Antimony	4.9		2.00E-01	2.20E-01	1.00E-03	2.27E-02
Arsenic	6.1	0.0503	3.60E-02	1.10E-01	2.00E-03	2.35E-02
Cadmium	14.3	0.0195	3.64E-01	9.60E-01	5.50E-04	1.93E-01
Chromium	29.8	0.129	7.50E-03	1.00E-02	5.50E-03	8.38E-02
Cobalt	15.8	0.047	8.10E-02	1.22E-01	2.00E-02	9.87E-02
Copper	1,190	1.16	4.00E-01	4.00E-02	1.00E-02	5.28E+00
Cyanide	2.36		1.00E+00	1.12E+00	1.00E+00	3.81E-01
Iron		110	4.00E-03	2.20E-01	2.00E-02	9.49E+00
Lead	436	0.839	4.50E-02	3.00E-02	3.00E-04	9.45E-01
Manganese	918		2.50E-01	5.40E-02	4.00E-04	2.55E+00
Mercury	0.3	0.0021	3.75E-02	4.00E-02	2.50E-01	1.17E-02
Nickel	42.7	0.154	3.20E-02	2.00E-02	6.00E-03	1.28E-01
Selenium	2.5	0.0046	1.60E-02	2.20E-01	1.50E-02	1.60E-02
Silver	2.6	0.008	4.00E-01	2.20E-01	3.00E-03	1.47E-02
Vanadium	29.1	0.233	5.50E-03	2.20E-01	2.50E-03	1.48E-01
Zinc	566	6.91	1.20E-12	5.60E-01	1.00E-01	1.33E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

### **TABLE G-3F**

### GREAT BLUE HERON (Ardea herodias) EXPOSURE - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report

Seneca Army Depot Activity

СОРС	Ditch Soil EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Soil-To-Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Small Mammal BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Great Blue Heron Ditch Soil and Surface Water Exposure (mg/kg/day)
Semivolatile Organic Comp	ounds					,
3 or 4-Methylphenol	0.79		2.89E+00	1.00E-01	1.14E+00	1.65E-01
Anthracene	0.25		1.04E-01	7.00E-02	4.61E-04	2.28E-03
Benzo(a)anthracene	1.1		2.02E-02	3.00E-02	1.46E-04	9.83E-03
Benzo(a)pyrene	0.9		1.10E-02	7.00E-02	4.61E-04	8.22E-03
Benzo(b)fluoranthene	1.1		1.01E-02	7.00E-02	5.46E-04	1.01E-02
Benzo(ghi)perylene	0.29		5.70E-03	7.00E-02	4.61E-04	2.65E-03
Benzo(k)fluoranthene	0.58		1.01E-02	8.00E-02	5.43E-04	5.33E-03
Bis(2-Ethylhexyl)phthalate		0.0042	3.80E-02	4.00E-02	5.50E-05	1.89E-04
Chrysene	1.2		1.87E-02	4.00E-02	1.88E-04	1.08E-02
Fluoranthene	2,1		3.72E-02	7.00E-02	4.61E-04	1.92E-02
Indeno(1,2,3-cd)pyrene	0.27		3.90E-03	8.00E-02	2.82E-03	2.59E-03
Phenanthrene	1.1		1.02E-01	7.00E-02	4.61E-04	1.00E-02
Pyrene	2.1		4.43E-02	7.00E-02	4.61E-04	1.92E-02
Metals .						
Aluminum		8.76	4.00E-03	2.20E-01	1.50E-03	3.94E-01
Antimony	4.9		2.00E-01	2.20E-01	1.00E-03	4.79E-02
Arsenic	6.1	0.0503	3.60E-02	1.10E-01	2.00E-03	6.05E-02
Cadmium	14.3	0.0195	3.64E-01	9.60E-01	5.50E-04	1.78E-01
Chromium	29.8	0.129	7.50E-03	1.00E-02	5.50E-03	2.98E-01
Cobalt	15.8	0.047	8.10E-02	1.22E-01	2.00E-02	2.04E-01
Соррег	1,190	1.16	4.00E-01	4.00E-02	1.00E-02	1.28E+01
Cyanide	2.36		1.00E+00	1.12E+00	1.00E+00	4.47E-01
Iron		110	4.00E-03	2.20E-01	2.00E-02	4.95E+00
Lead	436	0.839	4.50E-02	3.00E-02	3.00E-04	3.94E+00
Manganese	918		2.50E-01	5.40E-02	4.00E-04	8.32E+00
Mercury	0.3	0.0021	3.75E-02	4.00E-02	2.50E-01	1.60E-02
Nickel	42.7	0.154	3.20E-02	2.00E-02	6.00E-03	4.31E-01
Selenium	2.5	0.0046	1.60E-02	2.20E-01	1.50E-02	3.08E-02
Silver	2.6	0.008	4.00E-01	2.20E-01	3.00E-03	2.67E-02
Vanadium	29.1	0.233	5.50E-03	2.20E-01	2.50E-03	3.02E-01
Zinc	566	6.91	1.20E-12	5.60E-01	1.00E-01	1.64E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF*FR) + (Cs*IDF*BAF$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

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### **TABLE G-4A** DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-1211 SOIL SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity

COPC	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	SP (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Terrestrial Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Deer Mouse Surface Soil Exposure (mg/kg/day)
Semivolatile Organic Compounds					
Acenaphthene	6.1		2.10E-01	7.0E-02	2.21E-01
Acenaphthylene	0.56		1.72E-01	7.0E-02	1.94E-02
Anthracene	12		1.04E-01	7.0E-02	3.79E-01
Benzo(a)anthracene	28		2.02E-02	3.0E-02	3.71E-01
Benzo(a)pyrene	23		1.10E-02	7.0E-02	6.30E-01
Benzo(b)fluoranthene	29		1.01E-02	7.0E-02	7.94E-01
Benzo(ghi)perylene	29		5.70E-03	7.0E-02	7.88E-01
Benzo(k)fluoranthene	21		1.01E-02	8.0E-02	6.51E-01
Bis(2-Ethylhexyl)phthalate	1.6		3.80E-02	4.0E-02	2.83E-02
Carbazole	6.8		2.74E-01	6.0E-02	2.41E-01
Chrysene	32		1.87E-02	4.0E-02	5.39E-01
Dibenz(a,h)anthracene	4.6		6.40E-03	7.0E-02	1.25E-01
Dibenzofuran	2		1.61E-01	5.0E-02	5.36E-02
Fluoranthene	62		3.72E-02	7.0E-02	1.77E+00
Fluorene	4.2		1.49E-01	7.0E-02	1.41E-01
Indeno(1,2,3-cd)pyrene	8.1		3.90E-03	8.0E-02	2.49E-01
Naphthalene	0.63		4.20E-01	7.0E-02	2.88E-02
Phenanthrene	52		1.02E-01	7.0E-02	1.64E+00
Pyrene	64		4.43E-02	7.0E-02	1.85E+00
PCBs					
Aroclor-1254	0.03		1.00E-02	1.1E+00	1.24E-02
Aroclor-1260	0.046		1.00E-02	1.1E+00	1.90E-02
Pesticides					
4,4'-DDE	0.034		9.37E-03	1.3E+00	1.57E-02
4,4'-DDT	0.039		9.37E-03	1.3E+00	1.80E-02
Aldrin	0.012		7.05E-01	7.0E-02	7.00E-04
Dieldrin	0.034		8.96E-02	5.0E-02	8.04E-04
Endosulfan I	0.095		2.37E-01	6.0E-02	3.21E-03
Endrin	0.03		8.96E-02	5.0E-02	7.09E-04
Heptachlor epoxide	0.055		2.93E-02	1.4E+00	2.82E-02
Metals					
Aluminum		2.050	4.00E-03	2.2E-01	3.10E-01
Antimony	7.5		2.00E-01	2.2E-01	6.78E-01
Arsenic	32.1		3.60E-02	1.1E-01	1.38E+00
Cadmium	6.6	5.4.E-04	3.64E-01	9.6E-01	2.42E+00
Chromium	439	0.006	7.50E-03	1.0E-02	2.38E+00
Cobalt	205.5		8.10E-02	1.2E-01	1.02E+01
Соррет	209	0.0112	4.00E-01	4.0E-02	7.07E+00
Cyanide	2		1.00E+00	1.1E+00	9.07E-01
ron		3.41	4.00E-03	2.2E-01	5.15E-01
ead	122	0.0263	4.50E-02	3.0E-02	1.76E+00
Manganese	310500		2.50E-01	5.4E-02	1.00E+04
Nickel	342	3.6.E-03	3.20E-02	2.0E-02	3.47E+00
Selenium	145.5	2.45.E-03	1.60E-02	2.2E-01	1.20E+01
Silver	3.05		4.00E-01	2.2E-01	3.03E-01
<b>Thallium</b>	162.5		4.00E-03	2.2E-01	1.33E+01
Vanadium	182		5.50E-03	2.2E-01	1.49E+01
Zinc	329	0.19	1.20E-12	5.6E-01	6.76E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW
Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)
Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

### TABLE G-4B

### AMERICAN ROBIN (Turdus migratorius) EXPOSURE - SEAD-1211 SOIL SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity

				Soil-To-Soil	
			Soil-To-Plant	Invertebrate	
			Uptake Factor	BAF	
	Surface Soil		(mg COPC/kg dry	(mg COPC/kg	American Robin
	(0-2 ft bgs)		tissue)/(mg	wet tissue)/(mg	Surface Soil
	EPC	Surface Water EPC	COPC/kg dry	COPC/kg dry	Exposure
COPC	(mg/kg)	(mg/L)	soil)	soil)	(mg/kg/day)
Semivolatile Organic Compo					
Acenaphthene	6.1		2.10E-01	7.00E-02	2.72E-01
Acenaphthylene	0.56		1.72E-01	7.00E-02	2.48E-02
Anthracene	12		1.04E-01	7.00E-02	5.26E-01
Benzo(a)anthracene	28		2.02E-02	3.00E-02	7.51E-01
Benzo(a)pyrene	23		1.10E-02	7.00E-02	9.95E-01
Benzo(b)fluoranthene	29		1.01E-02	7.00E-02	1.25E+00
Benzo(ghi)perylene	29		5.70E-03	7.00E-02	1.25E+00
Benzo(k)fluoranthene	21		1.01E-02	8.00E-02	9,95E-01
Bis(2-Ethylhexyl)phthalate	1.6	····	3.80E-02	4.00E-02	4.97E-02
Carbazole	6.8		2.74E-01	6.00E-02	2.77E-01
Chrysene	32		1.87E-02	4.00E-02	9.90E-01
Dibenz(a,h)anthracene	4.6		6.40E-03	7.00E-02	1.99E-01
Dibenzofuran	2		1.61E-01	5.00E-02	7.19E-02
Fluoranthene	62		3.72E-02	7.00E-02	2.69E+00
Fluorene	4.2		1.49E-01	7.00E-02	1.85E-01
Indeno(1,2,3-cd)pyrene	8.1		3.90E-03	8.00E-02	3.84E-01
Naphthalene	0.63		4.20E-01	7.00E-02	2.89E-02
Phenanthrene	52		1.02E-01	7.00E-02	2.28E+00
Рутепе	64		4.43E-02	7.00E-02	2.78E+00
PCBs .					
Aroclor-1254	0.03		1.00E-02	1.13E+00	1.44E-02
Aroclor-1260	0.046		1.00E-02	1.13E+00	2.21E-02
Pesticides					
4,4'-DDE	0.034		9.37E-03	1.26E+00	1.82E-02
4,4'-DDT	0.039		9.37E-03	1.26E+00	2.09E-02
Aldrin	0.012		7.05E-01	7.00E-02	5.71E-04
Dieldrin	0.034		8.96E-02	5.00E-02	1.21E-03
Endosulfan I	0.095	,	2.37E-01	6.00E-02	3.85E-03
Endrin	0.03		8.96E-02	5.00E-02	1.07E-03
Heptachlor epoxide	0.055		2.93E-02	1.40E+00	3.26E-02
Metals			·,		,
Aluminum		2.050	4.00E-03	2.20E-01	2.81E-01
Antimony	7.5		2.00E-01	2.20E-01	7.98E-01
Arsenic	32.1		3.60E-02	1.10E-01	1.92E+00
Cadmium	6.6	5.4.E-04	3.64E-01	9.60E-01	2.73E+00
Chromium	439	0.006	7.50E-03	1.00E-02	8.11E+00
Cobalt	205.5		8.10E-02	1.22E-01	1.34E+01
Copper	209	0.0112	4.00E-01	4.00E-02	6.96E+00
Cyanide	2		1.00E+00	1.12E+00	9.66E-01
Iron		3.41	4.00E-03	2.20E-01	4.67E-01
Lead	122	0.0263	4.50E-02	3.00E-02	3.29E+00
Manganese	310500		2.50E-01	5.40E-02	1.18E+04
Nickel	342	3.6.E-03	3.20E-02	2.00E-02	7.78E+00
Selenium	145.5	2.45.E-03	1.60E-02	2.20E-01	1.53E+01
Silver	3.05		4.00E-01	2.20E-01	3.28E-01
Thallium	162,5		4.00E-03	2.20E-01	1.71E+01
Vanadium	182		5.50E-03	2.20E-01	1.91E+01
Zinc	329	0.19	1.20E-12	5.60E-01	8.08E+01
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COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)
(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

### **TABLE G-4C** Short-Tailed Shrew (Blarina brevicauda) EXPOSURE - SEAD-1211 SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

	Surface Soil (0-2 ft bgs) EPC	Surface Water EPC		Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/(mg	Small Mammal BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry	Short-Tailed Shrew Surface Soil Exposure
COPC	(mg/kg)	(mg/L)	soil)	COPC/kg dry soil)	soil)	(mg/kg/day)
Semivolatile Organic Comp						
Acenaphthene	6.1		2.10E-01	7.00E-02	4.61E-04	3.21E-01
Acenaphthylene	0.56		1.72E-01	7.00E-02	4.61E-04	2.93E-02
Anthracene	12		1.04E-01	7.00E-02	4.61E-04	6.22E-01
Benzo(a)anthracene	28		2.02E-02	3.00E-02	1.46E-04	8.35E-01
Benzo(a)pyrene	23		1.10E-02	7.00E-02	4.61E-04	1.18E+00
Benzo(b)fluoranthene	29		1.01E-02	7.00E-02	5.46E-04	1.49E+00
Benzo(ghi)perylene	29		5.70E-03	7.00E-02	4.61E-04	1.48E+00
Benzo(k)fluoranthene	21		1.01E-02	8.00E-02	5.43E-04	1.19E+00
Bis(2-Ethylhexyl)phthalate	1.6		3.80E-02	4.00E-02	5.50E-05	5.65E-02
Carbazole	6.8		2.74E-01	6.00E-02	6.29E-01	5.39E-01
Chrysene	32		1.87E-02	4.00E-02	1.88E-04	1.13E+00
Dibenz(a,h)anthracene	4.6		6.40E-03	7.00E-02	1.21E-03	2.36E-01
Dibenzofuran	2		1.61E-01	5.00E-02	5.50E-01	1.38E-01
Fluoranthene	62		3.72E-02	7.00E-02	4.61E-04	3.19E+00
Fluorene	4.2		1.49E-01	7.00E-02	4.61E-04	2.19E-01
Indeno(1,2,3-cd)pyrene	8.1		3.90E-03	8.00E-02	2.82E-03	4.59E-01
Naphthalene -	0.63		4.20E-01	7.00E-02	4.61E-04	3.40E-02
Phenanthrene	52		1.02E-01	7.00E-02	4.61E-04	2.70E+00
Pyrene	64		4.43E-02	7.00E-02	4.61E-04	3.29E+00
PCBs						
Aroclor-1254	0.03		1.00E-02	1.13E+00	5.52E-04	1.86E-02
Aroclor-1260	0.046		1.00E-02	1.13E+00	5.52E-04	2.85E-02
Pesticides						
4,4'-DDE	0.034		9.37E-03	1.26E+00	6.18E-04	2.34E-02
4,4'-DDT	0.039		9.37E-03	1.26E+00	6.18E-04	2.69E-02
Aldrin	0.012		7.05E-01	7.00E-02	7.97E-01	1.15E-03
Dieldrin	0.034		8.96E-02	5.00E-02	4.75E-01	2.21E-03
Endosulfan I	0.095		2.37E-01	6.00E-02	6.06E-01	7.39E-03
Endrin	0.03		8.96E-02	5.00E-02	4.75E-01	1.95E-03
Heptachlor epoxide	0.055		2.93E-02	1.40E+00	3,55E-05	4.21E-02
Metals						
Aluminum		2.050	4.00E-03	2.20E-01	1.50E-03	3.10E-01
Antimony	7.5		2.00E-01	2.20E-01	1.00E-03	9.97E-01
Arsenic	32.1		3.60E-02	1.10E-01	2.00E-03	2.34E+00
Cadmium	6.6	5.4.E-04	3.64E-01	9.60E-01	5.50E-04	3.50E+00
Chromium	439	0.006	7.50E-03	1.00E-02	5.50E-03	8.47E+00
Cobalt	205.5		8.10E-02	1.22E-01	2.00E-02	1.66E+01
Copper	209	0.0112	4.00E-01	4.00E-02	1.00E-02	7.99E+00
Cyanide	2		1.00E+00	1.12E+00	1.00E+00	1.34E+00
Iron		3.41	4.00E-03	2,20E-01	2,00E-02	5.15E-01
Lead	122	0.0263	4.50E-02	3,00E-02	3.00E-04	3.66E+00
Manganese	310500		2.50E-01	5.40E-02	4.00E-04	1.37E+04
Nickel	342	3.6.E-03	3.20E-02	2.00E-02	6.00E-03	8.50E+00
Selenium	145.5	2.45.E-03	1.60E-02	2.20E-01	1.50E-02	1.93E+01
Silver	3.05	2.15.15-03	4.00E-02	2.20E-01	3.00E-03	4.10E-01
Thallium	162.5		4.00E-03	2.20E-01	4.00E-02	2.17E+01
Vanadium	182		5.50E-03	2.20E-01	2.50E-03	2.40E+01
Zinc	329	0.19	1.20E-12	5.60E-01	1.00E-01	1.05E+02

