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## TECHNICAL MEMORANDUM RISK ASSESSMENT, MUNITIONS RESPONSE SITES

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**SUBJECT:** Munitions Response Post-Remediation Risk Assessment, Seneca Army Depot Activity

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### 1. Purpose and Organization of Memorandum

Parsons Infrastructure & Technology Group Inc. (Parsons) has completed a risk assessment to evaluate potential risks associated with site conditions following the munitions response actions at SEAD-46 (the 3.5-inch Rocket Range), SEAD-57 (the former Explosive Ordnance Disposal [EOD] Area), SEAD-002-R-01 (EOD-2 and EOD-3), SEAD-007-R-01 (the Grenade Range), and SEAD-70 (Building 2110, Filled Area) at the Seneca Army Depot Activity (SEDA or Depot) Superfund Site, Seneca County, New York. This memorandum summarizes the risk assessment approach and the results for each of the sites.

Section 2 of this memorandum provides background information for the risk assessment, section 3 identifies and presents the data used for the risk assessment, sections 4 through 7 summarize each step of the four-step risk assessment process (i.e., hazard identification, exposure assessment, toxicity assessment, and risk characterization), section 8 discusses the risk uncertainties associated with the risk assessment, section 9 summarizes the risk assessment findings, and section 10 lists reference materials used.

### 2. Background

#### 2.1 Site History

The former military facility was owned by the U.S. Government and operated by the Army between 1941 and 2000 when SEDA's military mission ceased. The Depot occupied approximately 10,600 acres of land in the towns of Varick and Romulus in Seneca County, New York. The Depot's historic military



mission included receipt, storage, distribution, maintenance, and demilitarization of conventional ammunition, explosives, and special weapons.

In September 2000 the Army assumed the role of caretaker of the former Depot. As caretaker, the Army maintains control of the Depot's land until the dates when parcels are transferred to new owners for alternate uses. Areas in the Depot that are subject to continuing investigation and remedial action under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), remain under the control of the Army; however, to date more than 8,250 acres of the former Depot have been transferred to the Seneca County Industrial Development Authority, the State of New York, and other federal entities.

## 2.2 Areas of Concern

This memorandum discusses five areas of concern (AOCs): SEAD-46; SEAD-57; SEAD-002-R-01, which consists of two separate areas defined as Explosive Ordnance Disposal (EOD) Area 2 and Area 3; SEAD-007-R-01; and SEAD-70. The AOCs are located in the northern portion of the former Depot on land that is in the Town of Varick (see Figure 1). SEAD-46 and SEAD-002-R-01 are located in the eastern third of the former Depot. This area is located between Fayette Road and the Depot's eastern security fence, and south of East-West Baseline Road. SEAD-57, SEAD-70, and SEAD-07-R-01 are located in the western third of the former Depot. This area is bounded by North-South Baseline Road and the Depot's western security fence. SEAD-70 is located south and west of the intersection of East-West Baseline Road and North-South Baseline Road. SEAD-57 and SEAD-007-R-01 are located north of East-West Baseline Road. Land within the Depot's former Munitions Storage Area is located between the two areas where the five AOCs are located. SEAD-46, EOD-3, SEAD-57, SEAD-007-R-01, and SEAD-70 are located in areas that are generally undeveloped and surrounded by open grassland, thick brush, and wooded areas; EOD-2 is also partially bordered by the Duck Pond.

### 2.2.1 *SEAD-46*

SEAD-46, also known as the "3.5-inch Rocket Range", is a trapezoidal parcel of land that encompasses approximately 68 acres (see Figure 2). The southern east-west boundary of SEAD-46 is located approximately 6000 feet north-northwest of the former Depot's main gate on State Highway 96. The area is comprised primarily of open grassland, which is occasionally interrupted and bordered by areas of dense brush and trees. SEAD-46 is bisected by an unnamed dirt road that runs southeast to northwest. The predominant feature in the area is an earthen backstop target berm that is situated near the northwest corner of the AOC.

From the 1940s to the 1960s SEAD-46 was used for testing fire tracers, 3.5-inch rockets, and possibly other forms of ammunition. The 1998 Archive Search Report (ASR) indicates that the backstop target berm is visible in the 1954 aerial photograph of the area. Although SEAD-46 is identified as the "3.5-inch Rocket Range," the ASR indicates that it also includes a reputed EOD disposal site (i.e., EOD-3) and a known Reserve Component Training Area. Further, the Ordnance and Explosives Engineering Evaluation/Cost Analysis (OE EE/CA) prepared by Parsons in 2004 indicates that SEAD-46 was once



used as a testing range for rocket motors. Review of historic files revealed at least one picture of a 3.5-inch motor fixed to a tripod in front of the backstop berm at SEAD-46.

### 2.2.2 SEAD-57

SEAD-57, the former Explosive Ordnance Disposal Area (formerly EOD-1), is a rectangular parcel of land that encompasses approximately 72 acres in the west-northwest portion of the former Depot. SEAD-57 is adjacent to the southernmost portion of the Open Burning/Open Detonation Grounds (see Figure 3) that occupies most of the land located in the northwestern corner of the former Depot. SEAD-57 is comprised primarily of open grassland. A few man-made structures, located in the center of the AOC and along its northern edge, exist at SEAD-57. An open, reverse “C”-shaped berm, measuring approximately 80 feet by 100 feet in size, is located in the center of the AOC. Equipment shelters, remote control shelters, and an EOD munitions storage igloo are located along the north-central edge of the AOC. An east-west oriented, unnamed dirt road transects the northern edge of the AOC, and a second, perpendicular, unnamed dirt road intersects the northern road roughly halfway across the AOC’s edge. This road provides vehicular access to the area surrounding the earthen containment berm.

For more than 20 years, the 143<sup>rd</sup> Ordnance Detachment, a Department of the Army tenant organization located at the Depot, performed ordnance and explosives (OE) disposal at SEAD-57. The disposal area was used by EOD personnel for the disposal of conventional ammunition or explosives weighing less than 5 pounds.

### 2.2.3 SEAD-002-R-01 (EOD-2 and EOD-3)

SEAD-002-R-01 is comprised of two separate areas, EOD-2 and EOD-3, which are located in the northeastern portion of the former Depot in the vicinity of the Duck Pond and SEAD-46.

EOD-2 encompasses approximately 3 acres of land on the southwestern shore of the Duck Pond (see Figure 4). This area is west-northwest of SEAD-46 and southeast of the intersection of Fayette Road and East-West Baseline Road (see Figure 1). EOD-2 is comprised primarily of open grassland with small areas of brush and tree cover. A portion of the eastern boundary of this site is defined by the shore of the Duck Pond. A portion of EOD-2 is collocated with the western portion of SEAD-13, the former Inhibited Red-fuming Nitric Acid disposal area. The ASR states that explosive devices were used in EOD-2, and that non-explosive projectiles were disposed in the Duck Pond.

EOD-3 encompasses approximately 4 acres of land approximately 250 feet north of the earthen target berm in SEAD-46 (see Figure 5). EOD-3 is mostly flat with the exception of a 100 foot by 200 foot depression in the middle of the site. The area surrounding the depression is wooded. The ASR describes the AOC as a former EOD disposal area, and indicates that in the 1950s and 1960s the area surrounding the depression was clear of brush and trees.

### 2.2.4 SEAD-007-R-01 (Grenade Range)

The Grenade Range, which was constructed in the mid-1980s, encompasses approximately 28 acres of land in the northwestern portion of the former Depot, to the west and southwest of SEAD-57 (see Figure 6). During its lifetime, the Grenade Range area contained wooden and armored vehicle targets, distance



and boundary markers, and a range control tower. The Grenade Range is comprised primarily of open grassland that is surrounded by woods. The ASR states that 40mm M781 (40mm Low Velocity Practice Cartridge) and 35mm M73 sub-caliber practice rockets were used at the Grenade Range during security forces' training. There is no record (or indication at the targets) that high explosive (HE) rounds were tested. Small arms (blanks) casings were reported to be present at the time of the ASR.

#### 2.2.5 SEAD-70

SEAD-70 is a historic fill area encompassing approximately 4.5 acres that are adjacent to the historic location of Building T-2110 in the northwestern portion of the Depot (see Figure 7). Building T-2110 was demolished in 2007. SEAD-70 is south of East-West Baseline Road approximately 1,000 feet west of the intersection of North-South Baseline Road and East-West Baseline Road, and approximately 15,000 feet northwest of the former Depot's main gate on State Highway 96. When Building T-2110 was present at the site, it was encircled by a dirt road and was used to house horses. The remainder of SEAD-70 is undeveloped.

The most noticeable feature in the undeveloped portion of SEAD-70 is a kidney-shaped landfill that forms a flat, topographic high area. The landfill appears to originate near the former barn and expand southeasterly. The landfill's scarp is clearly visible on its eastern side. A large mound is located near the southeastern corner of the barn and an elongated vegetated mound is present along the southern perimeter of the landfill. Immediately east of the landfill is a wetland area beyond which is a large stand of deciduous trees.

The topography in the immediate area of the barn and over the extent of the landfill is relatively flat; however the local and regional topography surrounding the landfill slopes west.

### 3. Data Used for the Risk Assessment

All soil and groundwater data used in the risk assessment calculations were validated by Parsons' chemists in accordance with US Environmental Protection Agency (USEPA) Region 2 Standard Operating Procedures (SOPs).

#### 3.1 SEAD-46

Analytical results from samples collected during the SEAD-46 remedial investigation (RI) performed between 1999 and 2000 form the datasets used for the risk assessment at this AOC. Soil and groundwater datasets were evaluated for SEAD-46. There are no permanent wetland areas nor surface water features in SEAD-46; therefore, exposure to surface water and to sediment were considered incomplete pathways. A few "surface water" and "sediment" (henceforth "ditchsoil") samples were collected and characterized during the RI; however, these samples were collected from pools that formed during intermittent storm events prior to infiltration or evaporation. Hence, results from surface water samples were not used in this risk assessment. On the other hand, results from "sediment" samples were pooled with soil results that were evaluated in the risk assessment.

The soil dataset for SEAD-46 is comprised of surface (0 to 2 feet), subsurface (2 to 15 feet), and ditchsoil sample results. The soil dataset, which includes a surface soil and a total soil subset, are presented in





**Attachment A, Table 1.** Surface soil in the SEAD-46 dataset was assumed to be accessible by all potential receptors evaluated in this risk assessment (construction workers, park workers, recreational child visitors, resident adults, and resident children); subsurface soils in the SEAD-46 dataset were assumed accessible by the construction worker receptor only.

During the SEAD-46 RI, two rounds of groundwater samples were collected from six monitoring wells (MW46-1 to MW46-6). Analytical results from these samples were used as the groundwater dataset for the risk assessment. Round 1 samples were collected from January 22-23, 2000; and Round 2 samples were collected from April 25-26, 2000. The RI groundwater samples were collected using low-flow groundwater sampling methods. Generally, the concentrations of chemicals detected in the Round 1 and Round 2 samples are comparable. Groundwater data used for the risk assessment are presented in **Attachment A, Table 2.**

SEAD-46 soil and groundwater samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), TCL pesticides and polychlorinated biphenyls (PCBs), explosive constituents, and Target Analyte List (TAL) metals. Prior to performing summary statistics and risk assessment calculations, analytical results from sample duplicate pairs of soil data were averaged.

### 3.2 SEAD-57

Analytical results from soil and ditchsoil samples collected during the SEAD-57 Expanded Site Investigation (ESI) in 1993 and 1994, the RI in 1999 and 2000, and the Munitions Response activities performed in 2006 were used in the risk assessment. Surface soil in the SEAD-57 dataset was assumed to be accessible by all potential receptors evaluated in this risk assessment, whereas subsurface soils in the SEAD-57 dataset were assumed accessible by only construction worker receptors. Soil data used for the risk assessment are presented in **Attachment B, Table 1.**

Analytical results from groundwater samples collected during the ESI on February 3, 1994; Round 1 and Round 2 of the SEAD-57 RI on January 23-25, 2000 and April 26-28, 2000; and Round 1 and Round 2 of the SEAD-12 RI on April 23, 1999 and December 2, 1999 comprise the SEAD-57 groundwater dataset. During the ESI, groundwater samples were collected from three monitoring wells (MW57-1, MW57-2, and MW57-3) using bailers. Since bailers were used during the ESI sampling, elevated results are suspect. It is likely that elevated contaminant concentrations found in the ESI samples are due to the presence of silt or entrained soil fines that were stirred up by the bailing technique that was used when sampling these wells. The repetitive lowering and raising of the bailer is likely to stir up any soil or silt in the well, and the presence of metals in soil are likely to contribute to the concentration of metals detected in the samples from such event. The use of bailers creates more turbidity in samples than do low-flow sampling procedures, and, as such, metal concentrations in samples obtained with bailers tend to be greater than metal concentrations obtained with low-flow sampling procedures.

Samples collected during the SEAD-57 and SEAD-12 RI sampling events were collected using low-flow sampling procedures. Groundwater samples were collected from seven monitoring wells (MW57-1 to MW57-7) as part of the SEAD-57 RI, and from one monitoring well (MW57-1) as part of the SEAD-12



RI. Groundwater data collected during all groundwater sampling events are presented in **Attachment B, Table 2a**.

An alternate SEAD-57 groundwater dataset that excludes the ESI groundwater results is presented in **Attachment B, Table 2b**. ESI results were excluded from the alternate dataset due to concerns over result biases due to the use of bailers which tend to create more turbidity in samples than do low-flow sampling procedures. As such, the majority of detected metal concentrations in the ESI samples were a magnitude higher than comparable metal concentrations in the RI samples. This discrepancy in metal concentration is suspected to be attributable to the presence of metal contaminants in suspended soil/silt that was present in the ESI samples but not in the RI samples.

Soil and groundwater samples collected from SEAD-57 were analyzed for TCL VOCs, SVOCs, pesticides and PCBs, explosives, and TAL metals during the ESI sampling event; TCL VOCs, SVOCs, pesticides and PCBs, and TAL metals were analyzed during the SEAD-57 RI sampling events; and TAL metals were analyzed during the SEAD-12 RI sampling events. Analytical results from sample duplicate pairs were presented as discreet samples.

### 3.3 SEAD-002-R-01 (EOD-2 and EOD-3)

The SEAD-002-R-01 dataset is separated into two area-specific datasets for EOD-2 and EOD-3. Analytical results collected during the Munitions Response activities in 2006 form the dataset used for the risk assessment at SEAD-002-R-01. This dataset includes only shallow soil samples (0 to 2 feet). The EOD-2 soil data used in the risk assessment are presented in **Attachment C, Table 1**. The EOD-3 soil data used in the risk assessment are presented in **Attachment D, Table 1**. Soil associated with the analytical results was assumed to be accessible by all potential receptors evaluated in this risk assessment; therefore all results presented in the aforementioned tables were used in the risk assessment.

Soil samples collected from EOD-2 and EOD-3 were analyzed for TCL VOCs, SVOCs, pesticides and PCBs, and TAL metals during the Munitions Response sampling events. Analytical results from sample duplicate pairs of soil data were presented as discreet samples.