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*ADF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFFI/BW

Cs = Soil concentration (mg/kg)
SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg/day)

SFF = Site foraging frequency = 1 (unitless)
BW = Body weight (kg)

### **TABLE G-4D**

### Meadow Vole (Microtus pennsylvanicus ) EXPOSURE - SEAD-1211 SOIL SEAD-121C AND SEAD-121I RI Report

Seneca Army	Depot	Activity
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				Soil-To-Soil	
			Soil-To-Plant	Invertebrate	
			Uptake Factor	BAF	
	Surface Soil		(mg COPC/kg dry		Meadow Vole
			tissue)/(mg	wet tissue)/(mg	Surface Soil
	(0-2 ft bgs) EPC	Surface Water EPC	COPC/kg dry	COPC/kg dry	Exposure
COPC	(mg/kg)	(mg/L)	soil)	soil)	(mg/kg/day)
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(mg/L)	3011)	3011)	(ing/kg/day)
Semivolatile Organic Compo Acenaphthene	6.1		2.10E-01	7.00E-02	5.50E-01
Acenaphthylene	0.56		1.72E-01	7.00E-02	4.86E-02
Anthracene	12		1.04E-01	7.00E-02	9.71E-01
Benzo(a)anthracene	28		2.02E-02	3.00E-02	2.06E+00
Benzo(a)pyrene	23		1.10E-02	7.00E-02	1.67E+00
Benzo(b)fluoranthene	29		1.01E-02	7.00E-02	2.11E+00
Benzo(ghi)perylene	29		5.70E-03	7.00E-02	2.10E+00
Benzo(k)fluoranthene	21		1.01E-02	8.00E-02	1.53E+00
Bis(2-Ethylhexyl)phthalate	1.6		3.80E-02	4.00E-02	1.20E-01
Carbazole	6.8		2.74E-01	6.00E-02	6.51E-01
Chrysene	32		1.87E-02	4.00E-02	2.35E+00
Dibenz(a,h)anthracene	4.6		6.40E-03	7.00E-02	3.33E-01
Dibenzofuran	2		1.61E-01	5.00E-02	1.72E-01
Fluoranthene	62		3.72E-02	7.00E-02	4.65E+00
Fluorene	4.2		1.49E-01	7.00E-02	3.56E-01
Indeno(1,2,3-cd)pyrene	8.1		3.90E-03	8.00E-02	5.84E-01
Naphthalene	0.63		4.20E-01	7.00E-02	6.84E-02
Phenanthrene	52		1.02E-01	7.00E-02	4.20E+00
Рутепе	64		4.43E-02	7.00E-02	4.84E+00
PCBs			1	710000	
Aroclor-1254	0.03		1.00E-02	1.13E+00	2.18E-03
Aroclor-1260	0.046		1.00E-02	1.13E+00	3.34E-03
Pesticides					
4.4'-DDE	0.034		9.37E-03	1.26E+00	2.47E-03
4,4'-DDT	0.039		9.37E-03	1.26E+00	2.83E-03
Aldrin	0.012		7.05E-01	7.00E-02	1.60E-03
Dieldrin	0.034		8.96E-02	5.00E-02	2.71E-03
Endosulfan I	0.095		2.37E-01	6.00E-02	8.79E-03
Endrin	0.03		8.96E-02	5.00E-02	2.39E-03
Heptachlor epoxide	0.055		2.93E-02	1.40E+00	4.09E-03
Metals					
Aluminum		2.050	4.00E-03	2.20E-01	4.31E-01
Antimony	7.5		2.00E-01	2.20E-01	6.70E-01
Arsenic	32.1		3.60E-02	1.10E-01	2.41E+00
Cadmium	6.6	5.4.E-04	3.64E-01	9.60E-01	6.84E-01
Chromium	439	0.006	7.50E-03	1.00E-02	3.18E+01
Cobalt	205.5		8.10E-02	1.22E-01	1.62E+01
Copper	209	0.0112	4.00E-01	4.00E-02	2.23E+01
Cyanide	2		1.00E+00	1.12E+00	3.19E-01
Iron		3.41	4.00E-03	2.20E-01	7.16E-01
Lead	122	0.0263	4.50E-02	3.00E-02	9.24E+00
Manganese	310500		2.50E-01	5.40E-02	2.91E+04
Nickel	342	3.6.E-03	3.20E-02	2.00E-02	2.55E+01
Selenium	145.5	2.45.E-03	1.60E-02	2.20E-01	1.07E+01
Silver	3.05		4.00E-01	2.20E-01	3.26E-01
Thallium	162.5		4.00E-03	2.20E-01	1.17E+01
Vanadium	182		5.50E-03	2.20E-01	1.32E+01
Zinc	329	0.19	1.20E-12	5.60E-01	2.37E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

### TABLE G-4E Red Fox (Vulpes vulpes) EXPOSURE - SEAD-1211 SOIL SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity

					Small Mammal	
			Soil-To-Plant	Soil-To-Soil	BAF	
1	Surface Soil		(mg COPC/kg	Invertebrate BAF	(mg COPC/kg	Red Fox
	(0-2 ft bgs)		dry tissue)/(mg	(mg COPC/kg wet	wet tissue)/(mg	Surface Soil
	EPC	Surface Water EPC		tissue)/(mg	COPC/kg dry	Exposure
COPC	(mg/kg)	(mg/L)	soil)	COPC/kg dry soil)	soil)	(mg/kg/day)
Semivolatile Organic Compo						
Acenaphthene	6.1	_	2.10E-01	7.00E-02	4.61E-04	1.75E-02
Acenaphthylene	0.56		1.72E-01	7.00E-02	4.61E-04	1.56E-03
Anthracene	12		1.04E-01	7.00E-02	4.61E-04	3.15E-02
Benzo(a)anthracene	28		2.02E-02	3.00E-02	1.46E-04	5.38E-02
Benzo(a)pyrene	23		1.10E-02	7.00E-02	4.61E-04	5.53E-02
Benzo(b)fluoranthene	29		1.01E-02	7.00E-02	5.46E-04	7.00E-02
Benzo(ghi)perylene	29		5.70E-03	7.00E-02	4.61E-04	6.93E-02
Benzo(k)fluoranthene	21		1.01E-02	8.00E-02	5.43E-04	5.31E-02
Bis(2-Ethylhexyl)phthalate	1.6		3.80E-02	4.00E-02	5.50E-05	3.30E-03
Carbazole	6.8		2.74E-01	6.00E-02	6.29E-01	6.39E-01
Chrysene	32		1.87E-02	4.00E-02	1.88E-04	6.52E-02
Dibenz(a,h)anthracene	4.6		6.40E-03	7.00E-02	1.21E-03	1.15E-02
Dibenzofuran	2		1.61E-01	5.00E-02	5.50E-01	1.64E-01
Fluoranthene	62		3.72E-02	7.00E-02	4.61E-04	1.53E-01
Fluorene	4.2		1.49E-01	7.00E-02	4.61E-04	1.15E-02
Indeno(1,2,3-cd)pyrene	8.1		3.90E-03	8.00E-02	2.82E-03	2.30E-02
Naphthalene	0.63		4.20E-01	7.00E-02	4.61E-04	2.12E-03
Phenanthrene	52		1.02E-01	7.00E-02	4.61E-04	1.36E-01
Pyrene	64		4.43E-02	7.00E-02	4.61E-04	1.59E-01
PCBs						*
Aroclor-1254	0.03		1.00E-02	1.13E+00	5.52E-04	4.36E-04
Aroclor-1260	0.046		1.00E-02	1.13E+00	5.52E-04	6.68E-04
Pesticides						
4,4'-DDE	0.034		9.37E-03	1.26E+00	6.18E-04	5.45E-04
4,4'-DDT	0.039		9.37E-03	1.26E+00	6.18E-04	6.25E-04
Aldrin	0.012		7.05E-01	7.00E-02	7.97E-01	1.43E-03
Dieldrin	0.034		8.96E-02	5.00E-02	4.75E-01	2.42E-03
Endosulfan I	0.095		2.37E-01	6.00E-02	6.06E-01	8.60E-03
Endrin	0.03		8.96E-02	5.00E-02	4.75E-01	2.13E-03
Heptachlor epoxide	0.055		2.93E-02	1.40E+00	3.55E-05	9.67E-04
Metals	,					
Aluminum		2.050	4.00E-03	2.20E-01	1.50E-03	1.77E-01
Antimony	7.5		2.00E-01	2.20E-01	1.00E-03	3.48E-02
Arsenic	32.1		3.60E-02	1.10E-01	2.00E-03	1.01E-01
Cadmium	6.6	5.4.E-04	3.64E-01	9.60E-01	5.50E-04	8.86E-02
Chromium	439	0.006	7.50E-03	1.00E-02	5.50E-03	1.07E+00
Cobalt	205.5		8.10E-02	1.22E-01	2.00E-02	1.23E+00
Соррег	209	0.0112	4.00E-01	4.00E-02	1.00E-02	9.11E-01
Cyanide	2		1.00E+00	1.12E+00	1.00E+00	3.23E-01
Iron		3.41	4.00E-03	2.20E-01	2.00E-02	2.94E-01
Lead	122	0.0263	4.50E-02	3.00E-02	3.00E-04	2.47E-01
Manganese	310500		2.50E-01	5.40E-02	4.00E-04	8.61E+02
Nickel	342	3.6.E-03	3.20E-02	2.00E-02	6.00E-03	9.18E-01
Selenium	145.5	2.45.E-03	1.60E-02	2.20E-01	1.50E-02	9.07E-01
Silver	3.05		4.00E-01	2.20E-01	3.00E-03	1.65E-02
Thallium	162.5		4.00E-03	2.20E-01	4.00E-02	1.60E+00
Vanadium	182		5.50E-03	2.20E-01	2.50E-03	8.00E-01
Zinc	329	0.19	1.20E-12	5.60E-01	1.00E-01	7.38E+00

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

(1) Exposure = [(Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*ADF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFFJ/BW

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless) BW = Body weight (kg)

### TABLE G-5A DEER MOUSE (Peromyscus maniculatus) EXPOSURE - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

Seneca Army Depot Activity

СОРС	Ditch Soil EPC (mg/kg)	Surface Water EPC (mg/L)	SP (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Terrestrial Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Deer Mouse Ditch Soil Exposure (mg/kg/day)
Semivolatile Organic Compounds	5				
Acenaphthene	0.74		2.10E-01	7.0E-02	2.69E-02
Acenaphthylene	0.42		1.72E-01	7.0E-02	1.45E-02
Anthracene	1.8		1.04E-01	7.0E-02	5.68E-02
Benzo(a)anthracene	14		2.02E-02	3.0E-02	1.86E-01
Benzo(a)pyrene	16		1.10E-02	7.0E-02	4.39E-01
Benzo(b)fluoranthene	22		1.01E-02	7.0E-02	6.02E-01
Benzo(ghi)perylene	12		5.70E-03	7.0E-02	3.26E-01
Benzo(k)fluoranthene	23		1.01E-02	8.0E-02	7.13E-01
Butylbenzylphthalate	0.42		7.15E-02	5.0E-02	9.59E-03
Carbazole	1.6		2.74E-01	6.0E-02	5.68E-02
Chrysene	25		1.87E-02	4.0E-02	4.21E-01
Dibenz(a,h)anthracene	5		6.40E-03	7.0E-02	1.36E-01
Dibenzofuran	0.356		1.61E-01	5.0E-02	9.53E-03
Fluoranthene	24		3.72E-02	7.0E-02	6.86E-01
Fluorene	0.645		1.49E-01	7.0E-02	2.16E-02
Indeno(1,2,3-cd)pyrene	12		3.90E-03	8.0E-02	3.69E-01
Naphthalene	0.35		4.20E-01	7.0E-02	1.60E-02
Phenanthrene	6.25		1.02E-01	7.0E-02	1.97E-01
Phenol	0.315		5.55E+00	1.1E-01	9.10E-02
Pyrene	17		4.43E-02	7.0E-02	4.91E-01
PCBs					
Aroclor-1254	0.067		1.00E-02	1.1E+00	2.77E-02
Aroclor-1260	0.014		1.00E-02	1.1E+00	5.78E-03
Pesticides					
4,4'-DDE	0.0076		9.37E-03	1.3E+00	3.48E-03
Metals					
Aluminum		2.05	4.00E-03	2.2E-01	3.10E-01
Arsenic	104		3.60E-02	1.1E-01	4.48E+00
Cadmium	0.8	5.4E-04	3.64E-01	9.6E-01	2.94E-01
Chromium	83.9	0.006	7.50E-03	1.0E-02	4.55E-01
Cobalt	91.9		8.10E-02	1.2E-01	4.54E+00
Copper	130	0.0112	4.00E-01	4.0E-02	4.40E+00
Iron		3.4	4.00E-03	2.2E-01	5.15E-01
Lead	93.3	0.0263	4.50E-02	3.0E-02	1.34E+00
Manganese	14,900		2.50E-01	5.4E-02	4.80E+02
Mercury	0.18		3.75E-02	4.0E-02	3.18E-03
Nickel	153	3.6E-03	3.20E-02	2.0E-02	1.55E+00
Selenium	18	2.45E-03	1.60E-02	2.2E-01	1.48E+00
Silver	10.5		4.00E-01	2.2E-01	1.04E+00
Thallium	21.5		4.00E-03	2.2E-01	1.76E+00
Vanadium	69.4		5.50E-03	2.2E-01	5.67E+00
Zinc	532	0.190	1.20E-12	5.6E-01	1.09E+02

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF}/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

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### **TABLE G-5B**

### AMERICAN ROBIN (Turdus migratorius) EXPOSURE - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity

			Soil-To-Plant	Soil-To-Soil	
conc	Ditch Soil EPC	Surface Water EPC	Uptake Factor (mg COPC/kg dry tissue)/(mg	Invertebrate BAF (mg COPC/kg wet tissue)/(mg	American Robin Ditch Soil Exposure
COPC	(mg/kg)	(mg/L)	COPC/kg dry soil)	COPC/kg dry soil)	(mg/kg/day)
Semivolatile Organic Com					
Acenaphthene	0.74		2.10E-01	7.00E-02	3.29E-02
Acenaphthylene	0.42		1.72E-01	7.00E-02	1.86E-02
Anthracene	1.8		1.04E-01	7.00E-02	7.89E-02
Benzo(a)anthracene	14		2.02E-02	3.00E-02	3.75E-01
Benzo(a)pyrene	16		1.10E-02	7.00E-02	6.92E-01
Benzo(b)fluoranthene	22		1.01E-02	7.00E-02	9.52E-01
Benzo(ghi)perylene	12		5.70E-03	7.00E-02	5.19E-01
Benzo(k)fluoranthene	23		1.01E-02	8.00E-02	1.09E+00
Butylbenzylphthalate	0.42		7.15E-02	5.00E-02	1.49E-02
Carbazole	1.6		2.74E-01	6.00E-02	6.52E-02
Chrysene	25		1.87E-02	4.00E-02	7.73E-01
Dibenz(a,h)anthracene	5		6.40E-03	7.00E-02	2.16E-01
Dibenzofuran	0.3555		1.61E-01	5.00E-02	1.28E-02
Fluoranthene	24		3.72E-02	7.00E-02	1.04E+00
Fluorene	0.645		1.49E-01	7.00E-02	2.85E-02
Indeno(1,2,3-cd)pyrene	12		3.90E-03	8.00E-02	5.68E-01
Naphthalene	0.35		4.20E-01	7.00E-02	1.60E-02
Phenanthrene	6.25		1.02E-01	7.00E-02	2,74E-01
Phenol	0.315		5.55E+00	1.10E-01	2.97E-02
Pyrene	17		4.43E-02	7.00E-02	7.39E-01
PCBs					
Aroclor-1254	0.067		1.00E-02	1.13E+00	3.22E-02
Aroclor-1260	0.014		1.00E-02	1.13E+00	6.73E-03
Pesticides					
4,4'-DDE	0.00755	***************************************	9.37E-03	1.26E+00	4.04E-03
Metals					
Aluminum		2.05	4.00E-03	2.20E-01	2.81E-01
Arsenic	104		3.60E-02	1.10E-01	6.23E+00
Cadmium	0.8	5.4E-04	3.64E-01	9.60E-01	3.30E-01
Chromium	83.9	0.01	7.50E-03	1.00E-02	1.55E+00
Cobalt	91.9		8.10E-02	1.22E-01	5.99E+00
Copper	130	0.01	4,00E-01	4.00E-02	4.33E+00
Iron		3.4	4.00E-03	2.20E-01	4.67E-01
Lead	93	0.03	4.50E-02	3.00E-02	2.52E+00
			1.505.02	5.000 02	2,5215.00

2.50E-01

3.75E-02

3.20E-02

1.60E-02

4.00E-01

4.00E-03

5.50E-03

1.20E-12

5.40E-02

4.00E-02

2.00E-02

2.20E-01

2.20E-01

2.20E-01

2.20E-01

5.60E-01

5.68E+02

5.59E-03

3.48E+00

1.89E+00

1.13E+00

2.26E+00

7.30E+00

1.31E+02

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

14,900

0.18

153

18

10.5

21.5

69.4

532

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

3.6E-03

2.5E-03

0.19

Cs = Soil concentration (mg/kg)