### 3.4 SEAD-007-R-01 (Grenade Range)

Analytical results from samples collected during the Munitions Response activities in 2006 form the dataset used for the risk assessment at the Grenade Range. The SEAD-007-R-01 soil dataset consists of results from shallow samples only. The soil data used for the risk assessment are presented in **Attachment E, Table 1**. Soil associated with the analytical results was assumed to be accessible by all potential receptors evaluated in this risk assessment; therefore all results presented in the aforementioned table were used in this risk assessment.

Soil samples collected from SEAD-007-R-01 were analyzed for TCL VOCs, SVOCs, pesticides and PCBs, and TAL metals during the Munitions Response sampling event. Analytical results from sample duplicate pairs of soil data were presented as discreet samples.



### 3.5 SEAD-70

Analytical results from selected shallow and subsurface soil samples that were collected during the 1994 ESI sampling event, and shallow soil samples collected during the limited removal action conducted between 2006 and 2009 form the SEAD-70 soil dataset. Results associated with soil that was removed as part of the SEAD-70 limited removal action have been eliminated from the SEAD-70 soil dataset. The soil data used for this risk assessment are presented in **Attachment F, Table 1**. Soil associated with the analytical results was assumed to be accessible by all potential receptors evaluated in this risk assessment; therefore all results presented in the aforementioned table were used in this risk assessment.

Analytical results from groundwater samples collected during the ESI sampling event conducted on July 7 and 8, 1994 form the SEAD-70 groundwater dataset. The groundwater data used for the risk assessment are presented in **Attachment F, Table 2**.

Soil samples collected from SEAD-70 were analyzed for TCL VOCs, SVOCs, pesticides and PCBs, and TAL metals during the ESI sampling event; samples collected during the limited removal action were analyzed for arsenic only. Analytical results from sample duplicate pairs of soil data were presented as discrete samples.

## 4. **Hazard Identification**

Contaminants that were evaluated in this risk assessment (i.e., Contaminants of Potential Concern [COPCs]) were selected by comparing maximum detected concentrations (MDCs) with USEPA Regional Screening Level (RSLs). RSLs for carcinogenic compounds were used at full value, which corresponds to a target cancer risk of  $1 \times 10^{-6}$ ; RSLs for non-carcinogenic compounds were reduced by a factor of 10 (i.e., 0.1 times the listed RSL value), which corresponds to a hazard quotient of 0.1. When USEPA RSLs were not available, other USEPA screening values were used if identified. For example, in the absence of USEPA RSLs Parsons consulted USEPA Region 3 or 9 Risk-Based Concentrations (RBCs) for residential soil, USEPA Region 3 or 9 RBCs for tapwater, and USEPA Maximum Contaminant Levels (MCLs) for drinking water.

Chemicals with concentrations below the comparator RSLs were eliminated from the list of COPCs evaluated in this risk assessment. Chemicals with no available screening values and chemicals with maximum detected concentrations above the screening values were considered COPCs. In addition, all members of a chemical class that had any one member selected as a COPC were considered COPCs (e.g., all detected carcinogenic polycyclic aromatic hydrocarbons (cPAHs) were retained as COPCs if any one cPAH was identified as a COPC based on the aforementioned screening process).

Soil and groundwater screening tables summarizing the COPC identification process are presented in:

- SEAD-46: **Attachment A, Tables 3A and 3B**, respectively.
- SEAD-57: **Attachment B, Tables 3A and 3B**, respectively.
- SEAD-002-R-01 (EOD-2): **Attachment C, Table 2** (soil only).
- SEAD-002-R-01 (EOD-3): **Attachment D, Table 2** (soil only).
- SEAD-007-R-01 (Grenade Range): **Attachment E, Table 2** (soil only).



- SEAD-70: **Attachment F, Tables 3A and 3B**, respectively.

## 5. Exposure Assessment

### 5.1 Exposure Point Concentrations (EPCs)

Risk due to soil exposure and ambient air exposure was evaluated at all AOCs; risk due to groundwater exposure was evaluated at SEAD-46, SEAD-57, and SEAD-70 only. Risk was evaluated via the reasonable maximum exposure (RME) scenarios.

Risk due to soil and groundwater exposure was evaluated based on soil and groundwater EPCs which were set equal to a contaminant's MDC or a contaminant's upper confidence limit (UCL) of the arithmetic mean concentration. MDCs were used as EPCs where limited contaminant data exist. UCLs were used for EPCs where large-enough contaminant datasets exist. When UCLs were used, they were calculated via the USEPA's Software for Calculating Upper Confidence Limits (ProUCL) version 4.00.04. When necessary, datasets were analyzed in ProUCL with "ND" to account for non-detect values. This EPC calculation is consistent with USEPA guidance (2002b).

Risk due to ambient air exposure was evaluated based on soil EPCs. COPCs for ambient air were determined from soil EPCs and concentrations of particulate matter that were below 10  $\mu\text{m}$  in aerodynamic diameter (PM10) in ambient air. Ambient PM10 concentrations for the construction worker were estimated using an emission and dispersion model (see Attachment G). PM10 concentrations for industrial workers and residents at the Depot were set at 17  $\mu\text{g}/\text{m}^3$ , which is based on particulate measurements collected at the Depot.

EPCs for soil, groundwater, ambient air (one scenario for construction workers and one scenario for other human receptors), and inhaled air (in a shower) are presented in:

- SEAD-46: **Attachment A, Tables 4A through 4E**, respectively.
- SEAD-57: **Attachment B, Tables 4A through 4E**, respectively.
- SEAD-002-R-01 (EOD-2): **Attachment C, Tables 3A through 3C**, respectively (no groundwater considered).
- SEAD-002-R-01 (EOD-3): **Attachment D, Tables 3A through 3C**, respectively (no groundwater considered).
- SEAD-007-R-01 (Grenade Range): **Attachment E, Tables 3A through 3C**, respectively (no groundwater considered).
- SEAD-70 EPC: **Attachment F, Tables 4A through 4E**, respectively.

### 5.2 Receptors, Exposure Pathways, and Exposure Profiles

Currently, each AOC is unused and vacant. Land in the AOCs is currently designated as either Conservation/Recreation (SEAD-57, SEAD-70, SEAD-007-R-01) or Residential/Resort (SEAD-46, SEAD-002-R-01 [EOD-2 and EOD-3]). Based on the current and foreseeable land use at the sites, five future human receptors were identified for this risk assessment: construction worker, park worker, recreational child visitor, adult resident, and child resident. Adult and child residents are included in the





risk assessment to evaluate potential risks to receptors under the Residential/Resort (i.e., unrestricted use) scenario.

Soil exposure pathways analyzed in this risk assessment are the ingestion of soil, dermal contact with soil, and inhalation of ambient dust formed by soil resuspension. Groundwater exposure pathways analyzed in this risk assessment are the intake of groundwater, inhalation of groundwater, and dermal contact with groundwater. Although groundwater pathways are analyzed, it is unlikely that groundwater will be used as a potable water source at the Depot. The aquifer that underlies the Depot has not been shown to be productive enough to supply sufficient water to fulfill potential potable water needs of future occupants. Further, the shallow overburden aquifer that underlies the Depot is subject to large seasonal variations in groundwater elevation, and periodically disappears during dry seasons at many of the AOCs at the Depot. Finally, the Depot has an existing alternate potable water source that is currently in use. Nevertheless, as a conservative approach, the aforementioned groundwater exposure pathways were evaluated in this risk assessment.