Manganese

Mercury

Selenium

Thallium

Vanadium

Nickel

Silver

Zinc

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

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### **TABLE G-5C**

### Short-Tailed Shrew (Blarina brevicauda) EXPOSURE - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

Seneca Army Depot Activity

	Ditch Soil EPC	Surface Water EDC	Soil-To-Plant (mg COPC/kg dry tissue)/(mg COPC/kg	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg	Small Mammal BAF (mg COPC/kg wet tissue)/(mg COPC/kg	Short-Tailed Shrew Ditch
COPC	(mg/kg)	(mg/L)	dry soil)	dry soil)	dry soil)	(mg/kg/day)
Semivolatile Organic Cor		(mg/z)	ary sorty		41,5011,	(mg ng any)
Acenaphthene	0.74	T	2.10E-01	7.00E-02	4.61E-04	3.89E-02
Acenaphthylene	0.42		1.72E-01	7.00E-02	4.61E-04	2.20E-02
Anthracene	1.8		1.04E-01	7.00E-02	4.61E-04	9.33E-02
Benzo(a)anthracene	14		2.02E-02	3.00E-02	1.46E-04	4.18E-01
Benzo(a)pyrene	16		1.10E-02	7.00E-02	4.61E-04	8.20E-01
Benzo(b)fluoranthene	22		1.01E-02	7.00E-02	5.46E-04	1.13E+00
Benzo(ghi)perylene	12		5.70E-03	7.00E-02	4.61E-04	6.14E-01
Benzo(k)fluoranthene	23		1.01E-02	8.00E-02	5.43E-04	1.30E+00
Butylbenzylphthalate	0.42		7.15E-02	5.00E-02	4.49E-01	2.66E-02
Carbazole	1.6		2.74E-01	6.00E-02	6.29E-01	1.27E-01
Chrysene	25		1.87E-02	4.00E-02	1.88E-04	8.80E-01
Dibenz(a,h)anthracene	5		6.40E-03	7.00E-02	1.21E-03	2.56E-01
Dibenzofuran	0.3555		1.61E-01	5.00E-02	5.50E-01	2.46E-02
Fluoranthene	24		3.72E-02	7.00E-02	4.61E-04	1.23E+00
Fluorene	0.645		1.49E-01	7.00E-02	4.61E-04	3.36E-02
Indeno(1,2,3-cd)pyrene	12		3.90E-03	8.00E-02	2.82E-03	6.80E-01
Naphthalene	0.35		4.20E-01	7.00E-02	4.61E-04	1.89E-02
Phenanthrene	6.25		1.02E-01	7.00E-02	4.61E-04	3.24E-01
Phenol	0.315		5.55E+00	1.10E-01	1.34E+00	5.57E-02
Pyrene	17		4,43E-02	7.00E-02	4.61E-04	8.75E-01
PCBs						
Aroclor-1254	0.067		1.00E-02	1.13E+00	5.52E-04	4.15E-02
Aroclor-1260	0.014		1.00E-02	1.13E+00	5.52E-04	8.68E-03
Pesticides						
4,4'-DDE	0.00755		9.37E-03	1.26E+00	6.18E-04	5.21E-03
Metals			·			
Aluminum		2.05	4.00E-03	2.20E-01	1.50E-03	3.10E-01
Arsenic	104		3.60E-02	1.10E-01	2.00E-03	7.59E+00
Cadmium	0.8	5.4E-04	3.64E-01	9.60E-01	5.50E-04	4.25E-01
Chromium	83.9	0.01	7.50E-03	1.00E-02	5.50E-03	1.62E+00
Cobalt	91.9		8.10E-02	1.22E-01	2.00E-02	7.40E+00
Copper	130	0.01	4.00E-01	4.00E-02	1.00E-02	4.97E+00
Iron		3.4	4.00E-03	2.20E-01	2.00E-02	5.15E-01
Lead	93	0.03	4.50E-02	3.00E-02	3.00E-04	2.80E+00
Manganese	14,900		2.50E-01	5.40E-02	4.00E-04	6.59E+02
Мегсигу	0.18		3.75E-02	4.00E-02	2.50E-01	8.61E-03
Nickel	153	3.6E-03	3.20E-02	2.00E-02	6.00E-03	3.80E+00
Selenium	18	2.5E-03	1.60E-02	2.20E-01	1.50E-02	2.38E+00
Silver	10.5		4.00E-01	2.20E-01	3.00E-03	1.41E+00
Thallium	21.5		4.00E-03	2.20E-01	4.00E-02	2.87E+00
Vanadium	69.4		5.50E-03	2.20E-01	2.50E-03	9.14E+00
Zinc	532	0.19	1.20E-12	5.60E-01	1.00E-01	1.70E+02

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \ Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*IS) + (Cw*WR))*SFF]/BW) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*PDF*FR) + (Cs*ISP*CF*FR) +$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg/day)

SFF = Site foraging frequency = 1 (unitless)

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### TABLE G-5D

### MEADOW VOLE (Microtus pennsylvanicus) EXPOSURE - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-121I RI Report

Seneca Army Depot Activity

			Soil-To-Plant Uptake	Soil-To-Soil	
			Factor	Invertebrate BAF	Meadow Vole
	Ditch Soil		(mg COPC/kg dry	(mg COPC/kg wet	Ditch Soil
	EPC	Surface Water EPC	tissue)/(mg COPC/kg	tissue)/(mg COPC/kg	Exposure
COPC	(mg/kg)	(mg/L)	dry soil)	dry soil)	(mg/kg/day)
		(IIIg/L)	diy son)	ury son)	(116/16/01)
Semivolatile Organic Com	<u> </u>		2 105 01	7.000.02	( (75 02
Acenaphthene	0.74		2.10E-01	7.00E-02	6.67E-02
Acenaphthylene	0.42		_ 1.72E-01	7.00E-02	3.65E-02
Anthracene	1.8		1.04E-01	7.00E-02	1.46E-01
Benzo(a)anthracene	14		2.02E-02	3.00E-02	1.03E+00
Benzo(a)pyrene	16		1.10E-02	7.00E-02	1.16E+00
Benzo(b)fluoranthene	22		1.01E-02	7.00E-02	1.60E+00
Benzo(ghi)perylene	12		5.70E-03	7.00E-02	8.68E-01
Benzo(k)fluoranthene	23		1.01E-02	8.00E-02	1.67E+00
Butylbenzylphthalate	0.42		7.15E-02	5.00E-02	3.28E-02
Carbazole	1.6		2.74E-01	6.00E-02	1.53E-01
Chrysene	25		1.87E-02	4.00E-02	1.84E+00
Dibenz(a,h)anthracene	5		6.40E-03	7.00E-02	3.62E-01
Dibenzofuran	0.3555		1.61E-01	5.00E-02	3.05E-02
Fluoranthene	24		3.72E-02	7.00E-02	1.80E+00
Fluorene	0.645		1.49E-01	7.00E-02	5.47E-02
Indeno(1,2,3-cd)pyrene	12		3.90E-03	·8.00E-02	8.66E-01
Naphthalene	0.35		4.20E-01	7.00E-02	3.80E-02
Phenanthrene	6.25		1.02E-01	7.00E-02	5.04E-01
Phenol	0.315		5.55E+00	1.10E-01	1.76E-01
Pyrene	17		4.43E-02	7.00E-02	1.29E+00
PCBs					
Aroclor-1254	0.067		1.00E-02	1.13E+00	4.87E-03
Aroclor-1260	0.014		1.00E-02	1.13E+00	1.02E-03
Pesticides					
4,4'-DDE	0.00755		9.37E-03	1.26E+00	5.48E-04
Metals					
Aluminum		2.05	4.00E-03	2.20E-01	4.31E-01
Arsenic	104		3.60E-02	1.10E-01	7.79E+00
Cadmium	0.8	5.4E-04	3.64E-01	9.60E-01	8.30E-02
Chromium	83.9	0.01	7.50E-03	1.00E-02	6.08E+00
Cobalt	91.9		8.10E-02	1.22E-01	7.25E+00
Copper	130	0.01	4.00E-01	4.00E-02	1.39E+01
Iron		3.4	4.00E-03	2.20E-01	7.16E-01
Lead	93	0.03	4.50E-02	3.00E-02	7.07E+00
Manganese	14,900		2.50E-01	5.40E-02	1.40E+03
Мегсигу	0.18		3.75E-02	4.00E-02	1.35E-02
Nickel	153	3.6E-03	3.20E-02	2.00E-02	1.14E+01
Selenium	18	2.5E-03	1.60E-02	2.20E-01	1.32E+00
Silver	10.5		4.00E-01	2.20E-01	1.12E+00
Thallium	21.5		4.00E-03	2.20E-01	1.55E+00
Vanadium	69.4		5.50E-03	2.20E-01	5.02E+00
Zinc	532	0.19	1.20E-12	5.60E-01	3.82E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ls = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

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### **TABLE G-5E**

### RED FOX (Vulpes vulpes) Exposure - SEAD-121I DITCH SOIL SEAD-121C AND SEAD-121I RI Report

Seneca	Army	Depot	Activity
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СОРС	Ditch Soil EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Small Mammal BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Red Fox Ditch Soil Exposure (mg/kg/day)
Semivolatile Organic Cor	npounds					
Acenaphthene	0.74		2.10E-01	7.00E-02	4.61E-04	2.12E-03
Acenaphthylene	0.42		1.72E-01	7.00E-02	4.61E-04	1.17E-03
Anthracene	1.8		1.04E-01	7.00E-02	4.61E-04	4.72E-03
Benzo(a)anthracene	14		2.02E-02	3.00E-02	1.46E-04	2.69E-02
Benzo(a)pyrene	16		1.10E-02	7.00E-02	4.61E-04	3.84E-02
Benzo(b)fluoranthene	22		1.01E-02	7.00E-02	5.46E-04	5.31E-02
Benzo(ghi)perylene	12		5.70E-03	7.00E-02	4.61E-04	2.87E-02
Benzo(k)fluoranthene	23		1.01E-02	8.00E-02	5.43E-04	5.81E-02
Butylbenzylphthalate	0.42		7.15E-02	5.00E-02	4.49E-01	2.82E-02
Carbazole	1.6		2.74E-01	6.00E-02	6.29E-01	1.50E-01
Chrysene	25		1.87E-02	4.00E-02	1.88E-04	5.10E-02
Dibenz(a,h)anthracene	5		6.40E-03	7.00E-02	1.21E-03	1.25E-02
Dibenzofuran	0.3555		1.61E-01	5.00E-02	5.50E-01	2.92E-02
Fluoranthene	24		3.72E-02	7.00E-02	4.61E-04	5.91E-02
Fluorene	0.645		1.49E-01	7.00E-02	4.61E-04	1.76E-03
Indeno(1,2,3-cd)pyrene	12		3.90E-03	8.00E-02	· 2.82E-03	3.41E-02
Naphthalene	0.35		4.20E-01	7.00E-02	4.61E-04	1.18E-03
Phenanthrene	6.25		1.02E-01	7.00E-02	4.61E-04	1.64E-02
Phenol	0.315		5,55E+00	1.10E-01	1.34E+00	6.60E-02
Pyrene	17		4.43E-02	7.00E-02	4.61E-04	4.22E-02
PCBs	1					
Aroclor-1254	0.067		1.00E-02	1.13E+00	5.52E-04	9.73E-04
Aroclor-1260	0.014		1.00E-02	1.13E+00	, 5.52E-04	2.03E-04
Pesticides	.1				. ,	
4.4'-DDE	0.00755		9.37E-03	1.26E+00	6.18E-04	1.21E-04
Metals	1 0,00,00				1	
Aluminum		2.05	4.00E-03	2.20E-01	1.50E-03	1.77E-01
Arsenic	104	2.00	3.60E-02	1.10E-01	2.00E-03	3.27E-01
Cadmium	0.8	5.4E-04	3.64E-01	9.60E-01	5.50E-04	1.08E-02
Chromium	83.9	0.01	7.50E-03	1.00E-02	5.50E-03	2.05E-01
Cobalt	91.9	0.01	8.10E-02	1.22E-01	2.00E-02	5.51E-01
Copper	130	0.01	4.00E-01	4.00E-02	1.00E-02	5.67E-01
Iron	150	3.4	4.00E-03	2.20E-01	2.00E-02	2.94E-01
Lead	93	0.03	4.50E-02	3.00E-02	3.00E-04	1.89E-01
Manganese	14,900	0.00	2.50E-01	5.40E-02	4.00E-04	4.13E+01
Mercury	0.18		3.75E-02	4.00E-02	2.50E-01	6.89E-03
Nickel	153	3.6E-03	3.20E-02	2.00E-02	6.00E-03	4.11E-01
Selenium	18	2.5E-03	1.60E-02	2.20E-01	1.50E-02	1.12E-01
Silver	10.5	2.315-03	4.00E-01	2.20E-01	3.00E-03	5.67E-02
Thallium	21.5		4.00E-01	2.20E-01	4.00E-02	2.11E-01
Vanadium	69.4		5.50E-03	2.20E-01	2.50E-03	3.05E-01
Zinc	532	0.19	1.20E-12	5.60E-01	1.00E-01	1.19E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \, \text{Exposure} = [((Cs^*SP^*CF^*PDF^*FR) + (Cs^*IDF^*BAF^*FR) + (Cs^*ADF^*BAF^*FR) + (Cs^*Is) + (Cw^*WR))^*SFFJ/BW)$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

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### **TABLE G-5F**

### GREAT BLUE HERON (Ardea herodias) EXPOSURE - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

СОРС	Ditch Soil EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Soil-To-Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Small Mammal BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Great Blue Heron Ditch Soil and Surface Water Exposure (mg/kg/day)
Semivolatile Organic Com	pounds	·				
Acenaphthene	0.74		2.10E-01	7.00E-02	4.61E-04	6.76E-03
Acenaphthylene	0.42		1.72E-01	7.00E-02	4.61E-04	3.84E-03
Anthracene	1.8		1.04E-01	7.00E-02	4.61E-04	1.64E-02
Benzo(a)anthracene	14		2.02E-02	3.00E-02	1.46E-04	1.25E-01
Benzo(a)pyrene	16		1.10E-02	7.00E-02	4.61E-04	1.46E-01
Benzo(b)fluoranthene	22		1.01E-02	7.00E-02	5.46E-04	2.01E-01
Benzo(ghi)perylene	12		5.70E-03	7.00E-02	4.61E-04	1.10E-01
Benzo(k)fluoranthene	23		1.01E-02	8.00E-02	5.43E-04	2.11E-01
Butylbenzylphthalate,	0.42		7.15E-02	5.00E-02	4.49E-01	3.70E-02
Carbazole	1.6		2.74E-01	6.00E-02	6.29E-01	1.92E-01
Chrysene	25		1.87E-02	4.00E-02	1.88E-04	2.24E-01
Dibenz(a,h)anthracene	5		6.40E-03	7.00E-02	1.21E-03	4.63E-02
Dibenzofuran	0.3555		1.61E-01	5.00E-02	5.50E-01	3.77E-02
Fluoranthene	24		3.72E-02	7.00E-02	4.61E-04	2.19E-01
Fluorene	0.645		1.49E-01	7.00E-02	4.61E-04	5.89E-03
Indeno(1,2,3-cd)pyrene	12		3.90E-03	8.00E-02	2.82E-03	1.15E-01
Naphthalene	0.35		4.20E-01	7.00E-02	4.61E-04	3.20E-03
Phenanthrene	6.25		1.02E-01	7.00E-02	4.61E-04	5.71E-02
Phenol	0.315		5.55E+00	1.10E-01	1.34E+00	7.72E-02
Pyrene	17		4.43E-02	7.00E-02	4.61E-04	1.55E-01
PCBs	1 17		4.456-02	7.002-02	4.012-04	1.552-01
Aroclor-1254	0.067		1.00E-02	1.13E+00	5.52E-04	8.69E-04
Aroclor-1260	0.014		1.00E-02	1.13E+00	5.52E-04	1.81E-04
Pesticides	_10.014		1.0015-02	1.15E100	J.J2L-04	1.01L-04
4,4'-DDE	0.00755		9.37E-03	1.26E+00	6.18E-04	1.01E-04
Metals	0.00733		9.57E-05	1.201.00	0.182-04	1.012-04
Aluminum		2.05	4.00E-03	2.20E-01	1.50E-03	9.23E-02
Arsenic	104	2.03	3.60E-02	1.10E-01	2.00E-03	9.93E-01
Cadmium	0.8	5.4E-04	3.64E-01	9.60E-01	5.50E-04	9.91E-03
Chromium	83.9	0.01	7.50E-03	1.00E-02	5.50E-03	8.23E-01
Cobalt	91.9	0.01	8.10E-02	1.22E-01	2.00E-02	1.17E+00
Copper	130	0.01	4.00E-01	4.00E-02	1.00E-02	1.39E+00
Iron	130	3.4	4.00E-01 4.00E-03	2.20E-01	2.00E-02	1.53E-01
Lead	93	0.03	4.50E-02	3.00E-02	3.00E-04	8.37E-01
	14,900	0.03	4.50E-02 2.50E-01	5.40E-02	4.00E-04	1.35E+02
Manganese	0.18			5.40E-02 4.00E-02	2.50E-01	9.55E-03
Mercury Nickel		2 (F 02	3.75E-02	4.00E-02 2.00E-02	6.00E-03	9.55E-03 1.52E+00
	153	3.6E-03	3.20E-02			
Selenium	18	2.5E-03	1.60E-02	2.20E-01	1.50E-02	2.20E-01
Silver	10.5		4.00E-01	2.20E-01	3.00E-03	1.06E-01
Thallium	21.5		4.00E-03	2.20E-01	4.00E-02	3.58E-01
Vanadium	69.4	0.10	5.50E-03	2.20E-01	2.50E-03	6.96E-01
Zinc	532	0.19	1.20E-12	5.60E-01	1.00E-01	1.51E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the maximum detected concentration

BAF = Bioaccumulation Factor (unitless)

 $(1) \ \, Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW* \\ (2) \ \, Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW* \\ (3) \ \, Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW* \\ (3) \ \, Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW* \\ (4) \ \, Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW* \\ (4) \ \, Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW* \\ (4) \ \, Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW* \\ (4) \ \, Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW* \\ (4) \ \, Exposure = [((Cs*SP*CF*PDF*FR) + (Cs*ADF*BAF*FR) + (Cs*ADF*ADF*FR) + (Cs*ADF*ADF*FR) + (Cs*ADF*ADF*FR) + (Cs*ADF*FR) + (Cs*ADF*ADF*FR) + (Cs*ADF$ 

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

ADF = Animal dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# TABLE G-6A DEER MOUSE (Peromyscus maniculatus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

Para Xylene   0.11   2.4   5.48E-01   2.4E-01   1.26E-02     Para Xylene   0.11   2.4   5.48E-01   2.4E-01   1.26E-02     Independent   1.3   0.95   1.02E-01   7.0E-02   3.97E-02     Independent   1.9   1.4   1.00E-02   7.0E-02   3.97E-02     Independent   1.9   1.4   1.00E-02   7.0E-02   5.58E-02     Independent   1.9   1.4   1.00E-02   1.1E+00   2.28E-02     Independent   1.0   1.0   1.3E+00   2.99E-03     Independent   1.0   1.5   1.3E+00   2.99E-03     Independent   1.0   1.5   1.3E+01   3.0E-01   3.0E-01     Independent   1.1   1.1   1.1   4.0E-02   3.0E-01   1.1     Independent   1.1   1.1   1.1   4.0E-02   1.1     Independent   1.1   1.1   1.1     Independent   1.1   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Independent   1.1   1.1     Ind	COPC	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Total Soil (0-4 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	SP (mg COPC/kg dry tissue)/(mg COPC/kg dry soil)	Terrestrial Invertebrate BAF (mg COPC/kg wet tissue)/(mg COPC/kg dry soil)	Deer Mouse Surface Soil Exposure (mg/kg/day)	Deer Mouse Total Soil Exposure (mg/kg/day)
Alatile Organic Compounds         0.11         2.4         1.26E-02         1.26E-01         1.26E-02           Alatile Organic Compounds         1.3         0.95         1.02E-01         7.0E-02         3.97E-02           1-1.54         0.06         0.04         1.00E-02         7.0E-02         5.58E-02           1-1.554         0.06         0.04         1.00E-02         1.1E+00         2.28E-02           1-1.554         0.01         0.01         0.01         0.01         0.01         0.01           DT         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01	Volatile Organic Compounds							
nathrene         1.3         0.95         1.02E-01         7.0E-02         3.97E-02           stricted         1.9         1.4         1.4         4.43E-02         7.0E-02         5.58E-02           stricted         0.06         0.04         1.00E-02         1.1E+00         2.28E-02           ldes         0.06         0.04         1.00E-02         1.1E+00         2.28E-02           pT         0.01         0.01         0.01         0.01         2.28E-01         2.28E-01           pT         0.01         0.01         0.01         0.01         0.22E-01         2.29E-01           pum         231         199         1.50E-01         9.1E-02         9.3E-01         1.50E+01           r         4.1         3.0         0.0195         3.6E-01         9.6E-01         1.50E+01           r         7.35         550         0.0839         4.50E-02         1.0E-02         1.0E+01           r         1.6         1.2         0.008         4.00E-01         3.0E-02         1.0E+01           r         1.5         0.008         4.00E-01         2.2E-01         1.6E+01           r         0.4         0.4         0.008         4.00E-03<	Meta/Para Xylene	0.11	2.4		5.48E-01	2.4E-01	1.26E-02	2.72E-01
nthrene         1.3         0.95         1.02E-01         7.0E-02         3.97E-02           strict         1.9         1.4         1.0         4.43E-02         7.0E-02         5.58E-02           strict         0.06         0.04         1.00E-02         1.1E+00         2.28E-02           pT         0.01         0.01         9.3TE-03         1.1E+00         2.98E-02           s         10         7.5         2.00E-01         2.9E-01         2.99E-03           ony         10         7.5         2.00E-01         9.1E-02         9.22E-01           n         4.1         3.0         0.0195         3.64E-01         9.6E-01         1.56E-01           r         515         408         1.16         4.00E-02         3.0E-02         1.76E+01           r         735         550         0.839         4.50E-02         3.0E-02         1.76E+01           m         0.4         0.4         0.008         4.00E-01         2.2E-01         9.35E-01           s         1.5         1.2         0.008         4.00E-02         3.0E-02         1.0F-02           s         0.4         0.4         0.008         4.00E-01         2.2E-01         9.35	Semivolatile Organic Compounds							
re-1254         0.06         0.04         1.00E-02         7.0E-02         5.58E-02           ides         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01         0.01	Phenanthrene	1.3	0.95		1.02E-01	7.0E-02	3.97E-02	2.98E-02
rr-1254         0.06         0.04         1.00E-02         1.1E+00         2.28E-02           ides         DT         0.01         0.01         9.37E-03         1.3E+00         2.99E-03           DT         s         1.0         7.5         2.00E-01         2.2E-01         9.22E-01           s         10         7.5         2.00E-01         2.2E-01         9.22E-01         9.22E-01           n         4.1         3.0         0.0195         3.64E-01         9.6E-01         1.50E+00           n         4.1         3.0         0.0195         3.64E-01         9.6E-01         1.50E+01           r         515         408         1.16         4.00E-01         4.0E-02         1.76E+01           r         735         550         0.839         4.50E-02         3.0E-02         1.07E+01           n         0.4         0.4         4.00E-01         2.2E-01         1.6E-01         9.35E+01           n         450         3.55         6.91         1.20E-12         5.6E-01         9.35E+01	Pyrene	1.9	1.4		4.43E-02	7.0E-02	5.58E-02	4.14E-02
vr-1254         0.06         0.04         1.00E-02         1.1E+00         2.28E-02           ides         DT         0.01         0.01         9.37E-03         1.3E+00         2.99E-03           port         s         2.00E-01         2.2E-01         2.99E-03           ony         231         199         0.0195         3.6E-01         9.1E-02         9.53E+00           n         4.1         3.0         0.0195         3.64E-01         9.6E-01         1.50E+00           r         515         408         1.16         4.00E-01         4.0E-02         1.76E+01           r         735         550         0.839         4.50E-02         3.0E-02         1.07E+01           r         1.6         1.2         0.008         4.00E-01         2.2E-01         1.61E-01           n         0.4         0.4         4.00E-03         2.2E-01         3.10E-02           m         0.4         0.5         4.00E-03         5.6E-01         9.35E+01	PCBs							
ldes         0.01         0.01         9.37E-03         1.3E+00         2.99E-03           s         s         1.5         2.00E-01         2.2E-01         9.22E-01           ony         4.1         3.0         0.0195         3.64E-01         9.1E-02         9.53E+00           r         515         408         1.16         4.00E-01         4.0E-02         1.76E+01           r         735         550         0.839         4.50E-02         3.0E-02         1.07E+01           r         1.6         1.2         0.008         4.00E-01         2.2E-01         1.61E-01           m         0.4         0.4         0.4         4.00E-03         2.2E-01         3.10E-02           450         3.55         6.91         1.20E-12         5.6E-01         9.35E+01	Aroclor-1254	90.0	0.04		1.00E-02	1.1E+00	2.28E-02	1.74E-02
DT         0.01         0.01         9.37E-03         1.3E+00         2.99E-03           s         10         7.5         2.00E-01         2.2E-01         9.22E-01           n         231         199         0.0195         3.64E-01         9.1E-02         9.53E+00           n         4.1         3.0         0.0195         3.64E-01         9.6E-01         1.50E+00           r         515         408         1.16         4.00E-01         4.0E-02         1.76E+01           r         735         550         0.839         4.50E-02         3.0E-02         1.07E+01           m         0.4         0.4         4.00E-01         2.2E-01         1.61E-01           450         3.55         6.91         1.20E-12         5.6E-01         9.35E+01	Pesticides							
s         s           ony         10         7.5         2.00E-01         2.2E-01         9.22E-01           n         231         199         1.50E-01         9.1E-02         9.53E+00           r         4.1         3.0         0.0195         3.64E-01         9.6E-01         1.50E+00           r         515         408         1.16         4.00E-01         4.0E-02         1.76E+01           r         735         550         0.839         4.50E-02         3.0E-02         1.07E+01           n         0.4         0.4         4.00E-01         2.2E-01         1.61E-01           n         0.4         0.4         4.00E-03         2.2E-01         3.10E-02           n         450         3.55         6.91         1.20E-12         5.6E-01         9.35E+01	4,4'-DDT	0.01	0.01		9.37E-03	1.3E+00	2.99E-03	2.48E-03
ony         10         7.5         2.00E-01         2.2E-01         9.2E-01           n         231         199         1.50E-01         9.1E-02         9.3E+00           r         4.1         3.0         0.0195         3.64E-01         9.6E-01         1.50E+00           r         515         408         1.16         4.00E-01         4.0E-02         1.76E+01           r         735         550         0.839         4.50E-02         3.0E-02         1.07E+01           m         0.4         0.4         4.00E-01         2.2E-01         1.61E-01           m         0.4         0.4         4.00E-03         2.2E-01         3.10E-02           450         3.5         6.91         1.20E-12         5.6E-01         9.35E+01	Metals							
n         231         199         1.50E-01         9.1E-02         9.53E+00           um         4.1         3.0         0.0195         3.64E-01         9.6E-01         1.50E+00           r         515         408         1.16         4.00E-01         4.0E-02         1.76E+01           r         735         550         0.839         4.50E-02         3.0E-02         1.07E+01           r         1.6         1.2         0.008         4.00E-01         2.2E-01         1.61E-01           m         0.4         0.4         0.0         4.00E-03         2.2E-01         3.10E-02           m         450         3.55         6.91         1.20E-12         5.6E-01         9.35E+01	Antimony	10	7.5		2.00E-01	2.2E-01	9.22E-01	6.80E-01
um         4.1         3.0         0.0195         3.64E-01         9.6E-01         1.50E+00           r         515         408         1.16         4.00E-01         4.0E-02         1.76E+01           r         735         550         0.839         4.50E-02         3.0E-02         1.07E+01           r         1.6         1.2         0.008         4.00E-01         2.2E-01         1.61E-01           r         0.4         0.4         0.0         4.00E-03         2.2E-01         3.10E-02           r         450         355         6.91         1.20E-12         5.6E-01         9.35E+01	Barium	231	199		1.50E-01	9.1E-02	9.53E+00	8.23E+00
r         515         408         1.16         4.00E-01         4.0E-02         1.76E+01           735         550         0.839         4.50E-02         3.0E-02         1.07E+01           1.6         1.2         0.008         4.00E-01         2.2E-01         1.61E-01           1m         0.4         0.4         0.4         4.00E-03         2.2E-01         3.10E-02           450         355         6.91         1.20E-12         5.6E-01         9.35E+01	Cadmium	4.1	3.0	0.0195	3.64E-01	9.6E-01	1.50E+00	1.11E+00
m         735         550         0.839         4.50E-02         3.0E-02         1.07E+01           1.6         1.2         0.008         4.00E-01         2.2E-01         1.61E-01           1m         0.4         0.4         0.4         4.00E-03         2.2E-01         3.10E-02           450         355         6.91         1.20E-12         5.6E-01         9.35E+01	Copper	515	408	1.16	4.00E-01	4.0E-02	1.76E+01	1.40E+01
um         1.6         1.2         0.008         4.00E-01         2.2E-01         1.61E-01           um         0.4         0.4         0.4         4.00E-03         2.2E-01         3.10E-02           450         355         6.91         1.20E-12         5.6E-01         9.35E+01	Lead	735	550	0.839	4.50E-02	3.0E-02	1.07E+01	8.03E+00
ium 0.4 0.4 0.4 4.00E-03 2.2E-01 3.10E-02 450 3.55 6.91 1.20E-12 5.6E-01 9.35E+01	Silver	1.6	1.2	0.008	4.00E-01	2.2E-01	1.61E-01	1.21E-01
450 355 6.91 1.20E-12 5.6E-01 9.35E+01	Thallium	0.4	0.4		4.00E-03	2.2E-01	3.10E-02	3.18E-02
	Zinc	450	355	6.91	1.20E-12	5.6E-01	9.35E+01	7.40E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFFJ/BW Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil)) CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless) PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless) Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)
WR = Water intake rate (L/day)
SFF = Site foraging frequency = 1 (unitless)
BW = Body weight (kg)

### AMERICAN ROBIN (Turdus migratorius) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-6B

				Soil-To-Plant Uptake Factor	Soil-To-Soil Invertebrate BAF	American Robin	American Robin
COPC	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Total Soil (0-4 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	tissue)/(mg COPC/kg dry soil)	wet tissue)/(mg COPC/kg dry soil)	Surface Soil Exposure (mg/kg/day)	Total Soil Exposure (mg/kg/day)
Volatile Organic Compounds							
Meta/Para Xylene	0.11	2.4		5.48E-01	2.40E-01	1.30E-02	2.80E-01
Semivolatile Organic Compound	spuno						
Phenanthrene	1.3	0.95		1.02E-01	7.00E-02	5.53E-02	4.15E-02
Pyrene	1.9	1.4		4.43E-02	7.00E-02	8.39E-02	6.23E-02
PCBs							
Aroclor-1254	90.0	0.04		1.00E-02	1.13E+00	2.65E-02	2.03E-02
Pesticides							
4,4'-DDT	0.01	0.01		9.37E-03	1.26E+00	3.48E-03	2.88E-03
Metals							
Antimony	10	7.5		2.00E-01	2.20E-01	1.08E+00	8.00E-01
Barium	231	199		1.50E-01	9.10E-02	1.22E+01	1.05E+01
Cadmium	4.1	3.0	0.0195	3.64E-01	9.60E-01	1.69E+00	1.25E+00
Copper	515	408	1.16	4.00E-01	4.00E-02	1.73E+01	1.37E+01
Lead	735	550	0.839	4.50E-02	3.00E-02	1.99E+01	1.50E+01
Silver	1.6	1.2	0.008	4.00E-01	2.20E-01	1.74E-01	1.31E-01
Thallium	0.4	0.4		4.00E-03	2.20E-01	3.99E-02	4.09E-02
Zinc	450	355	6.91	1.20E-12	5.60E-01	1.12E+02	8.82E+01

COPC = Chemical of Potential Concern EPC = Exposure Point Concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless) SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW Cs = Soil concentration (mg/kg)
SP = Soil to plant uptake factor from literature
CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless) FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)
WR = Water intake rate (L/day)
SFF = Site foraging frequency = 1 (unitless)
BW = Body weight (kg)

USENECA (PID Area (Report) Draft Final (Risk Assessment) Eco Risk Tables (SEAD-121 C) Econisk\_121 C\_soil.xls\ROBINEXP\_avg

### SHORT-TAILED SHREW (Blarina brevicauda) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-6C

						Small Mammal		
		5		Soil-To-Plant (mg COPC/kg	Soil-To-Soil Invertebrate BAF	BAF (mg COPC/kg	Short-Tailed	IO Follott Month
COPC	(0-2 ft bgs) EPC (mg/kg)	(0-4 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	ory ussue)/(mg COPC/kg dry soil)	(mg COrC/kg wel tissue)/(mg COPC/kg dry soil)	wet ussue)/(mg COPC/kg dry soil)	Soil Exposure (mg/kg/day)	Total Soll Expos (mg/kg/day)
e Organic Compounds	8							
ara Xylene	0.11	2.4		5.48E-01	2.40E-01	7.48E-01	2.05E-02	4.41E-01
latile Organic Compounds	spun							
nthrene	1.3	. 0.95		1.02E-01	7.00E-02	4.61E-04	6.54E-02	4.91E-02
	1.9	1.4		4.43E-02	7.00E-02	4.61E-04	9.93E-02	7.37E-02
r-1254	90.0	0.04		1.00E-02	1.13E+00	5.52E-04	3.42E-02	2.61E-02
ides								
DT	0.01	0.01		9.37E-03	1.26E+00	6.18E-04	4.48E-03	3.72E-03
100	01	37		10 300 6	10 300 0	1 000 00	1 355.00	00 300 1
24.7	231	100		1 50E 01	0 105 00	1 500.04	1.305-100	1.225+00
un	4.1	3.0	0.0195	3.64E-01	9.60E-01	5.50E-04	2.17E+00	1.61E+00
	515	408	1.16	4.00E-01	4.00E-02	1.00E-02	1.99E+01	1.58E+01
	735	550	0.839	4.50E-02	3.00E-02	3.00E-04	2.22E+01	1.66E+01
	1.6	1.2	0.008	4.00E-01	2.20E-01	3.00E-03	2.17E-01	1.63E-01
m	0.4	0.4		4.00E-03	2.20E-01	4.00E-02	5.07E-02	5.19E-02
	450	355	6.91	1.20E-12	5.60E-01	1.00E-01	1.45E+02	1.14E+02

Chemical of Potential Concern

xposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water sioaccumulation Factor (unitless)
ssure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*ADF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

i to plant uptake factor from literature l concentration (mg/kg)

y weight to wet weight plant matter conversion factor = 0.2 (unitless) lant dietary fraction (unitless)

eding rate (kg/day)

vertebrate dietary fraction (unitless) Animal dietary fraction (unitless)

dietary (kg/day)
ite foraging frequency = 1 (unitless)
ody weight (kg)

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# MEADOW VOLE (Microtus pennsylvanicus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report TABLE G-6D