Exposure assumptions for the park worker, construction worker, recreational child visitor, adult resident, and child resident receptors are summarized in **Attachment G Tables 1A, 1B, 1C, 1D, and 1E**, respectively. These assumptions approximate the frequency, duration, and manner in which receptors would be exposed to environmental media.

### 5.3 Quantification of Exposure

Each receptor's potential exposure to the identified COPCs was quantified for each of the applicable exposure pathways. Potential exposures were calculated following methods recommended in USEPA guidance documents, such as the USEPA Risk Assessment Guidance for Superfund (RAGS) (USEPA, 1989). Human health intake, or absorbed dose (depending on the exposure route), was calculated with EPCs and exposure assumptions. The total exposure of any receptor to any COPC is divided by the period of interest to obtain an average exposure. The period of interest, or averaging time, is a function of the toxic endpoint. For non-carcinogenic effects, the period of interest is the receptor's exposure time (specific to the scenario being assessed); for carcinogenic effects, it is the receptor's lifetime (assumed to be 70 years).

## 6. Toxicity Assessment

Toxicity variables considered in this assessment include the reference dose (RfD) and the reference concentration (RfC) to evaluate non-carcinogenic effects, and the slope factor and the unit risk to evaluate carcinogenic effects. Toxicity values for the risk assessment were selected in accordance with the USEPA-recommended (2003a) human health toxicity value hierarchy.

For the evaluation of carcinogenic cPAHs, Parsons used toxicity equivalency factors (TEFs) that are based on the toxicity of benzo(a)pyrene as published by the USEPA (1993) (see below).



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 the slope factor for any given cPAH, the appropriate TEF was multiplied by the slope factor for benzo(a)pyrene. The toxicity factors used in this evaluation are summarized in Attachment G Tables 2A through 2D.

Information regarding Gastrointestinal (GI) absorption efficiency for administered doses was used for the development of dermal toxicity factors. Specifically, oral slope factors were converted to dermal slope factors by dividing by the GI absorption efficiency; likewise, oral reference doses were converted to dermal reference doses by multiplying by the GI absorption efficiency. The derivation of dermal toxicity values for the risk assessment is consistent with USEPA (2004) recommendations. The GI absorption efficiency that was used in this risk assessment is the value recommended by the USEPA in its Supplemental Guidance for Dermal Risk Assessment. In the event that information regarding absorption of a particular substance could not be located, an oral absorption efficiency of 100% was assumed. This method is consistent with USEPA Region 2 guidance (personal communication between A. Schatz of Parsons and M. Maddeloni of USEPA Region 2).

For the development of inhalation toxicity values, RfCs were converted into inhalation RfDs with units of milligrams of chemical per kilogram of body weight per day (mg/kg-day). Similarly, inhalation unit risk factors were converted into inhalation slope factors in units of per milligrams of chemical per kilogram of body weight per day ((mg/kg-day)<sup>-1</sup>).

Ideally, chronic RfDs and RfCs are based on chronic exposure studies of humans or animals. “Chronic exposure” for humans is considered to be exposure of seven years or more; therefore, RfDs and RfCs for chronic exposure are appropriate for evaluating adult and child residential receptor exposures. On the other hand, RfDs and RfCs for subchronic exposure, which is defined as exposure between 1 and 6 years, are appropriate for evaluating construction worker, recreational child visitor, and child resident receptor exposures. Nevertheless, as a conservative approach, chronic RfDs and RfCs were used to assess risk for all receptors.

## 7. Risk Characterization

Detailed risk calculations for SEAD-46 for exposure via soil ingestion, groundwater intake, dermal exposure to soil, dermal exposure to groundwater, inhalation of groundwater, and inhalation of dust in ambient air are presented in **Attachment A, Tables 5 through 10**. Non-cancer hazard indices and cancer risks calculated for the receptors are presented in **Attachment A, Table 11**.



Detailed risk calculations based on all available analytical data for SEAD-57 for exposure via soil ingestion, groundwater intake, dermal exposure to soil, dermal exposure to groundwater, inhalation of groundwater, and inhalation of dust in ambient air are presented in **Attachment B, Tables 5 through 10**. Non-cancer hazard indices and cancer risks calculated for the receptors are summarized in **Attachment B, Table 11**. SEAD-57 risk calculations for a modified dataset that excludes ESI groundwater results that are assumed to be affected by high levels of turbidity associated with the collection of the sample using a bailer are presented in **Attachment B, Tables 6A, 8A and 11A**.

Detailed risk calculations for SEAD-002-R-01 (EOD-2 and EOD-3) and SEAD-007-R-01 (Grenade Range for exposure via soil ingestion, dermal exposure to soil, and inhalation of dust in ambient air are presented in **Tables 5 through 7**, in their respective attachments (**Attachment C, D, and E**, respectively). Non-cancer hazard indices and cancer risks calculated for the receptors are summarized in **Table 8**, in their respective attachments.

Detailed risk calculations for SEAD-70 for exposure through soil ingestion, groundwater intake, dermal exposure to soil, dermal exposure to groundwater, inhalation of groundwater, and inhalation of dust in ambient air are presented in **Attachment F, Tables 5 through 10**. Non-cancer hazard indices and cancer risks calculated for the receptors are summarized in **Attachment F, Table 11**.

7.1 Risk Characterization Results

The USEPA-recommended limit (i.e., the value that should not be exceeded) for the non-carcinogenic hazard index (HI) is 1.0. The USEPA upper limit for the cancer risk level is  $1 \times 10^{-4}$  and the preferred limit is  $1 \times 10^{-6}$ .

7.2 SEAD-46

7.2.1 *Conservation/Recreation Scenario*

Estimated non-carcinogenic hazard indices (HIs) for the park worker and recreational child visitor receptors at SEAD-46 are below the USEPA limit of 1; the estimated HI for the construction worker receptor is above the USEPA limit. Estimated cancer risk levels for the construction worker, park worker, and recreational child visitor receptors at SEAD-46 are within the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ) for carcinogenic risk.

Receptor	Hazard Index	Cancer Risk
Park Worker	4.2E-01	1.8E-05
Construction Worker	1.1E+00	1.3E-06
Recreational Child Visitor	2.4E-01	2.0E-06

Three exposure pathways, ingestion of soil (57%), inhalation of dust in ambient air (24%), and intake of groundwater (17%), represent approximately 99% of the HI calculated for the construction worker. Contributions from exposure to aluminum (7.9%), arsenic (17.2%), cobalt (14.5%), iron

(26.5%), and manganese (26.1%) represent more than 98.5% of the construction worker's total estimated HI.



Analyte	EPC (mg/kg)	USEPA RSL (mg/kg)	NYSDEC SCO (mg/kg)	SEDA Soil Avg. (mg/kg)	SEDA Std. Dev. (mg/kg)
Aluminum	14,000	77,000	NA	13,206	4,159
Arsenic	5.3	0.39	13	5.2	2.8
Cobalt	12	23	NA	11	4
Iron	27,000	55,000	NA	24,661	6,854
Manganese	670	1,800	1,600	609	335
NA = none available					

As summarized in the table below, the EPC used for aluminum, cobalt, iron, and manganese in SEAD-46 soil are below USEPA RSLs for residential soil; the EPC for manganese at

SEAD-46 is also below the New York State (NYS) unrestricted use soil cleanup objective (SCO) values. The EPCs for the five primary COPCs at SEAD-46 are consistent with background soil concentrations found at the Depot, each being within one standard deviation of the accepted average background concentration found in Depot samples.

As such, the estimated HI for the construction worker at SEAD-46 is comparable to, and perhaps lower than that which could be found at a residential site based on federal and state guidance values. EPCs at SEAD-46 are also consistent with concentrations at unaffected sites at the Depot. Further, it is important to note that intake of manganese, iron, and cobalt are considered to be beneficial to human health at moderate doses and that the lack of these metals can have deleterious health effects in adults and children.