### Seneca Army Depot Activity

				Soil-To-Plant	Soil-To-Soil Invertebrate		
				Uptake Factor (mg COPC/kg dry	BAF (mg COPC/kg	Meadow Vole	Meadow Vole
	Surface Soil (0-2 ft bgs) EPC	Total Soil (0-4 ft bgs) EPC	Surface Water EPC	tissue)/(mg COPC/kg dry	wet tissue)/(mg COPC/kg dry	Surface Soil Exposure	Total Soil Exposure
COPC	(mg/kg)	(mg/kg)	(mg/L)	soil)	soil)	(mg/kg/day)	(mg/kg/day)
Volatile Organic Compounds							
Meta/Para Xylene	0.11	2.4		5.48E-01	2.40E-01	1.33E-02	2.87E-01
Semivolatile Organic Compound	spu						
Phenanthrene	1.3	0.95		1.02E-01	7.00E-02	1.02E-01	7.64E-02
Pyrene	1.9	1.4		4.43E-02	7.00E-02	1.46E-01	1.08E-01
PCBs							
Aroclor-1254	90.0	0.04		1.00E-02	1.13E+00	4.01E-03	3.07E-03
Pesticides							The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon
4,4'-DDT	0.01	0.01		9.37E-03	1.26E+00	4.72E-04	3.92E-04
Metals							
Antimony	10	7.5		2.00E-01	2.20E-01	9.10E-01	6.71E-01
Barium	231	199		1.50E-01	9.10E-02	1.96E+01	1.69E+01
Cadmium	4.1	3.0	0.0195	3.64E-01	9.60E-01	4.28E-01	3.17E-01
Copper	515	408	1.16	4.00E-01	4.00E-02	5.53E+01	4.38E+01
Lead	735	550	0.839	4.50E-02	3.00E-02	5.58E+01	4.19E+01
Silver	1.6	1.2	0.008	4.00E-01	2.20E-01	1.74E-01	1.30E-01
Thallium	0.4	0.4		4.00E-03	2.20E-01	2.74E-02	2.80E-02
Zinc	450	355	6.91	1.20E-12	5.60E-01	3.38E+01	2.70E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water BAF = Bioaccumulation Factor (unitless) SP = Soil to plant uptake factor (unitless)

(1) Exposure =  $[((C_*SP*CF*PDF*FR) + (C_*IDF*BAF*FR) + (C_*IS)+(Cw*WR))*SFFJ/BW$ 

CS = Soil concentration (mg/kg)
SP = Soil to plant uptake factor from literature
CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)
PDF = Plant dietary fraction (unitless)
FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Cw = EPC in surface water (mg COPC/L) Is = Soil dietary (kg dry/day)

 $WR = Water intake rate (L/day) \\ SFF = Site foraging frequency = 1 \text{ (unitless)} \\ BW = Body weight (kg) \\$ 

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# TABLE G-6E RED FOX (Vulpes vulpes) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

				Soil-To-Plant	Soil-To-Soil	Small Mammal BAF		
				(mg COPC/kg	Invertebrate BAF	(mg COPC/kg	Red Fox	\$ \$
	Surface Soil	Total Soil	Surface Water	dry tissue)/(mg COPC/kg dry	(mg COPC/kg wet tissue)/(mg	wet tissue)/(mg COPC/kg drv	Exposure	Red Fox Total So Exposure
COPC	(mg/kg)		EPC (mg/L)	soil)	COPC/kg dry soil)	soil)	(mg/kg/day)	(mg/kg/day)
e Organic Compounds								
Para Xylene	0.11	2.4		5.48E-01	2.40E-01	7.48E-01	1.27E-02	2.73E-01
olatile Organic Compounds	pu							
nthrene	1.3	0.95		1.02E-01	7.00E-02	4.61E-04	3.30E-03_	2.48E-03
4)	1.9	1.4		4.43E-02	7.00E-02	4.61E-04	4.79E-03	3.55E-03
or-1254	90.0	0.04		1.00E-02	1.13E+00	5.52E-04	8.01E-04	6.13E-04
ides								
DT	0.01	0.01		9.37E-03	1.26E+00	6.18E-04	1.04E-04	8.64E-05
S								
lony	10	7.5		2.00E-01	2.20E-01	1.00E-03	4.73E-02	3.49E-02
n	231	199		1.50E-01	9.10E-02	1.50E-04	6.76E-01	5.83E-01
ium	4.1	3.0	0.0195	3.64E-01	9.60E-01	5.50E-04	5.65E-02	4.22E-02
I	515	408	1.16	4.00E-01	4.00E-02	1.00E-02	2.35E+00	1.88E+00
	735	550	0.839	4.50E-02	3.00E-02	3.00E-04	1.54E+00	1.17E+00
	1.6	1.2	0.008	4.00E-01	2.20E-01	3.00E-03	9.38E-03	7.18E-03
mn	0.4	0.4		4.00E-03	2.20E-01	4.00E-02	3.73E-03	3.82E-03
	450	355	6.91	1.20E-12	5.60E-01	1.00E-01	1.07E+01	8.55E+00

<sup>=</sup> Chemical of Potential Conceт

Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

 $Bioaccumulation\ Factor\ (unitless) \\ nosure = [((Cs^*SP^*CF^*PDF^*FR) + (Cs^*IDF^*BAF^*FR) + (Cs^*ADF^*BAF^*FR) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^*Is) + (Cs^$ 

il concentration (mg/kg) il to plant uptake factor from literature

ry weight to wet weight plant matter conversion factor = 0.2 (unitless) Plant dietary fraction (unitless)

eding rate (kg/day)

nvertebrate dietary fraction (unitless) Animal dietary fraction (unitless)

il dietary (kg dry/day)

EPC in surface water (mg COPC/L)

Water intake rate (L/day)

Site foraging frequency = 1 (unitless)

30dy weight (kg)

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DEER MOUSE (Peromyscus maniculatus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-7A

					Deer Mouse
		Surface Water EPC	SF (mg COPC/kg ary tissue)/(mg COPC/kg	(mg COPC/kg wet tissue)/	Diten Soil Exposure
COPC	Ditch Soil EPC (mg/kg)	(mg/L)	dry soil)	(mg COPC/kg dry soil)	(mg/kg/day)
Metals					
Aluminum		8.76	4.00E-03	2.2E-01	1.32E+00
Antimony	2.3		2.00E-01	2.2E-01	2.12E-01
Cadmium	2.8	0.0195	3.64E-01	9.6E-01	1.02E+00
Copper	177	1.16	4.00E-01	4.0E-02	6.15E+00
Cyanide	0.83		1.00E+00	1.1E+00	3.78E-01
ron		110	4.00E-03	2.2E-01	1.66E+01
Cead	144	0.839	4.50E-02	3.0E-02	2.20E+00
Selenium	1.0	0.0046	1.60E-02	2.2E-01	8.50E-02
Zinc	291	6.91	1.20E-12 ·	5.6E-01	6.08E+01

COPC = Chemical of Potential Concern

BPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water 3AF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

[1] Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))
CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)
DDF = Plant dietary fraction (unitless)

 $^{7}R$  = Feeding rate (kg/day)

DF = Invertebrate dietary fraction (unitless)

s = Soil dietary (kg dry/day) Sw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day) SFF = Site foraging frequency = 1 (unitless)

AMERICAN ROBIN (Turdus migratorius) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report TABLE G-7B

## Seneca Army Depot Activity

			Soil-To-Plant Uptake Factor	Soil-To-Soil Invertebrate BAF	American Robin
	Ditch Soil EPC	Surface Water EPC	(mg COPC/kg dry tissue)/	(mg COPC/kg wet tissue)/	Ditch Soil Exposure
COPC	(mg/kg)	(mg/L)	(mg COPC/kg dry soil)	(mg COPC/kg dry soil)	(mg/kg/day)
Metals					
Aluminum		8.76	4.00E-03	2.20E-01	1.20E+00
Antimony	2.3		2.00E-01	2.20E-01	2.49E-01
Cadmium	2.8	0.0195	3.64E-01	9.60E-01	1.14E+00
Copper	177	1.16	4.00E-01	4.00E-02	6.04E+00
Cyanide	0.83		1.00E+00	1.12E+00	4.02E-01
ron		110	4.00E-03	2.20E-01	1.51E+01
Lead	144	0.839	4.50E-02	3.00E-02	4.00E+00
Selenium	1.0	0.0046	1.60E-02	2.20E-01	1.09E-01
Zinc	291	6.91	1.20E-12	5.60E-01	7.24E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless) SP = Soil to plant uptake factor (unitless)

(1) Exposure =  $\{((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFFJ/BW$ 

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

DF = Invertebrate dietary fraction (unitless) (s = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

SHORT-TAILED SHREW (Blarina brevicauda) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity TABLE G-7C

Short-Ta

	Ditch Soil EPC	Surface Water	Soil-To-Plant (mg COPC/kg dry tissue)/	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)	Small Mammal BAF (mg COPC/kg wet tissue)/	Shrew Di
COPC	(mg/kg)	EPC (mg/L)	(mg COPC/kg dry soil)	(mg COPC/kg dry soll)	(mg CUPC/kg dry soll)	(mg/kg/a
als						
ninum		8.76	4.00E-03	2.20E-01	1.50E-03	1.32E+0
mony	2.3		2.00E-01	2.20E-01	1.00E-03	3.11E-0
mium	2.8	0.0195	3.64E-01	9.60E-01	5.50E-04	1.47E+0
per	177	1.16	4.00E-01	4.00E-02	1.00E-02	6.93E+0
nide	0.83		1.00E+00	1.12E+00	1.00E+00	5.58E-0
		110	4.00E-03	2.20E-01	2.00E-02	1.66E+0
T	144	0.839	4.50E-02	3.00E-02	3.00E-04	4.45E+0
nium	1.0	0.0046	1.60E-02	2.20E-01	1.50E-02	1.36E-0
	291	6.91	1.20E-12	5.60E-01	1.00E-01	9.39E+0

C = Chemical of Potential Concern

= Animal dietary fraction (unitless)

<sup>=</sup> Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water = Bioaccumulation Factor (unitless) xposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*BAF\*FR) + (Cs\*ADF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFFJ/BW

Soil concentration (mg/kg)

Soil to plant uptake factor from literature Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

<sup>=</sup> Plant dietary fraction (unitless)

Feeding rate (kg/day)
Invertebrate dietary fraction (unitless)

oil dietary (kg/day)

<sup>=</sup> Site foraging frequency = 1 (unitless)

<sup>·</sup> Body weight (kg)

# TABLE G-7D

# EADOW VOLE (Microtus pennsylvanicus ) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOI SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity

JAOD	Ditch Soil EPC	Surface Water EPC	Soil-To-Plant Uptake Factor (mg COPC/kg dry tissue)/	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Meadow Vol Ditch Soil Exposure (mg/kg/day)
	(9)	(	( G G	(	
tals					; ;
minum		8.76	4.00E-03	2.20E-01	1.84E+00
imony	2.3		2.00E-01	2.20E-01	2.09E-01
mium	2.8	0.0195	3.64E-01	9.60E-01	2.91E-01
per	177	1.16	4.00E-01	4.00E-02	1.91E+01
mide	0.83		1.00E+00	1.12E+00	1.33E-01
1		110	4.00E-03	2.20E-01	2.31E+01
p	144	0.839	4.50E-02	3.00E-02	1.11E+01
enium	1.0	0.0046	1.60E-02	2.20E-01	7.60E-02
O	291	6.91	1.20E-12	5.60E-01	2.24E+01

PC = Chemical of Potential Concern

<sup>=</sup> Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

F = Bioaccumulation Factor (unitless)

<sup>=</sup> Soil to plant uptake factor (unitless)

Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*IS) + (Cw\*WR))\*SFF]/BW

<sup>=</sup> Soil concentration (mg/kg)

<sup>=</sup> Soil tp plant uptake factor from literature = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

<sup>7 =</sup> Plant dietary fraction (unitless)

<sup>=</sup> Feeding rate (kg/day)

<sup>=</sup> Invertebrate dietary fraction (unitless)

Soil dietary (kg dry/day)

<sup>=</sup> EPC in surface water (mg COPC/L)

<sup>=</sup> Water intake rate (L/day)

<sup>=</sup> Site foraging frequency = 1 (unitless)

<sup>=</sup> Body weight (kg)

# RED FOX (Vulpes vulpes) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report TABLE G-7E

Seneca Army Depot Activity

JdOJ	Ditch Soil EPC Surface	Surface Water EPC	Soil-To-Plant (mg COPC/kg dry tissue)/	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/	Small Mammal BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Red Fox Soil Exp (mg/kg/
	/G.,/G)	( G)	( ( 6 ) 6)			0
umu		8.76	4.00E-03	2.20E-01	1.50E-03	7.56E
ony	2.3		2.00E-01	2.20E-01	1.00E-03	1.09E
m	2.8	0.0195	3.64E-01	9.60E-01	5.50E-04	3.88E
	177	1.16	4.00E-01	4.00E-02	1.00E-02	8.69E
le	0.83		1.00E+00	1.12E+00	1.00E+00	1.34E
		110	4.00E-03	2.20E-01	2.00E-02	9.49E-
	144	0.839	4.50E-02	3.00E-02	3.00E-04	3.61E
m	1.0	0.0046	1.60E-02	2.20E-01	1.50E-02	6.79E
	291	6.91	1.20E-12	5.60E-01	1.00E-01	7.11E-

Chemical of Potential Concern

xposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water sioaccumulation Factor (unitless)
source = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*ADF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFFJ/BW

I concentration (mg/kg)

il to plant uptake factor from literature

y weight to wet weight plant matter conversion factor = 0.2 (unitless) lant dietary fraction (unitless)

eding rate (kg/day)

vertebrate dietary fraction (unitless)

Animal dietary fraction (unitless)

dietary (kg dry/day)

Water intake rate (L/day)

EPC in surface water (mg COPC/L)

ite foraging frequency = 1 (unitless) ody weight (kg)

## GREAT BLUE HERON (Ardea herodias) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121C DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-7F

Great Blue Heron

	Ditch Soil		Soil-To-Plant	Soil-To-Invertebrate BAF	Small Mammal BAF	Soil and Surface
COPC	EPĊ (ma/ka)	EPC Surface Water EPC	(mg COPC/kg dry tissue)/	(mg COPC/kg wet tissue)/	(mg COPC/kg wet tissue)/	Exposure (mg/kg/dav
	(9)9)	( - , G )		(		
m		8.76	4.00E-03	2.20E-01	1.50E-03	3.94E-01
ly l	2.3		2.00E-01	2.20E-01	1.00E-03	2.28E-02
u	2.8	0.0195	3.64E-01	9.60E-01	5.50E-04	3.50E-02
	177	1.16	4.00E-01	4.00E-02	1.00E-02	1.94E+00
	0.83		1.00E+00	1.12E+00	1.00E+00	1.57E-01
		110	4.00E-03	2.20E-01	2.00E-02	4.95E+00
	144	0.839	4.50E-02	3.00E-02	3.00E-04	1.33E+00
u	1.0	0.0046	1.60E-02	2.20E-01	1.50E-02	1.27E-02
	291	6.91	1.20E-12	5.60E-01	1.00E-01	8.59E+00

hemical of Potential Concern

osure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water accumulation Factor (unitless)

 $ur = \{((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*ADF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFFI/BW + (Cs*Is) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (Cw*WR) + (C$ 

oncentration (mgKg) o plant uptake factor from literature o plant uptake factor from literature weight to wet weight plant matter conversion factor = 0.2 (unitless) at dictary fraction (unitless)

ing rate (kg/day)

rtebrate dietary fraction (unitless) imal dietary fraction (unitless)

letary (kg dry/day)

C in surface water (mg COPC/L)

Ater intake rate (L/day)
foraging frequency = 1 (unitless)
by weight (kg)

### **TABLE G-8A**

### DEER MOUSE (Peromyscus maniculatus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

### Seneca Army Depot Activity

СОРС	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	SP (mg COPC/kg dry tissue)/ (mg COPC/kg dry soil)	Terrestrial Invertebrate BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Deer Mouse Surface Soil Exposure (mg/kg/day)
Semivolatile Organic Compounds					
Anthracene	0.7		1.04E-01	7.0E-02	2.21E-02
Benzo(a)anthracene	1.9		2.02E-02	3.0E-02	2.55E-02
Benzo(a)pyrene	1.7		1.10E-02	7.0E-02	4.78E-02
Benzo(b)fluoranthene	1.9		1.01E-02	7.0E-02	5.31E-02
Benzo(ghi)perylene	1.7		5.70E-03	7.0E-02	4.70E-02
Benzo(k)fluoranthene	1.9		1.01E-02	8.0E-02	5.76E-02
Chrysene	2.4		1.87E-02	4.0E-02	4.08E-02
Phenanthrene	2.9		1.02E-01	7.0E-02	9.27E-02
Pyrene	5.0		4.43E-02	7.0E-02	1.44E-01
Pesticides					
4,4'-DDT	0.0028		9.37E-03	1.3E+00	1.27E-03
Metals					
Antimony	2.5		2.00E-01	2.2E-01	2.22E-01
Arsenic	8.3		3.60E-02	1.1E-01	3.59E-01
Cadmium	0.65	0.00054	3.64E-01	9.6E-01	2.38E-01
Chromium	29	0.006	7.50E-03	1.0E-02	1.59E-01
Cobalt	18		8.10E-02	1.2E-01	8.76E-01
Copper	32	0.0112	4.00E-01	4.0E-02	1.08E+00
Cyanide	0.36		1.00E+00	1.1E+00	1.65E-01
Lead	30	0.0263	4.50E-02	3.0E-02	4.31E-01
Manganese	15037		2.50E-01	5.4E-02	4.85E+02
Selenium	6.3	0.0025	1.60E-02	2.2E-01	5.18E-01
Silver	0.64		4.00E-01	2.2E-01	6.40E-02
Thallium	6.5		4.00E-03	2.2E-01	5.32E-01
Vanadium	21		5.50E-03	2.2E-01	1.68E+00

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil))

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

### **TABLE G-8B**

### AMERICAN ROBIN (Turdus migratorius) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

### Seneca Army Depot Activity

СОРС	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant Uptake Factor (mg COPC/kg dry tissue)/ (mg COPC/kg dry soil)	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	American Robin Surface Soil Exposure (mg/kg/day)
Semivolatile Organic Compou	nds				
Anthracene	0.7		1.04E-01	7.00E-02	3.08E-02
Benzo(a)anthracene	1.9		2.02E-02	3.00E-02	5.16E-02
Benzo(a)pyrene	1.7		1.10E-02	7.00E-02	7.55E-02
Benzo(b)fluoranthene	1.9		1.01E-02	7.00E-02	8.39E-02
Benzo(ghi)perylene	1.7		5.70E-03	7.00E-02	7.49E-02
Benzo(k)fluoranthene	1.9		1.01E-02	8.00E-02	8.81E-02
Chrysene	2.4		1.87E-02	4.00E-02	7.49E-02
Phenanthrene	2.9		1.02E-01	7.00E-02	1.29E-01
Pyrene	5.0		4.43E-02	7.00E-02	2.17E-01
Pesticides					
4,4'-DDT	0.0028		9.37E-03	1.26E+00	1.47E-03
Metals					
Antimony	2.5		2.00E-01	2.20E-01	2.61E-01
Arsenic	8.3		3.60E-02	1.10E-01	4.99E-01
Cadmium	0.65	0.00054	3.64E-01	9.60E-01	2.67E-01
Chromium	29	0.006	7.50E-03	1.00E-02	5.42E-01
Cobalt	18		8.10E-02	1.22E-01	1.16E+00
Copper	32	0.0112	4.00E-01	4.00E-02	1.06E+00
Cyanide ·	0.36		1.00E+00	1.12E+00	1.75E-01
Lead	30	0.0263	4.50E-02	3.00E-02	8.06E-01
Manganese	15037		2.50E-01	5.40E-02	5.74E+02
Selenium	6.3	0.0025	1.60E-02	2.20E-01	6.63E-01
Silver	0.64		4.00E-01	2.20E-01	6.94E-02
Thallium	6.5		4.00E-03	2.20E-01	6.85E-01
Vanadium	21		5.50E-03	2.20E-01	2.16E+00

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

# SHORT-TAILED SHREW (Blarina brevicauda) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-1211 SOIL SEAD-1211 RI Report Seneca Army Depot Activity TABLE G-8C

COPC	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant (mg COPC/kg dry tissue)/ (mg COPC/kg dry soil)	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Small Mammal BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Shrew Surface Soil Exposure (mg/kg/day)
Semivolatile Organic Compounds						
Anthracene	0.7		1.04E-01	7.00E-02	4.61E-04	3.64E-02
Benzo(a)anthracene	1.9		2.02E-02	3.00E-02	1.46E-04	5.74E-02
Benzo(a)pyrene	1.7		1.10E-02	7.00E-02	4.61E-04	8.94E-02
Benzo(b)fluoranthene	1.9		1.01E-02	7.00E-02	5.46E-04	9.94E-02
Benzo(ghi)perylene	1.7		5.70E-03	7.00E-02	4.61E-04	8.86E-02
Benzo(k)fluoranthene	1.9		1.01E-02	8.00E-02	5.43E-04	1.05E-01
Chrysene	2.4		1.87E-02	4.00E-02	1.88E-04	8.52E-02
Phenanthrene	2.9		1.02E-01	7.00E-02	4.61E-04	1.53E-01
Pyrene	5.0		4.43E-02	7.00E-02	4.61E-04	2.57E-01
Pesticides						
4,4'-DDT	0.0028		9.37E-03	1.26E+00	6.18E-04	1.90E-03
Metals						
Antimony	2.5		2.00E-01	2.20E-01	1.00E-03	3.26E-01
Arsenic	8.3		3.60E-02	1.10E-01	2.00E-03	6.07E-01
Cadmium	0.65	0.00054	3.64E-01	9.60E-01	5.50E-04	3.44E-01
Chromium	29	900'0	7.50E-03	1.00E-02	5.50E-03	\$.66E-01
Cobalt	18		8.10E-02	1.22E-01	2.00E-02	1.43E+00
Copper	32	0.0112	4.00E-01	4.00E-02	1.00E-02	1.22E+00
Cyanide	0.36		1.00E+00	1.12E+00	1.00E+00	2.44E-01
Lead	30	0.0263	4.50E-02	3,00E-02	3.00E-04	8.97E-01
Manganese	15037		2.50E-01	5.40E-02	4.00E-04	6.65E+02
Selenium	6.3	0.0025	1.60E-02	2.20E-01	1.50E-02	8.35E-01
Silver	0.64		4.00E-01	2.20E-01	3.00E-03	8.66E-02
Thallium	6.5		4.00E-03	2.20E-01	4.00E-02	8.70E-01
Vanadium	21		5.50E-03	2.20E-01	2,50E-03	2.71E+00

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*DF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF/BW

Cs = Soil concentration (mg/kg)

SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

DF = Plant dieary fraction (unitless)

DF = Invertebrate (kg/day)

ADF = Animal dieary fraction (unitless)

Is = Soil dieary (kg/day)

SFF = Site foraging frequency = 1 (unitless)

BW = Body weight (kg)

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### TABLE G-8D

### MEADOW VOLE (Microtus pennsylvanicus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-121I SOIL SEAD-121C AND SEAD-121I RI Report

### Seneca Army Depot Activity

СОРС	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant Uptake Factor (mg COPC/kg dry tissue)/ (mg COPC/kg dry soil)	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Meadow Vole Surface Soil Exposure (mg/kg/day)
Semivolatile Organic Compounds					
Anthracene	0.7		1.04E-01	7.00E-02	5.68E-02
Benzo(a)anthracene	1.9		2.02E-02	3.00E-02	1.42E-01
Benzo(a)pyrene	1.7		1.10E-02	7.00E-02	1.27E-01
Benzo(b)fluoranthene	1.9		1.01E-02	7.00E-02	1.41E-01
Benzo(ghi)perylene	1.7		5.70E-03	7.00E-02	1.25E-01
Benzo(k)fluoranthene	1.9		1.01E-02	8.00E-02	1.35E-01
Chrysene	2.4		1.87E-02	4.00E-02	1.78E-01
Phenanthrene	2.9		1.02E-01	7.00E-02	2.38E-01
Pyrene	5.0		4.43E-02	7.00E-02	3.77E-01
Pesticides					
4,4'-DDT	0.0028		9.37E-03	1.26E+00	2.00E-04
Metals					
Antimony	2.5		2.00E-01	2.20E-01	2.19E-01
Arsenic	8.3		3.60E-02	1.10E-01	6.24E-01
Cadmium	0.65	0.00054	3.64E-01	9.60E-01	6.72E-02
Chromium	29	0.006	7.50E-03	1.00E-02	2.12E+00
Cobalt	18		8.10E-02	1.22E-01	1.40E+00
Copper	32	0.0112	4.00E-01	4.00E-02	3.41E+00
Cyanide	0.36		1.00E+00	1.12E+00	5.78E-02
Lead	30	0.0263	4.50E-02	3.00E-02	2.26E+00
Manganese	15037		2.50E-01	5.40E-02	1.41E+03
Selenium	6.3	0.0025	1.60E-02	2.20E-01	4.62E-01
Silver	0.64		4.00E-01	2.20E-01	6.88E-02
Thallium	6.5		4.00E-03	2.20E-01	4.70E-01
Vanadium	21		5.50E-03	2.20E-01	1.49E+00

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg)

SP = Soil tp plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

### RED FOX (Vulpes vulpes) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-1211 SOIL SEAD FOX (Vulpes vulpes) EXAD-121C AND SEAD-1211 RI Report Seneca Army Depot Activity TABLE G-8E

Ile Organic Compounds	COPC	Surface Soil (0-2 ft bgs) EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant (mg COPC/kg dry tissue)/ (mg COPC/kg dry soil)	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Small Mammal BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Red Fox Surface Soil Exposure (mg/kg/day)
0,7	Semivolatile Organic Compounds						A Mild & specialized decopy of the services statement of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services of the services o
1.9   2.02E-02   3.00E-02	Anthracene	0.7		1.04E-01	7.00E-02	4.61E-04	1.84E-03
1.7   1.10E-02   7.00E-02     1.9   1.01E-02   7.00E-02     1.9   1.01E-02   7.00E-02     1.9   1.01E-02   8.00E-02     2.4   1.87E-02   4.00E-02     2.9   1.02E-01   7.00E-02     2.9   1.02E-01   7.00E-02     3.0   3.00E-02   7.00E-02     4.43E-02   3.00E-02   7.00E-02     2.5   2.00E-01   2.20E-01     8.3   3.00E-02   3.00E-02     8.3   3.00E-02   3.00E-02     8.3   3.00E-02   3.00E-02     8.3   3.00E-02   3.00E-02     9.36   0.00054   3.00E-02   3.00E-02     9.36   0.0012   4.00E-02   3.00E-02     9.36   0.00263   4.50E-02   3.00E-02     9.06   0.0056   1.00E-00   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.0056   1.00E-02   3.00E-02     9.06   0.00E-02   3.00E-02   3.00E-02     9.06   0.00E-02   3.00E-02   3.00E-02     9.06   0.00E-	Benzo(a)anthracene	1.9		2.02E-02	3.00E-02	1.46E-04	3.70E-03
re         1.9         1.01E-02         7.00E-02           re         1.7         5.70E-03         7.00E-02           re         1.9         1.01E-02         8.00E-02           re         1.9         1.01E-02         8.00E-02           2.4         1.87E-02         8.00E-02           5.0         4.43E-02         7.00E-02           6.0028         4.43E-02         7.00E-02           8.3         4.43E-02         7.00E-02           8.3         2.00E-01         7.00E-02           8.3         0.00054         3.60E-02         1.10E-01           8.3         0.006         7.50E-03         1.10E-01           8.3         0.006         7.50E-03         1.10E-01           8.3         0.006         7.50E-03         1.12E-00           9.60E-01         4.00E-02         3.00E-02         3.00E-02           1.00         0.0263         4.50E-02         3.00E-02         3.00E-02           1.00         0.004         4.50E-01         4.00E-02         3.00E-02           1.00         0.004         4.00E-01         3.00E-02         3.00E-02           1.12E+00         0.004         1.00E-02         3.00E-02	Benzo(a)pyrene	1.7		1.10E-02	7.00E-02	4.61E-04	4.19E-03
re         1.7         5.70E-03         7.00E-02           re         1.9         1.01E-02         8.00E-02           2.4         1.01E-02         8.00E-02           2.9         1.02E-01         7.00E-02           5.0         4.43E-02         7.00E-02           6.0028         1.02E-01         7.00E-02           8.3         2.00E-01         2.20E-01           8.3         0.0064         3.64E-01         9.60E-01           8.3         0.0065         7.50E-03         1.10E-01           18         3.00E-02         1.10E-01         9.60E-01           29         0.0066         7.50E-03         1.20E-01           18         0.0067         4.00E-01         4.00E-02           32         0.0112         4.00E-01         4.00E-02           30         0.0263         4.50E-02         3.00E-02           15037         2.50E-01         5.40E-02           6.3         0.0025         1.60E-02           2.20E-01         2.20E-01	Benzo(b)fluoranthene	6.1		1.01E-02	7.00E-02	5.46E-04	4.68E-03
re         1.9         1.01E-02         8.00E-02           2.4         1.87E-02         4.00E-02           2.9         1.02E-01         7.00E-02           5.0         4.43E-02         7.00E-02           6.0028         9.37E-03         7.00E-02           8.3         2.00E-01         2.00E-01           8.3         3.00E-02         1.10E-01           8.3         0.0064         3.64E-01         9.60E-01           8.3         0.006         7.50E-03         1.10E-01           1.8         0.006         7.50E-03         1.00E-01           29         0.006         7.50E-03         1.00E-01           32         0.0112         4.00E-01         4.00E-02           30         0.0263         4.50E-02         3.00E-02           15037         2.50E-01         5.40E-02           6.3         0.0025         1.60E-02           150B-02         2.20E-01         2.20E-01	Benzo(ghi)perylene	1.7		5.70E-03	7.00E-02	4.61E-04	4.14E-03
2.4         1.87E-02         4.00E-02           2.9         1.02E-01         7.00E-02           5.0         4.43E-02         7.00E-02           0.0028         9.37E-03         1.26E+00           2.5         2.00E-01         2.20E-01           8.3         0.006-01         2.20E-01           0.65         0.00054         3.60E-03         1.10E-01           29         0.006         7.50E-03         1.00E-02           18         0.0112         4.00E-01         4.00E-02           30         0.0263         4.50E-02         3.00E-02           15037         2.50E-01         5.40E-02           6.3         0.0025         1.06E-02         2.20E-01           6.3         0.0025         1.06E-02         2.20E-01	Benzo(k)fluoranthene	1.9		1.01E-02	8.00E-02	5.43E-04	4.69E-03
ene         2.9         1.02E-01         7.00E-02           for         6.0028         9.37E-03         7.00E-02           g.3         2.00E-01         2.20E-01         2.20E-01           g.3         0.0054         3.60E-03         1.10E-01           g.3         0.006         7.50E-03         1.10E-01           g.3         0.006         7.50E-03         1.00E-02           g.3         0.0112         4.00E-01         4.00E-02           g.3         0.0112         4.00E-01         4.00E-02           g.3         0.0263         4.50E-02         3.00E-02           g.3         0.0025         1.60E-02         2.20E-01           g.4         0.06-02         2.50E-01         2.20E-01	Chrysene	2.4		1.87E-02	4.00E-02	1.88E-04	4.94E-03
5.0         4.43E-02         7.00E-02           6.0028         9.37E-03         1.26E+00           2.5         2.00E-01         2.20E-01           8.3         0.0054         3.60E-02         1.10E-01           1         29         0.006         7.50E-01         9.60E-01           1         29         0.006         7.50E-01         9.60E-02           1         32         0.0112         4.00E-01         4.00E-02           2         0.036         0.012         4.00E-01         4.00E-02           2         0.036         4.50E-02         3.00E-02         3.00E-02           2         0.00253         1.60E-02         2.20E-01         2.20E-01           6         1.5037         0.0025         1.60E-02         2.20E-01	Phenanthrene	2.9		1.02E-01	7.00E-02	4.61E-04	7.71E-03
0,0028         9,37E-03         1,26E+00           2,5         2,00E-01         2,20E-01           8,3         0,00654         3,60E-02         1,10E-01           1         29         0,006         7,50E-03         1,10E-01           1         29         0,006         7,50E-03         1,10E-01           1         32         0,006         7,50E-03         1,10E-02           1         32         0,0112         4,00E-01         4,00E-02           0         3,0         0,00E-01         4,00E-02         3,00E-02           0         1,50E-02         2,50E-01         5,40E-02           0         0,64         0,0025         1,60E-02         2,20E-01	Pyrene	5.0		4.43E-02	7.00E-02	4.61E-04	1.24E-02
0,0028         9,37E-03         1,26E+00           2,5         2,00E-01         2,20E-01           8,3         0,00054         3,60E-02         1,10E-01           1         29         0,006         7,30E-03         1,00E-02           1         18         8,40E-02         1,00E-02         1,00E-02           2         0,006         7,30E-03         1,12E-01         1,00E-02           2         0,0112         4,00E-02         1,12E-01         1,12E-01           2         0,012         4,00E-02         3,00E-02         3,00E-02         3,00E-02           2         15,037         2,50E-01         5,40E-02         2,20E-01         2,20E-01           6         3         0,0025         1,60E-02         2,20E-01         2,20E-01	Pesticides						
s         2.5         2.00E-01         2.20E-01           c         8.3         5.00E-02         1.10E-01           c         8.3         0.00054         3.64E-01         9.60E-01           simm         0.65         0.006         7.50E-03         1.10E-01           r         32         0.006         7.50E-03         1.00E-02           r         32         0.0112         4.0E-02         1.00E-02           re         0.36         0.0112         4.0E-02         3.00E-02           nesse         15037         2.50E-01         5.40E-02         3.00E-02           nm         6.3         0.0025         1.60E-02         2.20E-01           nm         6.3         0.0025         1.60E-02         2.20E-01	4,4'-DDT	0.0028		9.37E-03	1.26E+00	6.18E-04	4.42E-05
only         2.5         2.00E-01         2.00E-01         2.00E-01           c         8.3         3.60E-02         1.10E-01         2.00E-01           num         0.65         0.0064         3.64E-01         9.60E-01         2.00E-01           dim         1.8         0.006         7.50E-03         1.00E-02         1.00E-02           r         3.2         0.0112         4.00E-02         1.12E-03           r         3.0         0.0263         4.50E-02         3.00E-02           nnese         15037         2.50E-01         5.40E-02         2.20E-01           nn         6.3         0.0025         1.60E-02         2.20E-01           nn         6.3         0.0025         1.60E-02         2.20E-01	Metals					TABLE THE REST OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADD	
c         8.3         3.60E-02         1.10E-01           um         0.65         0.00054         3.64E-01         9.60E-01           ium         29         0.006         7.50E-03         1.00E-02           r         32         0.0112         4.00E-01         4.00E-02           le         0.36         1.00E+00         1.12E+00         1.12E+00           mese         15037         2.50E-01         5.40E-02         2.00E-01           um         6.3         0.0025         1.60E-02         2.20E-01           m         0.64         4.00E-01         2.20E-01         2.20E-01	Antimony	2.5		2.00E-01	2.20E-01	1.00E-03	1.14E-02
um         0.65         0.00054         3.64E-01         9.60E-01           ium         29         0.006         7.50E-03         1.00E-02           r         32         0.0012         8.19E-02         1.02E-01           le         0.36         1.00E+00         1.12E+00           mese         1537         2.50E-01         5.40E-02           nm         6.3         0.0025         1.60E-02         2.20E-01	Arsenic	8.3		3.60E-02	1.10E-01	Z.00E-03	2.62E-02
ium         29         0.006         7.50E-03         1.00E-02           r         32         0.0112         4.00E-01         4.00E-02           le         0.36         1.00E+00         1.12E+00           nnese         1.5037         2.50E-01         5.40E-02           nm         6.3         0.0025         1.60E-02         2.20E-01	Cadmium	0.65	0.00054	3.64E-01	9.60E-01	5.50E-04	8.73E-03
r 32 0.0112 4.00E-01 4.00E-02 1.12E-01	Chromium	29	9000	7.50E-03	1.00E-02	5.50E-03	7.19E-02
r         32         0.0112         4.00E-01         4.00E-02           le         0.36         1.00E+00         1.12E+00         1.12E+00           unese         15037         2.50E-01         3.00E-02         3.00E-02           um         6.3         0.0025         1.60E-02         2.20E-01           m         0.64         4.00E-01         2.20E-01	Cobalt	18		8.105-02	1.226-01	2.00E-02	1.06E-01
le         0.36         1.00E+00         1.12E+00           and         0.0263         4.50E-02         3.00E-02           nnese         15037         2.50E-01         5.40E-02           nm         6.3         0.0025         1.60E-02         2.20E-01           nm         0.64         4.00E-01         2.20E-01         2.20E-01	Copper	32	0.0112	4.00E-01	4.00E-02	1.00E-02	1.40E-01
nnese         30         0.0263         4.50E-02         3.00E-02           nnese         15037         2.50E-01         5.40E-02           nm         6.3         0.0025         1.60E-02         2.20E-01           nm         0.64         4.00E-01         2.20E-01	Cyanide	0.36		1.00E+00	1.12E+00	1.00E+00	5.86E-02
nnese         15037         2.50E-01         5.40E-02           Jm         6.3         0.0025         1.60E-02         2.20E-01           Jm         0.64         4.00E-01         2.20E-01	Lead	30	0.0263	4.50E-02	3.00E-02	3.00E-04	6.18E-02
Jim         6.3         0.0025         1.60E-02         2.20E-01           0.64         4.00E-01         2.20E-01	Manganese	15037		2.50E-01	5.40E-02	4.00E-04	4.17E+01
0.64 4.00E-01 2.20E-01	Selenium	6.3	0.0025	1.60E-02	2.20E-01	1.50E-02	3.95E-02
- C Lock of	Silver	0.64		4.00E-01	2.20E-01	3.00E-03	3.48E-03
6.5 4.00E-03 2.20E-01	Thallium	6.5		4.00E-03	2.20E-01	4.00E-02	6.40E-02
Vanadium         21         5.50E-03         2.20E-01         2.	Vanadium	21		5.50E-03	2.20E-01	2.50E-03	9.05E-02