As shown in the table below, which summarizes SEAD-46 COPCs exposure pathway contributions to the HI for the construction worker, exposure to manganese via all pathway routes represents the largest portion (percentage basis) of the HI estimated.

Analyte	Soil Ingestion	Dermal Contact Soil	Inhalation of Dust	Ingestion of Groundwater	Total	Percentage of Total
Chrysene	2.0E-04	7.8E-05			2.8E-04	0.0%
Dieldrin	9.2E-04	2.2E-04			1.1E-03	0.1%
Aluminum	4.6E-02	1.3E-04	4.2E-02		8.8E-02	7.9%
Arsenic	6.0E-02	5.1E-03		1.3E-01	2.0E-01	17.7%
Cobalt	1.3E-01	3.8E-04	3.0E-02		1.6E-01	14.6%
Iron	2.9E-01	8.6E-04			2.9E-01	26.6%
Manganese	9.0E-02	6.5E-03	2.0E-01		2.9E-01	26.7%
Thallium	1.1E-02	3.1E-05		6.1E-02	7.1E-02	6.4%
<b>Total</b>	<b>6.3E-01</b>	<b>1.4E-02</b>	<b>2.7E-01</b>	<b>1.9E-01</b>	<b>1.1E00</b>	<b>100%</b>

The most significant portion of the manganese contribution to the construction worker's HI is via inhalation of dust. The inhalation hazard quotient for manganese dust is based on a chronic RfC that was derived in a USEPA (1998) study of the inhalation of manganese dioxide dust by industrial workers in battery manufacturing facilities. The exact composition of the manganese identified at SEAD-46 is





unknown, but it is unlikely that all of the SEAD-46 manganese exists as manganese dioxide. More likely, the manganese present at SEAD-46 is a mixture of various naturally occurring minerals, including oxide, salt, carbonate, and silicate forms. Since manganese dioxide likely contributes only a portion of the risk at SEAD-46, the use of the aforementioned RfC is a very conservative approach; it is likely that the resulting hazard quotient overestimates probable impacts to the construction worker at SEAD-46 where other forms of manganese are likely to be present. Nevertheless, since the exact composition of the manganese at SEAD-46 is unknown, no adjustments to the HI can be made. Lastly, it is important to note that the aforementioned USEPA-promulgated RfC is an uncertain number; the USEPA assigns the RfC an uncertainty factor of 1,000, reflecting a low degree of confidence in its value.

In addition to the RfC, the inhalation HI for manganese is also based on an inhalation RfD. The inhalation RfD used in this risk assessment is 4,000 times lower than the American Conference of Governmental Industrial Hygienists' (ACGIH's) threshold limit value (TLV), where the TLV is the concentration of a substance to which an industrial worker can be exposed without adverse effects. This fact further emphasizes the conservative nature of the risk due to manganese calculated in this assessment.

The EPC and all sample concentrations measured for arsenic in SEAD-46 groundwater are below the USEPA MCL for arsenic in drinking water; the only concentration measured for thallium in SEAD-46 groundwater is above the USEPA MCL for thallium in drinking water.

Analyte	EPC (mg/L)	MCL (mg/L)
Arsenic	0.004	0.010
Thallium	0.004	0.002

Arsenic was found in only 3 of the 12 groundwater samples collected at SEAD-46; thallium was found in only 1 of the 12 groundwater samples. Further, the three times arsenic was detected in SEAD-46 groundwater samples all occurred in the first round of sampling; thallium was detected in the first round of sampling, as well. It is

assumed, then, that the arsenic and thallium found in groundwater at SEAD-46 are artifacts of the initial well installation and development process that likely entrained silt/soil fines that are not associated with dissolved forms of these COPCs.

Aside from the above discussion concerning COPC concentrations in SEAD-46 groundwater, it is unlikely that future receptors at the Depot would ever contact groundwater at the site because groundwater at the Depot is unlikely to be used as a potable water source. As mentioned in Section 5.2, the shallow overburden aquifer that underlies the Depot has not been shown to be productive enough to supply sufficient water to fulfill the potable water needs of potential future occupants. Further, groundwater elevations at the AOC are subject to significant seasonal variations and the overburden aquifer at SEAD-46 periodically disappears dry periods. Finally, the Depot has an existing alternate potable water source that is currently in use.

As discussed in Section 7.1, the USEPA sets a preferred limit of 1 for the non-carcinogenic HI. This value is provided as a limit for the entire human body; however, this limit can also be apportioned at the individual body system or target organ level. With reference to the six largest components of the SEAD-46 construction worker's non-carcinogenic HI: manganese's primary effect is on the central nervous system; iron's primary target organs are the heart, liver, or endocrine glands, with secondary effects to the lungs; arsenic's primary target organ is the skin; cobalt's primary effect is on the lungs with a secondary



affect on the heart; aluminum's is to neuro-development of the brain; and thallium's is to the liver, blood, and hair. As such the maximum effect that is anticipated to impact any single body organ would be toward the construction worker's heart where the hazard quotients determined for iron, cobalt and the other unassigned COPCs would represent a total hazard quotient of less than 0.5. Therefore, the construction worker's apparent non-carcinogenic HI is not above the EPA's limit at the target organ/system level.

Target Organ or Effect	Estimated HI	Contributing COPCs
Central Nervous System or Neuro Development	0.37	Aluminum and Manganese
Skin	0.20	Arsenic
Lungs	0.45	Cobalt and Iron
Heart	0.45	Cobalt and Iron
Liver	0.36	Iron and Thallium
Endocrine Glands	0.29	Iron

7.2.2 Residential Scenario

Estimated non-carcinogenic HIs for the adult and child residential receptors at SEAD-46 are above the USEPA limit of 1. Estimated cancer risk levels for the adult and child residential receptors at SEAD-46 are within the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ); however, the estimated cancer risk for a lifetime resident is above the USEPA acceptable range.

Pathway/Receptor	Hazard Index	Cancer Risk
Inhalation of Dust in Ambient Air	7.5E-01	1.9E-06
Ingestion of Soil	2.7E-01	4.1E-06
Intake of Groundwater	5.3E-01	5.6E-05
Dermal Contact to Soil	7.9E-03	5.4E-07
Dermal Contact to Groundwater	9.9E-03	0.0E+00
<b>TOTAL for RESIDENT ADULT</b>	<b>1.6E+00</b>	<b>6.3E-05</b>

Inhalation of Dust in Ambient Air	1.5E+00	9.6E-07
Ingestion of Soil	2.5E+00	9.5E-06
Intake of Groundwater	1.9E+00	4.9E-05
Dermal Contact to Soil	5.2E-02	8.9E-07
Dermal Contact to Groundwater	1.7E-02	5.7E-07
<b>TOTAL for RESIDENT CHILD</b>	<b>6.0E+00</b>	<b>6.1E-05</b>



Inhalation of Dust in Ambient Air		2.8E-06
Ingestion of Soil		1.4E-05
Intake of Groundwater		1.1E-04
Dermal Contact to Soil		1.4E-06
Dermal Contact to Groundwater		1.9E-06
<b>TOTAL for LIFETIME RESIDENT</b>		<b>1.2E-04</b>

The intake of groundwater represents approximately 84% of the cancer risk for the lifetime resident. The COPC representing all (100%) of the carcinogenic risk estimated for the intake of groundwater is arsenic. As discussed above, arsenic was detected three times during the first RI sampling event only. The EPC concentration was detected at 4 µg/L which is below the USEPA MCL for arsenic in drinking water and below the NYS Ambient Water Quality Standard and Guidance Value (GA Standard). As has discussed earlier, the use of the groundwater at the Depot is unlikely. Thus, the estimated cancer risk for the lifetime resident is presumed to overestimate what is reasonably likely to exist at SEAD-46.