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

(1) Exposure = [((Ca\*SP\*CF\*PDF\*FR) + (Cs\*ADF\*BAF\*FR) ts\SENECA\PID Area\Report\Draft Final\Risk Assessment\Eco Risk Tables\SEAD-121\\Econisk\_1211\_soil.x\s\FoxEXP\_avg

DEER MOUSE (Peromyscus maniculatus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-9A

					Deer Mouse
			SP	Terrestrial Invertebrate BAF	Ditch Soil
	Ditch Soil EPC	Surface Water	(mg COPC/kg dry tissue)/	(mg COPC/kg wet tissue)/	Exposure
COPC	(mg/kg)	EPC (mg/L)	(mg COPC/kg dry soil)	(mg COPC/kg dry soil)	(mg/kg/day)
Semivolatile Organic Compounds					
Benzo(a)anthracene	2.51		2.02E-02	3.0E-02	3.32E-02
Benzo(a)pyrene	2.70		1.10E-02	7.0E-02	7.41E-02
Benzo(b)fluoranthene	3.75		1.01E-02	7.0E-02	1.03E-01
Benzo(k)fluoranthene	3.00		1.01E-02	8.0E-02	9.30E-02
Chrysene	3.56		1.87E-02	4.0E-02	5.99E-02
Pyrene	5.12		4.43E-02	7.0E-02	1.48E-01
Metals					
Arsenic	18		3.60E-02	1.1E-01	7.62E-01
Cobalt	19		8.10E-02	1.2E-01	9.32E-01
Manganese	3195		2.50E-01	5.4E-02	1.03E+02
Selenium	2.0	0.00245	1.60E-02	2.2E-01	1.69E-01
Silver	1.4		4.00E-01	2.2E-01	1.44E-01
Thallium	2.4		4.00E-03	2.2E-01	1.93E-01
Vanadium	21		5.50E-03	2.2E-01	1.72E+00
Zinc	142	0.19	1.20E-12	5.6E-01	2.92E+01

COPC = Chemical of Potential Concern

BAF = Bioaccumulation Factor (unitless) SP = Soil to plant uptake factor (unitless)

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

(1) Exposure  $\approx [((Cs*SP*CF*PDF*FR) + (Cs*IDF*BAF*FR) + (Cs*Is) + (Cw*WR))*SFF]/BW$ 

Cs = EPC in the appropriate soil exposure interval (mg COPC/kg dry soil)

SP = Soil-to-plant uptake factor ((mg COPC/kg dry tissue)/(mg COPC/kg dry soil)) CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless) BW = Body weight (kg)

AMERICAN ROBIN (Turdus migratorius) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-121I RI Report TABLE G-9B

## Seneca Army Depot Activity

					American Robin
			Soil-To-Plant Uptake Factor	Soil-To-Soil Invertebrate BAF	Ditch Soil
	Ditch Soil EPC	Ditch Soil EPC Surface Water EPC	(mg COPC/kg dry tissue)/	(mg COPC/kg wet tissue)/	Exposure
COPC	(mg/kg)	(mg/L)	(mg COPC/kg dry soil)	(mg COPC/kg dry soil)	(mg/kg/day)
Semivolatile Organic Compou	spuno				
Benzo(a)anthracene	2.51		2.02E-02	3.00E-02	6.72E-02
Benzo(a)pyrene	2.70		1.10E-02	7.00E-02	1.17E-01
Benzo(b)fluoranthene	3.75		1.01E-02	7.00E-02	1.62E-01
Benzo(k)fluoranthene	3.00		1.01E-02	8.00E-02	1.42E-01
Chrysene	3.56		1.87E-02	4.00E-02	1.10E-01
Pyrene	5.12		4.43E-02	7.00E-02	2.23E-01
Metals					
Arsenic	18		3.60E-02	1.10E-01	1.06E+00
Cobalt	19		8.10E-02	1.22E-01	1.23E+00
Manganese	3195		2.50E-01 ·	5.40E-02	1.22E+02
Selenium	2.0	0.00245	1.60E-02	2.20E-01	2.16E-01
Silver	1.4		4.00E-01	2.20E-01	1.55E-01
Thallium	2.4		4.00E-03	2.20E-01	2.48E-01
Vanadium	21		5.50E-03	2.20E-01	2.21E+00
Zinc	142	0.19	1.20E-12	5.60E-01	3.50E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)
(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*Is)+(Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg) SP = Soil ty plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless)

PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)

SFF = Site foraging frequency = 1 (unitless)

BW = Body weight (kg)

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# SHORT-TAILED SHREW (Blarina brevicauda) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-9C

			1			Short-Tai
COPC	Ditch Soil EPC (mg/kg)	Surface Water EPC (mg/L)	Soil-To-Plant (mg COPC/kg dry tissue)/ (mg COPC/kg dry soil)	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Small Mammal BAF (mg COPC/kg wet tissue)/ (mg COPC/kg dry soil)	Shrew Dit Soil Expos (mg/kg/da
volatile Organic Compounds	spunodu					
o(a)anthracene	2.51		2.02E-02	3.00E-02	1.46E-04	7.48E-02
o(a)pyrene	2.70		1.10E-02	7.00E-02	4.61E-04	1.38E-01
o(b)fluoranthene	3.75		1.01E-02	7.00E-02	5.46E-04	1.92E-01
o(k)fluoranthene	3.00		1.01E-02	8.00E-02	5.43E-04	1.70E-01
sene	3.56		1.87E-02	4.00E-02	1.88E-04	1.25E-01
1e	5.12		4.43E-02	7.00E-02	4.61E-04	2.64E-01
ils						
nic	18		3.60E-02	1.10E-01	2.00E-03	1.29E+00
ılt	19		8.10E-02	1.22E-01	2.00E-02	1.52E+00
ganese	3195		2.50E-01	5.40E-02	4.00E-04	1.41E+00
ium	2.0	0.00245	1.60E-02	2.20E-01	1.50E-02	2.72E-01
L	1.4		4.00E-01	2.20E-01	3.00E-03	1.94E-01
ium	2.4		4.00E-03	2.20E-01	4.00E-02	3.15E-01
dium	21		5.50E-03	2.20E-01	2.50E-03	2.77E+00
	142	0.19	1.20E-12	S.60E-01	1.00E-01	4.54E+0

<sup>-</sup> Chemical of Potential Concern

<sup>=</sup> Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

Bioaccumulation Factor (unitless)

posure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*DF\*BAF\*FR) + (Cs\*ADF\*BAF\*FR) + (Cs\*Is) + (Cs\*Is) + (Cw\*WR))\*SFFI/BW + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cw\*WR))\*SFFI/BW + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) +

oil concentration (mgKg) oil to plant uptake factor from literature oil to plant uptake factor from literature  $D_{\rm TW}$  weight to wet weight plant matter conversion factor = 0.2 (unitless)

Plant dietary fraction (unitless)

eeding rate (kg/day)

Invertebrate dietary fraction (unitless)

<sup>:</sup> Animal dietary fraction (unitless) oil dietary (kg/day)

Site foraging frequency  $\approx 1$  (unitless) Body weight (kg)

MEADOW VOLE (Microtus pennsylvanicus) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-121I RI Report TABLE G-9D

Activity
Depot
Army
Seneca

					Meadow Vole
	Ditch Soil EPC	Surface Water EPC	Soil-To-Plant Uptake Factor (mg COPC/kg dry tissue)/	Soil-To-Soil Invertebrate BAF (mg COPC/kg wet tissue)/	Ditch Soil Exposure
COPC	(mg/kg)	(mg/L)	(mg COPC/kg dry soil)	(mg COPC/kg dry soil)	(mg/kg/day)
Semivolatile Organic Compound	spuno				
Benzo(a)anthracene	2.51		2.02E-02	3.00E-02	1.84E-01
Benzo(a)pyrene	2.70		1.10E-02	7.00E-02	1.97E-01
Benzo(b)fluoranthene	3.75		1.01E-02	7.00E-02	2.73E-01
Benzo(k)fluoranthene	3.00		1.01E-02	8.00E-02	2.18E-01
Chrysene	3.56		1.87E-02	4.00E-02	2.61E-01
Pyrene	5.12		4.43E-02	7.00E-02	3.88E-01
Metals					n., on any 1, 1, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,
Arsenic	18		3.60E-02	1.10E-01	1.33E+00
Cobalt	19		8.10E-02	1.22E-01	1.49E+00
Manganese	3195		2.50E-01	5.40E-02	2.99E+02
Selenium	2.0	0.00245	1.60E-02	2.20E-01	1.50E-01
Silver	1.4		4.00E-01	2.20E-01	1.54E-01
Thallium	2.4		4.00E-03	2.20E-01	1.70E-01
Vanadium	21		5.50E-03	2.20E-01	1.52E+00
Zinc	142	0.19	1.20E-12	5.60E-01	1.03E+01

COPC = Chemical of Potential Concern

EPC = Exposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

BAF = Bioaccumulation Factor (unitless)

SP = Soil to plant uptake factor (unitless)

(1) Exposure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*DF\*BAF\*FR) + (Cs\*Is) + (Cw\*WR))\*SFF]/BW

Cs = Soil concentration (mg/kg) SP = Soil to plant uptake factor from literature

CF = Dry weight to wet weight plant matter conversion factor = 0.2 (unitless) PDF = Plant dietary fraction (unitless)

FR = Feeding rate (kg/day)

IDF = Invertebrate dietary fraction (unitless)

Is = Soil dietary (kg dry/day)

Cw = EPC in surface water (mg COPC/L)

WR = Water intake rate (L/day)
SFF = Site foraging frequency = 1 (unitless)
BW = Body weight (kg)

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### RED FOX (Vulpes vulpes) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-9E

			Soil-To-Plant	Soil-To-Soil Invertebrate BAF	Small Mammal BAF	Red Fox D
	Ditch Soil EPC	Ditch Soil EPC Surface Water EPC	5	(mg COPC/kg wet tissue)/	(mg COPC/kg wet tissue)/	Soil Expos
COPC	(mg/kg)	(mg/L)	(mg COPC/kg dry soil)	(mg COPC/kg dry soil)	(mg COPC/kg dry soil)	(mg/kg/d
olatile Organic Compounds	spunod					
(a)anthracene	2.51		2.02E-02	3.00E-02	1.46E-04	4.81E-0.
(а)рутепе	2.70		1.10E-02	7.00E-02	4.61E-04	6.49E-0
(b)fluoranthene	3.75		1.01E-02	7.00E-02	5.46E-04	9.05E-0
(k)fluoranthene	3.00		1.01E-02	8.00E-02	5.43E-04	7.58E-0
sne	3.56		1.87E-02	4.00E-02	1.88E-04	7.26E-0
	5.12		4.43E-02	7.00E-02	4.61E-04	1.27E-0
9						
0	18		3.60E-02	1.10E-01	2.00E-03	5.55E-0
nium	20	900.0	7.50E-03	1.00E-02	5.50E-03	4.97E-0
	19		8.10E-02	1.22E-01	2.00E-02	1.13E-0
						•

5.55E-0 4.97E-0 1.13E-0 8.86E+0 1.30E-0 7.80E-0

2.32E-0 9.26E-0 3.20E+C

2.50E-03

2.20E-01 2.20E-01

5.60E-01

1.00E-01

4.00E-04 1.50E-02 3.00E-03 4.00E-02

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2.50E-01 I.60E-02

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4.00E-03 5.50E-03 1.20E-12

4.00E-01

5.40E-02 2.20E-01 2.20E-01

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xposure Point Concentration, the mean detected concentration for ditch soil and the maximum detected concentration for surface water

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il concentration (mg/kg)

il to plant uptake factor from literature

y weight to wet weight plant matter conversion factor = 0.2 (unitless) lant dietary fraction (unitless)

eding rate (kg/day)

nvertebrate dietary fraction (unitless) Animal dietary fraction (unitless)

dietary (kg dry/day)

EPC in surface water (mg COPC/L) Water intake rate (L/day)

ite foraging frequency = 1 (unitless)

ody weight (kg)

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GREAT BLUE HERON (Ardea herodias) EXPOSURE BASED ON MEAN CONCENTRATION - SEAD-1211 DITCH SOIL SEAD-121C AND SEAD-121I RI Report Seneca Army Depot Activity TABLE G-9F

				. ,		Great Blue Her Ditch Soil and
			Soil-To-Plant	Soil-To-Invertebrate BAF	Small Mammal BAF	Surface Wate
	Ditch Soil EPC Surface	Surface Water EPC	(mg COPC/kg dry tissue)/	(mg COPC/kg wet tissue)/	(mg COPC/kg wet tissue)/	Exposure
COPC	(mg/kg)	(mg/L)	(mg COPC/kg dry soil)	(mg COPC/kg dry soil)	(mg COPC/kg dry soil)	(mg/kg/day)
volatile Organic Compounds	spunodu					
o(a)anthracene	2.51		2.02E-02	3.00E-02	1.46E-04	2.24E-02
o(a)pyrene	2.70		1.10E-02	7.00E-02	4.61E-04	2.47E-02
o(b)fluoranthene	3.75		1.01E-02	7.00E-02	5.46E-04	3.43E-02
o(k)fluoranthene	3.00		1.01E-02	8.00E-02	5.43E-04	2.75E-02
ene	3.56		1.87E-02	4.00E-02	1.88E-04	3.20E-02
e	5.12		4.43E-02	7.00E-02	4.61E-04	4.68E-02
ls				•		
iic	18		3.60E-02	1.10E-01	2.00E-03	1.69E-01
ļt	19		8.10E-02	1.22E-01	2.00E-02	2.41E-01
anese	3195		2.50E-01	5.40E-02	4.00E-04	2.90E+01
ium	2.0	0.00245	1.60E-02	2.20E-01	1.50E-02	2.52E-02
	1.4		4.00E-01	2.20E-01	3.00E-03	1.46E-02
ının	2.4		4.00E-03	2.20E-01	4.00E-02	3.93E-02
dium	21		5.50E-03	2.20E-01	2.50E-03	2.11E-01
	142	0.19	1.20E-12	5.60E-01	1.00E-01	4.06E+00

<sup>=</sup> Chemical of Potential Concern

Exposure Point Concentration, the mean detected concentration for dirch soil and the maximum detected concentration for surface water Bioaccumulation Factor (unitless)

posure = [((Cs\*SP\*CF\*PDF\*FR) + (Cs\*IDF\*BAF\*FR) + (Cs\*ADF\*BAF\*FR) + (Cs\*Is) + (Cs\*Is) + (Cw\*WR))\*SFFI/BW] + (Cs\*Is) + (Cs\*Is) + (Cs\*Is) + (Cw\*WR) + (Cs\*Is) + (Cw\*WR) + (Cs\*Is) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR) + (Cw\*WR)

il concentration (mg/kg) vil to plant uptake factor from literature ry weight to wet weight plant matter conversion factor = 0.2 (unitless) Plant dietary fraction (unitless)

invertebrate dietary fraction (unitless) eeding rate (kg/day)

Animal dietary fraction (unitless)

il dietary (kg dry/day) EPC in surface water (mg COPC/L) Water intake rate (L/day) Site foraging frequency = 1 (unitless) 30dy weight (kg)

cts/SENECA/PID Area/Report/Draft Final/Risk Assessment/Eco Risk Tables/SEAD-1211/Ecorisk \_1211\_ditchsoil.xls/HeronEXP\_avg

### APPENDIX H RESPONSE TO COMMENTS

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### Army's Response to Comments from the US Environmental Protection Agency

Subject: Draft Field Sampling Report for SEAD 121C & 121I Seneca Army Depot Romulus, New York

Comments Dated: March 24, 2004 (received by email)

Date of Comment Response: November 4, 2004

### **Army's Response to Comments**

### I. GENERAL COMMENTS

**Comment 1**: The areas at SEAD-121C that are referred to frequently throughout the document as containment area," "storage cells," and the "former concrete storage pad" should be shown on all appropriate figures (i.e., Figure 1-3, Figure 3-1, etc..) Numerous references to, these objects relative to associated samples are made in the document, yet they are not shown on any figure. Provide additional documentation of these areas.

**Response 1:** Based on field notes collected during the 2002 field effort, and after review of GIS aerial photographs from 2000 obtained from the State of New York, storage cells, concrete barriers, and debris piles have been known to exist at the DRMO Yard. It should be noted that these features are transitory; changing as material has been moved into and out of the Yard. However, for the purposes of presentation, the approximate locations of these based on the 2000 photographs have been added.

As stated in response to USEPA comments on the Work Plan, there is no available information regarding the location of a rumored concrete pad. Therefore, this feature is not included on site figures.

Comment 2: The various discussions related to surface and subsurface soil samples are unclear and inconsistent. For example, four samples were collected at depths of 0 to 2 inches bgs at the DRMO Yard during the EBS sampling, and are described as soil borings (Page 3-2). However, the twenty samples collected from soil borings at locations in the DRMO Yard during the RI are considered to be surface samples, although they were collected from 0 to 2 feet bgs (Page 3-3). List the sample depths in Table 3-2 (or similar table) and revise callouts accordingly.

**Response 2:** The Army collected surface soil samples from a depth of 0 to 2 inches below grade surface or beneath the vegetative root ball/cover material. A split spoon was advanced to 2 ft., but the sample was collected from the top 2 inches of the spoon, where vegetative root material, asphalt, or cover materials were not found. The text has been clarified.

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The depth of each sample has been added to the revised Table 3-2

Comment 3: Text indicates that the purpose of surface water sampling at SEAD-1211 was to determine background surface water concentrations at areas at the site that have not been impacted by site activities as well as to delineate the extent of contamination at the site. However, as described in Section 3.2.5, four surface water samples were collected immediately around the site (only two upgradient), while the other three were collected at a drainage ditch downgradient of the site that serves as the outfall for drainage from a large area. Therefore, it does not appear that sufficient surface water samples were collected upgradient of the site to provide a baseline for background (or areas not impacted by the site) to characterize background surface water concentrations. In addition, the three samples collected in the downgradient drainage ditch may contain runoff materials from other sites. Additional upgradient (background) samples and delineation samples should be collected.

Response 3: The Army wishes to emphasize that there is no continuous source of surface water located within the bounds of the Rumored Cosmoline Oil Disposal Area. All surface water located at this site is temporal, generally associated with either storm or snowmelt events. Surface water locations that are present within the bounds of the site are restricted to runoff ditches, culverts or infiltration galleries and buried stormwater sewers that convey storm event runoff to locations west of the warehousing area where it is discharged into the headwaters of Kendaia Creek. Additionally, the Army must reiterate that a work plan for this investigation was provided to the EPA prior to the initiation of this effort, and no comments were received indicating that the proposed sampling plan for surface water was insufficient.

Having said this, the Army believes that the surface water in the vicinity of the Rumored Cosmoline Oil Disposal Area has been adequately characterized. Two upgradient, three downgradient and two surface water samples from locations within the site were collected and characterized. No organic contaminants, including TPH, were identified in either of the upgradient samples, while a total of 14 different metals were found in one or more of the two upgradient samples. However, of the 14 metals detected, only lead and aluminum were found at levels above the New York Class C surface water standards, and these were both collocated in the same sample. Similarly, 14 metals and no organic contaminants or TPH, were found at the downgradient sample locations, but in this case none of the detected concentrations were found at levels exceeding the New York Class C standards. Finally, two organic, but not TPH, and up to 17 metal contaminants were identified in the temporal surface water samples that were collected from within the bounds of the Cosmoline oil site. Of these 19 identified contaminants, only four of the metals were found at levels exceeding the Class C surface water standards. Given this information, it is clear that there is no evidence of contaminant transport

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 1211 Comments Dated March 24, 2004 Page 3 of 9

to locations downgradient of the Cosmoline oil site. Therefore, the Army does not consider further surface water sampling necessary.

**Comment 4:** For reference, the New York State DEC Technical and Administrative Guidance Memorandum (TAGM) #4046 values should be included in the text where appropriate in Section 4. This will provide the information necessary while reviewing the site- and media- specific analytic results.

**Response 4:** For the purposes of comparison, the TAGM #4046 guidance value for each parameter and the number of times the TAGM value was exceeded have been added to the summary statistics tables for soils presented in Section 4 (Tables 4-1, 4-2, 4-6, 4-7, and 4-9).

### II. SPECIFIC COMMENTS

**Comment 1:** Executive Summary, Page E-I: Include chemical oxygen demand (COD), alkalinity, ammonia, hardness, phosphates, and nitrate-nitrite/nitrogen in the list of chemical analyses performed, because these analyses were performed on samples collected during the RI portion of the investigation (as per Table 2-5).

**Response 1:** The text of the *Executive Summary* is correct, and the list of analytes included in Table 2-5 is in error. Analysis for COD, hardness, nitrate-nitrite/nitrogen, and TDS were not performed. Table 2-5 has been revised accordingly. In addition, Tables 2-2 through 2-4 were revised to accurately reflect the analysis performed for each media.

**Comment 2:** Section 1.3.2. Page 1-3: One goal of the investigation at SEAD-1211 was to investigate the potential for contamination at the site resulting from Cosmoline. However, minimal description or discussion of this compound or its military use has been included in the text. Revise this section to describe the nature and use of Cosmoline, and potential contaminants associated with it.

Response 2: Cosmoline is a substance used to prevent corrosion, and it is commonly used to protect metallic components during shipment and storage. According to a material safety data sheet (MSDS) prepared by Goodson Shop Supplies, Cosmoline is composed of a complex mixture of petroleum hydrocarbons, severely hydrotreated heavy naphthenic distillate, Stoddard solvent, wool grease, and butyl stearate. No adverse chronic health effects have been reported due to exposure to Cosmoline. Acute health effects are generally limited to irritation, depending on the duration of the contact. A MSDS for Cosmoline has been included as Appendix D.

This information has been added to the text.

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**Comment 3:** Section 2.2.1, Page 2-3: In the second paragraph of this section, revise text to read "This survey procedure was not employed during the EBS sampling program because the wells installed during this investigation were temporary."

Response 3: The text has been revised accordingly.

**Comment 4:** Section 2.2.3, Page 2-7: Include in this section the season(s) in which the surface water samples were collected at both SEAD-121C and SEAD-121I.

**Response 4:** The surface water samples were collected in the fall of 2002. This information has been added to the text.

Comment 5: Section 2.2.4.3, Page 2-11: The fifth full paragraph of this section indicates the sampling order for groundwater samples collected during the RI portion of the investigation. This order includes VOCs, SVOCs, metals, pesticides/PCBs, cyanide, and TOC/COD. Table 2-5 indicates that groundwater was also sampled for total petroleum hydrocarbons (TPH), hardness. nitrate-nitrite/nitrogen, and total dissolved solids (TDS). Revise the sampling order to include all analyses performed. The same comment applies to text in Section 4.1 on Page 4-2, which excludes these same analyses.

Response 5: The analyte list provided in this section was written in error. As discussed in Response to Specific Comment 1, analysis for TOC and COD were not performed, while analysis for TRPH was performed.

For groundwater, the correct sampling order is (1) VOCs, (2) SVOCs, (3) Metals, (4) pesticides/PCBs, (5) cyanide, and (6) TRPH. The text has been revised accordingly. Response 1 notes that Table 2-5 has been revised as well.

Section 4.1 is correct and does not require revision.

Comment 6: Section 3.1.4.1, Page 3-2: The text in the "RI Program" section contains should be revised. The sentence, "The sampling interval from 2-4 ft...as one sample" erroneously appears to refer to the four soil borings that contained large amounts of rock which was discussed in the previous sentence (SB121C-2, -8, -15, and -19), and which were sampled only from 0-2 ft bgs.

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Revise discussion of sampling depths in the first paragraph, and discussion of sampling of borings SB121C-2, -8, -15, and -19. Clarify that the VOC samples in the composited 2-4 and 4-6 ft bgs sampling intervals were not composited.

Also, confirm that these four borings were sampled from 0 to 2 *feet* bgs, not 0 to 2 *inches* bgs as indicated in the fifth sentence of this section and also on Page 2-5 of Section 2.2.2.1.

**Response 6:** The text has been revised to state,

"At these four soil borings, a substantial sample could not be collected from the deeper sampling interval; thus the interval from 0 to 2 ft. was the only one collected for analysis. At the other twelve soil borings, the sampling interval from 2-4 ft. bgs and 4-6 ft. bgs were composited at each hole location as a result of the high rock content and collected as one sample."

The VOC samples were not composited; rather, the soil samples for VOC analysis were collected from the depth interval of 2-4 ft. only.

The first interval is 0 to 2 feet. Thus, the text in this section has been revised to indicate 0 to 2 feet, as shown above. The text on page 2-5 has been revised as well.

**Comment 7:** Section 3.1.4.2, Page 3-3: Include sample depths of surface soil samples in the text. Also clarify that these samples were the top interval of the soil borings described in the first portion of Section 3.1.4.1.

**Response 7:** The text has been clarified.

**Comment 8:** Section 3.5, Page 3-3; Confirm that ditch soil samples described in this section were collected from 0 to 2 inches bgs.

**Response 8:** The depth range for ditch soil is defined as 0 to 2 inches. In practice, ditch soil samples were collected from the top of the depth interval. Because the ditch soil samples did not seem to vary in character or nature from the surface soil samples (collected from 0 to 2 inches), the ditch soil samples were grouped as surface soil for the purpose of discussion. The text has been clarified.

**Comment 9:** Section 3.1.6, Page 3-4: Revise the first sentence to read that "There were *no* surface water... field program."

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 1211 Comments Dated March 24, 2004 Page 6 of 9

**Response 9:** The text has been revised accordingly.

Comment 10: Section 3.1.7.1, Page 3-6: The section entitled "RI Program" indicates that four wells with a designation starting with "MWDRMO" were installed in the DRMO Yard during the RI investigation. However, the groundwater sampling section, Section 3.1.7.3 refers to permanent well locations with designations starting with "MWI2IC." Additionally, wells with a designation "MWDRMO" are not included in Tables 3-1, 3-7, 3-8, 3-9, 3-10, or 3-11, all of which include information related to the permanent wells at the DRMO Yard. Clarify text if necessary to report on permanent wells installed at the DRMO Yard.

**Response 10:** The well designations should start with "MW121C" and not "DRMO". The text has been revised accordingly.

Comment 11: Section 3.1.8.1, Page 3-7: Text in this section indicates that the first round of elevation data was collected on the day of well development. For consistency, include the date of this activity (apparently mid-January 2003) in this section (as well as in Table 3-11) to facilitate comparison to the second, third, and final rounds of measurements.

**Response 11:** Groundwater elevations were collected on October 29, 2002, January 17, 2003, and February 2, 2003, and May 7, 2003. The text and Table 3-11 have been revised to include this information.

Comment 12: Section 3.2.4.2, Page 3-8: The text in this section indicates that five soil borings were completed at SEAD-121I during the RI investigation. Indicate in this section whether the borings were sampled, and if so, the number of samples collected per boring.

**Response 12:** A soil sample was collected from each boring at a depth interval of 0 to 2 ft. The text has been revised to incorporate this information. A soil boring was advanced and a sample was collected from the top interval at 0-2 inches in each of the five borings. The auger encountered refusal, therefore additional samples at greater depths were not collected.

**Comment 13:** Section 3.2.4.3, Page 3-8: Include the sample depths for the four surface soil samples collected at SEAD-121I during the EBS sampling round.

**Response 13:** The surface soil samples were collected from a depth range of 0 - 0.2 ft. This information has been added to the text.

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**Comment 14:** Section 3.2.6, Page 3-11: The text in this section indicates that no groundwater monitoring wells were installed at SEAD-121I due to shallow refusal. In lieu of discussion of groundwater at this site, include a discussion of the nearest monitoring wells to SEAD121I and the results of any sampling of these wells that is applicable to SEAD-121I.

Response 14: There are no wells at SEAD-1211 (as well as at the neighboring SWMU, SEAD-68) since the site is located very near, or at, the top of the apparent groundwater divide, and there is no saturated thickness in the overburden aquifer. A few wells are located downgradient of SEAD-121I, and they are associated with other SWMUs and are potentially impacted by CERCLA and non-CERCLA releases that have occurred in the overall PID Area. Therefore, any attempt to correlate offsite wells with conditions present at SEAD-121I would have many interferences that would make such comparisons virtually meaningless. Therefore, the Army will not provide any discussion of chemistry and will limit its discussion of offsite wells merely to the fact that they exist and do.

**Comment 15:** Section 4.2, Page 4-3: It appears as though discussion of cyanide results has been omitted from this section even though Tables 2-2 through 2-4 indicate that it was included in the sample analyses for soils, surface water, and ditch soil at SEAD-121C. Similarly, the groundwater section does not include results of COD, hardness, nitrite-nitrate/nitrogen, or TDS although these analyses were reportedly collected from wells at SEAD-121C. Revise as appropriate.

Response 15: At the DRMO Yard, cyanide (total and amenable) was not detected in any surface soil, subsurface soil, surface water, and groundwater samples. Cyanide was detected once in ditch soil at SDDRMO-4 at an estimated concentration of 2.36 J mg/Kg. At SEAD-121I, total cyanide was detected at three surface soil locations, with a maximum concentration of 2.73 mg/Kg at SS121I-29. Cyanide was not detected in the surface water or ditch soil at SEAD-121I. Discussions of cyanide results for each media where cyanide was detected have been added to the text. As noted in previous responses, analysis for COD, hardness, nitrite-nitrate/nitrogen, and TDS was not performed. Any reference to these analyses has been removed from the text.

Comment 16: Section 4.2, Page 4-7: Signs of soil contamination beyond the boundaries of SEAD-121C are discussed throughout this section. However, those signs are dismissed as either anthropogenic background or source unrelated to SEAD-121C. Please note that any exceedances beyond EPA Region 9 preliminary remedial goals (PRGs) industrial screening levels need further investigation and/or remedial action as per CERCLA. Your anthropological background position has never been formally presented or accepted by the

Army's Response to USEPA Comments on Draft Field Sampling Report for SEAD 121C & 121I Comments Dated March 24, 2004 Page 8 of 9

regulatory agencies, and it is considered highly unlikely that such levels of contaminants would have found their way to these areas apart from Army-related operations.

**Response 16:** The Army has been unable to identify any promulgated standard or law that states that Region 9 PRGs trigger the need for further investigation or action. However, the Army has identified the October 1, 2002 EPA Region 9 PRG update, which states that chemical concentrations exceeding PRG levels do not "trigger a response action."

"Exceeding a PRG suggests that further evaluation of the potential risks that may be posed by site contaminants is appropriate. Further evaluation may include additional sampling, consideration of ambient levels in the environment, or a reassessment of the assumptions contained in these screening-level estimates."

There is no mention that exceeding a PRG warrants remedial action. "The PRG table is specifically not intended as a . . . set of final cleanup or action levels to be applied at contaminated sites".

In the Sampling Report, the Army presented specific site conditions that could be potential sources for elevated chemical concentrations detected in locations beyond the boundary of the site. If EPA disagrees with this statement, the Army requests that they present an argument to that effect; EPA's statement that this contention "is considered highly unlikely" is insufficient and unsupported.

Comment 17: Figures 3-1 and 3-2: Include the direction of flow of surface water on these figures.

Response 17: The figures have been revised accordingly.

**Comment 18:** <u>Table 2-5:</u> The table summarizes the groundwater sampling completed at SEAD-121C, but the internal heading in the table refers to SEAD-121I. Revise accordingly.

**Response 18:** The table has been revised accordingly.

Comment 19: <u>Tables 4-1, 4-2, 4-6, 4-7, 4-9:</u> For consistency, revise these tables to include the appropriate TAGM #4046 values ("criteria") for each parameter as was done in Tables 4-3 through 4-5 and 4-8 (groundwater and Surface water).

**Response 19:** The TAGM #4046 values are guidance values or criteria to be considered (TBCs) and not ARARs. However, for the purposes of comparison, the TAGM #4046 guidance value for each parameter and the number of times the TAGM value was exceeded have been added to the summary statistics tables for soils presented in Section 4.

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**Comment 20:** Section 4.3, Page 4-21: The second to last paragraph erroneously locates SD1211 samples 1, 2 and 3 east of SEAD-121I.

Response 20: These samples are located to the west of the site. The text has been revised accordingly.

**Comment 21:** Section 4.3, page 4-7: See comment 16 above. This section presents the same types of justification for contaminants found outside the site boundaries.

Response 21: See response to comment 16 above.

**Comment 22:** Section 6.2, Page 6-1: We do not agree with the "no further investigation/no action" recommendation for this site. Section 4.2 shows significant levels of metal concentrations related to the existing ferrous-manganese ores at this site. Therefore, some kind of controls or remedial work seems to be needed at this site.

Response 22: The site that is the subject of this investigation is the Rumored Cosmoline Oil Disposal Area, and the BRAC program was tasked with investigating this site for contamination associated with Cosmoline oil. Contaminants detected at the site are not consistent with the presence of Cosmoline oil. According to information provided in the MSDS, the main components of Cosmoline oil are a mixture of complex hydrocarbons (e.g., Stoddard solvent), and naphthenic distillate. Naphthalene was detected in only 7 of 52 samples and never exceeded the TAGM level. If Cosmoline oil were present at the site, then it seems likely that heavy hydrocarbons would have been detected in the soils. As the best indicator, the TPH data was reviewed. TPH was detected at 14 locations in the surface soils at scattered locations across SEAD-121I. Due to the delocalized presence of TPH and the absence of significant levels of naphthalene, there is no evidence of a systemic release of Cosmoline oil at the site.

Currently, the location of SEAD-121I is being used as a staging site for planned strategic stockpiles of ferrous-manganese ore. All metals detected appear to be associated with these ore piles. The stockpiles are strategic materials; they are not a waste and are not covered under the CERCLA program. At the time that the strategic piles are removed, residues associated with the historic stockpiling activities will be addressed by the DoD through the authority responsible for management of the piles. Therefore, no further action is warranted for this site under CERCLA by the BRAC office.