Three exposure pathways, ingestion of soil, intake of groundwater, and inhalation of dust represent approximately 99% of the non-carcinogenic HIs calculated for the adult and child residential receptors, as shown in the two tables presented below.

<b>Contributions to Adult Resident's Hazard Index</b>							
<b>Analyte</b>	<b>Soil Ingestion (17%)</b>	<b>Dermal Contact Soil (0.5%)</b>	<b>Inhalation of Dust (47.9%)</b>	<b>Ingestion of Groundwater (34%)</b>	<b>Dermal Contact Groundwater (0.6%)</b>	<b>Total</b>	<b>Percentage of Total</b>
Chrysene	8.5E-05	.44E-05				1.3E-04	0.01%
Dieldrin	3.9E-04	1.6E-04				5.5E-04	0.03%
Aluminum	1.9E-02	7.7E-05	1.2E-01			1.4E-01	8.64%
Arsenic	2.5E-02	3.0E-03		3.7E-01	8.6E-03	4.0E-01	25.56%
Cobalt	5.5E-02	2.2E-04	8.0E-02			1.4E-01	8.85%
Iron	1.2E-01	5.0E-04				1.2E-01	7.93%
Manganese	3.8E-02	3.8E-03	5.5E-01			6.0E-01	37.84%
Thallium	4.5E-03	1.8E-05		1.7E-01	1.4E-03	1.8E-01	11.14%
<b>Total</b>	<b>2.7E-01</b>	<b>7.9E-03</b>	<b>7.5E-01</b>	<b>5.3E-01</b>	<b>9.9E-03</b>	<b>1.6E00</b>	<b>100%</b>



Contributions to Child Resident's Hazard Index							
	Soil Ingestion (41.9%)	Dermal Contact Soil (0.9%)	Inhalation of Dust (25.6%)	Ingestion of Groundwater (31.4%)	Dermal Contact Groundwater (0.3%)	Total	Percentage of Total
Chrysene	7.9E-04	2.9E-04				1.1E-03	0.0%
Dieldrin	3.6E-03	1.0E-03				4.7E-03	0.1%
Aluminum	1.8E-01	5.1E-04	2.4E-01			4.2E-01	7.0%
Arsenic	2.4E-01	2.0E-02		1.3E00	1.5E-02	1.5E00	26.0%
Cobalt	5.2E-01	1.4E-03	1.7E-01			6.9E-01	11.5%
Iron	1.2E00	3.2E-03				1.2E00	19.5%
Manganese	3.6E-01	2.5E-02	1.1E00			1.5E00	25.2%
Thallium	4.2E-02	1.2E-04		5.9E-01	2.3E-03	6.4E-01	10.7%
<b>Total</b>	<b>2.5E00</b>	<b>5.2E-02</b>	<b>1.5E00</b>	<b>1.9E00</b>	<b>1.7E-02</b>	<b>6.0E00</b>	<b>100%</b>

In each case, the ingestion of groundwater represents approximately one-third of the total hazard index estimated for the resident receptors. As stated above, the groundwater pathway for SEAD-46 is considered incomplete as the shallow aquifer beneath the Depot yields poorly, and is generally inadequate to fulfill domestic use. Further, an alternative, non groundwater-derived supply of potable water is available at the Depot. Finally, the largest component of the groundwater intake HI results from the consumption of groundwater that contains arsenic; however, the concentration of arsenic in the groundwater at SEAD-46 is below the federal MCL and below the state's GA standard. The second largest component of the groundwater intake HI results from the consumption of groundwater that contains thallium; however, thallium was detected only once in the 12 samples characterized. Further, this detection occurred during the first round of sampling only. Therefore, the groundwater intake component of the two residents' HIs are considered to overestimate the actual hazard that exists.

A significant portion of the overall HI for the child and adult resident is due to the intake of soil contaminated with metals at concentrations that are consistent with USEPA RSLs for residential soil and NYS unrestricted use SCOs. However, the EPCs for each of these metals are generally consistent with available guidance values and regional background soil concentrations. Therefore, the level of potential hazard that is estimated cannot be differentiated from that which would be found in a residential environment. Applying the full ingestion of soil value to the overall HI overestimates the level of non-carcinogenic hazard at SEAD-46. A similar argument applies to the HI from the inhalation of dust: the inhalation risk is due to the inhalation of metals that are present at concentrations that are consistent with those that would be found in a residential environment.

Six contaminants, aluminum, arsenic, cobalt, iron, manganese, and thallium represent over 99% of the HI estimated for the residential child receptor. As discussed for the lifetime resident, the contribution of arsenic results from an EPC that is below the USEPA MCL for drinking water; hence, the HI is presumed overestimate the risk that exists at SEAD-46. Also, soil EPCs are consistent with typical background





concentrations at the Depot and are generally below USEPA RSLs and NYS SCOs. Therefore, it is likely that each of these hazard indices overestimates what may reasonably exist at SEAD-46.

Target organ analysis for the adult resident, summarized below, suggests that the largest projected impact for the adult (~ 0.70) will be on the central nervous system due to the presence of aluminum and manganese. As stated above however, these metals are present in the soil at SEAD-46 at levels that are consistent with the SEDA background and acceptable for unrestricted use and residential purposes.

Target Organ or Effect	Estimated HI	Contributing COPCs
Central Nervous System or Neuro Development	Adult, 0.74   <b>Child, 1.92</b>	Aluminum and Manganese
Skin	Adult, 0.40   <b>Child, 1.5</b>	Arsenic
Lungs	Adult, 0.26   <b>Child, 1.89</b>	Cobalt and Iron
Heart	Adult, 0.26   <b>Child, 1.89</b>	Cobalt and Iron
Liver	Adult, 0.30   <b>Child, 1.84</b>	Iron and Thallium
Endocrine Glands	Adult, 0.12   <b>Child, 1.2</b>	Iron

Target organ analysis for the child suggests that there are potential target organ effects at levels above 1 for the central nervous system, heart, liver, endocrine systems, and skin. However, as discussed, these effects result from contaminant levels that are consistent with concentrations that would be found in residential areas that are allowed under prevailing environmental regulations and are consistent with background concentrations found in the area of the Depot. As such, the estimated effects can not be separated from those that are associated with native soils. Therefore, each of the potential risks and hazards identified for the child resident is considered to be an overestimate of the potential impact experienced.

### 7.2.3 Conclusions

Projected non-carcinogenic hazard indices for the park worker and the recreational child visitor at SEAD-46 are below the USEPA-recommended limit of 1. The projected carcinogenic risk for the park worker, the construction worker, and the recreation child visitor are all within the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ).

Non-carcinogenic HIs for the construction worker and the adult and child residential receptors are estimated to be above the USEPA limit; however, for each receptor the elevated HI can be attributed to SEAD-46 EPCs that are consistent with, and often below, state and federal guidance limits and standards (with the sole exception being for thallium in groundwater). Therefore, the Army believes that the estimated HIs overestimate the non-carcinogenic hazard index that is likely present at SEAD-46.

Similarly, the carcinogenic risk for the lifetime resident, which is estimated to be above the USEPA preferred range, is driven primarily by the intake of arsenic in groundwater. However, the concentration of arsenic in groundwater at SEAD-46 is below its USEPA MCL. As such, the cancer risk level for the SEAD-46 lifetime resident likely overestimates the actual risk that exists at the site, especially if consideration is given to the unlikelihood that groundwater would be used as a potable water source at the



Depot. Therefore, the Army believes that environmental conditions at SEAD-46 do not pose an unacceptable level of risk to any future receptors.

### 7.3 SEAD-57

Initially, the risk assessment for SEAD-57 was based on the analysis and evaluation of all available soil and groundwater data collected during the ESI and RI events. The estimated non-carcinogenic hazard indices and carcinogenic risks found in this evaluation are summarized below. These results are summarized in **Attachment B, Table 1** through **11**.

<b>SEAD-57 Human Health Risk Assessment Summary</b>		
<b>Based on all ESI and RI Data</b>		
<b>Receptor</b>	<b>Hazard Index</b>	<b>Cancer Risk</b>
Park Worker	1.0E00	1.5E-05
Construction Worker	2.1E00	1.1E-06
Recreational Child Visitor	5.7E-01	1.7E-06
Adult Resident	4.0E00	6.6E-05
Child Resident	1.5E01	5.7E-05
Lifetime Resident		1.2E-04

As shown, the risk assessment suggests that elevated non-carcinogenic hazard indices are estimated for the construction worker and the adult and child residents, and that a carcinogenic risk level of greater than 1 in 10,000 ( $1 \times 10^{-4}$ ) is estimated for a lifetime resident.

Further examination of the estimated hazards and risks indicates that a significant component of the projected hazards and risks is due to the varying forms of exposure to groundwater. Groundwater samples collected during the ESI were obtained using bailers, an aggressive sampling technique, whereas samples collected during the RI were collected using low-flow, purge-and-pump sampling, a procedure that is less aggressive and currently recommended by oversight agencies.

After review of the groundwater sample results, it is apparent that there are differences in the quality of the groundwater between the ESI and RI, especially with respect to metal concentrations and a reported result for bis(2-ethylhexyl)phthalate [i.e., also known as Di(2-ethylhexyl)phthalate or DEHP]. With reference to the DEHP, it was detected once in a single well, and when it was detected, it was found at a concentration of 20 µg/L, which exceeds its federal MCL (i.e., 6 µg/L). The single occurrence of this analyte was observed in MW57-3 in the sample that was collected during the ESI event. DEHP was not detected in any of the 18 samples that were collected during the RI events using low-flow, purge-and-pump sampling procedures including two subsequent sampling events conducted at MW57-3. As such, the ESI event result is considered to be non-representative of the quality of the groundwater that remains at the site. It is presumed that this anomalously elevated value results either due to being present in soil or silt that may have been contained in the ESI sample, or due to an artifact of the original well installation and development process that was completed at the time of the ESI.



The evaluation of metal contaminant results from the ESI and RI sampling events also indicates that metal concentrations observed in the ESI samples are higher, frequently by as much as an order of magnitude, than those that are observed in the samples from RI events. This analysis also indicates that the two highest concentrations reported for antimony in groundwater occurred in ESI samples and that both of these results were more than 10 times the only antimony level reported in the RI sampling events. Similarly, the only time cobalt was detected in a groundwater sample from SEAD-57 was during the ESI sampling event. Therefore, it is the Army’s contention that the ESI sample results for metals and DEHP are not representative of the groundwater that underlies SEAD-57, and these results have been eliminated from the analysis of risks and hazards that exist at the site.

<b>SEAD-57 Human Health Risk Assessment Summary Based only on RI Data</b>		
<b>Receptor</b>	<b>Hazard Index</b>	<b>Cancer Risk</b>
Park Worker	3.8E-01	1.4E-05
Construction Worker	9.5E-01	1.1E-06
Recreational Child Visitor	2.3E-01	1.6E-06
Adult Resident	1.3E00	5.0E-05
Child Resident	5.8E00	4.9E-05
Lifetime Resident		9.8E-05

Based on these determinations, the non-carcinogenic hazards and carcinogenic risks that are estimated to remain at SEAD-57 are shown below.

The revised calculations without the ESI groundwater data for antimony and cobalt are presented in **Appendix B Tables 1 through 5, 6a, 7, 8a, 9, 10, and 11.**

*7.3.1 Conservation/Recreation Scenario*

Estimated non-carcinogenic HIs at SEAD-57 for the park worker, construction worker, and the recreational child visitor receptors are below the USEPA preferred limit (i.e., 1). Estimated cancer risk levels for the park worker, the construction worker, and the recreational child visitor are all within the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ )

*7.3.2 Residential Scenario*

Estimated non-carcinogenic hazard indices for the adult and child residential receptors at SEAD-57 are above the USEPA preferred limit of 1 (see **Appendix B Table 11a**). Estimated cancer risk levels for the adult, child, and lifetime residential receptors at SEAD-57 are within the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ) for carcinogenic risk. A summary of the estimated risks and hazards is shown below.



Pathway/Receptor	Hazard Index	Cancer Risk
Inhalation of Dust in Ambient Air	3.0E-01	6.9E-07
Ingestion of Soil	3.0E-01	3.7E-06
Intake of Groundwater	6.6E-01	4.4E-05
Dermal Contact to Soil	7.5E-03	5.2E-07
Dermal Contact to Groundwater	1.9E-02	1.0E-06
<b>TOTAL for RESIDENT ADULT</b>	<b>1.3E00</b>	<b>5.0E-05</b>

Inhalation of Dust in Ambient Air	6.1E-01	3.5E-07
Ingestion of Soil	2.8E00	8.7E-06
Intake of Groundwater	2.3E00	3.8E-05
Dermal Contact to Soil	4.9E-02	8.5E-07
Dermal Contact to Groundwater	3.3E-02	4.4E-07
<b>TOTAL for RESIDENT CHILD</b>	<b>5.8E00</b>	<b>4.9E-05</b>

Inhalation of Dust in Ambient Air		1.0E-06
Ingestion of Soil		1.2E-05
Intake of Groundwater		8.2E-05
Dermal Contact to Soil		1.4E-06
Dermal Contact to Groundwater		1.5E-06
<b>TOTAL for LIFETIME RESIDENT</b>		<b>9.8E-05</b>

The intake of groundwater represents approximately 51% of the adult resident's non-carcinogenic HI and 40% of the child resident's HI. In each case, the distribution of the estimated adult and child HIs show that arsenic represents 43%, antimony 31%, and thallium 26% of the HI estimated. The hazard quotients calculated for the intake of groundwater containing arsenic and antimony are associated with exposure point concentrations (i.e., 3.1 µg/L and 3.0 µg/L, respectively) that are below federal MCLs for drinking water (i.e., 10 µg/L and 6 µg/L, respectively). As such, these values are very conservative and likely overestimate the level of hazard that actually is associated with

the consumption of groundwater at the SEAD-57 site. Further, it is the Army contention that the groundwater pathway does not represent a complete exposure pathway as the shallow aquifer that underlies the SEAD-57 site, and most of the Depot, does not yield a sufficient quantity of water to support potable water needs for a full time residential application. Further, an alternative source of potable water exists within the Depot that is derived from a non-groundwater source, making use of the shallow aquifer unnecessary. If use of groundwater is eliminated as a complete exposure pathway at SEAD-57, the HI for the adult resident drops to 6.0E-01 below the preferred limit, while the HI for the child resident drops to 3.4E00.

The ingestion of soil and the inhalation of dust represent equivalent portions (~23%) of the adult resident's HI at SEAD-57. Comparably, the ingestion of soil (48%) and the inhalation of dust (11%) are the next two largest components of the child resident's HI for SEAD-57. The majority (99.9%) of the soil ingestion hazard quotients estimated for the adult and for the child resident are associated with the ingestion of soil that contains ten metal contaminants (i.e., iron, cobalt, manganese, vanadium, arsenic, aluminum, cadmium, thallium, antimony, and copper listed in order of decreasing contribution). Data for these metals are summarized in the table below.





Analyte	EPC (mg/kg)	USEPA RSL (mg/kg)	NYSDEC SCO (mg/kg)	SEDA Soil Aver. (mg/kg)	SEDA Std. Dev. (mg/kg)
Aluminum	14,450	77,000	NA	13,206	4,159
Antimony	0.82	31	NA	2.7	2.2
Arsenic	5.0	0.39	13	5.2	2.8
Cadmium	2.3	70	2.5	0.54	0.74
Cobalt	11	23	NA	11	4
Copper	21	3,100	50	21	8
Iron	24,890	55,000	NA	24,661	6,854
Manganese	679	1,800	1,600	609	335
Thallium	2.6	51	NA	0.26	0.23
Vanadium	26.3	390	NA	21	6
NA = not available					

In each case, exclusive of that for arsenic, the EPC upon which the hazard quotient is based is below the metal's respective USEPA RSL for residential soil. Further in cases where New York has identified unrestricted use SCO values for the metal, the SCO value identified for the metal (including arsenic) is higher than the EPC identified for SEAD-57 soil. Finally, in the majority of cases (all except of copper and thallium,

which are minor portions of the overall HI), the EPCs are consistent with background soil concentrations, each being within one standard deviation of the accepted average background concentration found in samples from the area of the Depot. This suggests that the concentrations observed at SEAD-57 are just as likely to be associated with natural soil, and not attributable to contamination that has occurred at the site due to its historic use. Therefore, it is likely that the HIs computed for ingestion of soil at SEAD-57 overestimate the level of non-carcinogenic effect that is likely present for both the adult of the child at SEAD-57. COPC hazard quotients determined for residential SEAD-57 exposures are listed below.

Analyte	Soil Ingestion (22.8%)	Dermal Contact Soil (1.0%)	Inhalation of Dust (23.4%)	Ingestion of Groundwater (51.2%)	Dermal Contact Groundwater (1.6%)	Total	Percentage of Total
Aluminum	2.0E-02	7.9E-05	4.7E-02			6.7E-02	5.2%
Antimony	2.8E-03	7.4E-05		2.0E-01	1.2E-02	2.2E-01	17.1%
Arsenic	2.3E-02	2.7E-03		2.8E-01	6.6E-03	3.2E-01	24.4%
Cadmium	6.2E-02	2.5E-05	3.7E-03			9.9E-03	0.8%
Cobalt	4.9E-02	2.0E-04	2.9E-02			7.9E-02	6.1%
Iron	1.1E-01	4.5E-04				1.1E-01	8.8%
Manganese	3.9E-02	3.9E-03	2.2E-01			2.6E-01	20.4%
Thallium	5.4E-03	2.2E-05		1.7E-01	1.4E-03	1.8E-01	13.8%
Vanadium	3.6E-02	5.5E-03				4.2E-02	3.2%
Other COPCs	1.0E-03	9.0E-05				1.1E-03	0.1%
<b>Total</b>	<b>3.0E-01</b>	<b>1.3E-02</b>	<b>3.0E-01</b>	<b>6.6E-01</b>	<b>2.0E-02</b>	<b>1.3E00</b>	<b>100%</b>



Contributions to Child Resident's Hazard Index							
Analytes	Soil Ingestion (47.6%)	Dermal Contact Soil (1.5%)	Inhalation of Dust (10.5%)	Ingestion of Groundwater (39.8%)	Dermal Contact Groundwater (0.6%)	Total	Percentage of Total
Aluminum	1.8E-01	5.2E-04	9.6E-02			2.8E-01	4.84%
Antimony	2.6E-02	4.9E-04		7.2E-01	2.1E-02	7.7E-01	13.21%
Arsenic	2.1E-01	1.8E-02		9.9E-01	1.1E-02	1.2E+00	21.26%
Cadmium	5.8E-02	1.6E-04	7.5E-03			6.5E-02	1.13%
Cobalt	4.6E-01	1.3E-03	5.9E-02			5.2E-01	8.96%
Iron	1.1E+00	3.0E-03				1.1E+00	18.32%
Manganese	3.6E-01	2.5E-02	4.5E-01			8.4E-01	14.41%
Thallium	5.1E-02	1.4E-04		6.0E-01	2.4E-03	6.6E-01	11.28%
Vanadium	3.4E-01	3.6E-02				3.7E-01	6.41%
Other COPCs	6.7E-02	5.9E-04	1.9E-09	0.0E+00	0.0E+00	1.0E-02	0.18%
<b>Total</b>	<b>2.8E+00</b>	<b>8.6E-02</b>	<b>6.1E-01</b>	<b>2.3E+00</b>	<b>3.45E-02</b>	<b>5.8E00</b>	<b>100%</b>

In both instances, the ingestion of groundwater represents a significant portion of the total hazard index estimated for the adult and child resident. As has been stated, the groundwater pathway for all of the Munitions Response sites is considered incomplete as the shallow aquifer beneath the Depot yields poorly, and is generally inadequate to fulfill domestic use requirements. Further, an alternative, non groundwater derived supply of potable water is available at the Depot. Additionally, the largest component of the groundwater intake HI results from the consumption of groundwater that contains arsenic and antimony at concentrations that are below the federal MCL and below the state's GA standards. These two analytes represent approximately 75% of the hazard index estimated from the ingestion of groundwater. The hazard quotients derived for thallium is associated with an EPC that is above the federal MCL. As such, the actual impact that results from the groundwater conceivably could be overestimated by at least 75% if it were not totally eliminated on the basis that this exposure pathway is incomplete.

The evaluation of the residents' target organ impacts due to exposure to the COPCs is summarized below.

Target Organ or Effect	Estimated HI	Contributing COPCs
Central Nervous System or Neuro Development	Adult, 0.33   <b>Child, 1.12</b>	Aluminum and Manganese
Skin	Adult, 0.32   <b>Child, 1.20</b>	Arsenic
Lungs	Adult, 0.13   Child, 0.96	Cadmium and Cobalt
Heart	Adult, 0.19   <b>Child, 1.62</b>	Cobalt and Iron
Liver	Adult, 0.30   <b>Child, 1.83</b>	Cadmium, Iron, Thallium
Endocrine Glands	Adult, 0.11   <b>Child, 1.10</b>	Iron
Enzymes	Adult, 0.42   Child, 0.37	Vanadium
Gastro-intestinal	Adult, 0.41   <b>Child, 1.50</b>	Antimony, Cadmium, Thallium



As is seen, none of the adult resident's target organs are subjected to an HI in excess of 1, however, several of the child's organs are potentially affected at levels in excess of 1. However, each of the effects attributable to exposure to soil, exclusive of that estimated for arsenic results from an EPC that is below state and federal guidance values for residential soil or unrestricted use, and below levels that are typical of background soils. With specific reference to arsenic, the primary exposure pathway noted is through the ingestion of groundwater which is probably not a complete pathway at SEAD-57. Further, the groundwater EPC that causes the elevated hazard quotient is below the federal MCL for this contaminant in drinking water. Therefore, the HIs estimated for the adult at SEAD-57 are within allowable limits, whereas the estimated HIs projected for the child resident can not be distinguished from background levels that could be present at a residential site, and are thus considered overly conservative.

7.3.3 *Conclusions*

In conclusion, SEAD-57 estimated non-carcinogenic hazard indices for the park worker, the construction worker, and the recreational child visitor are below the USEPA-recommended limit of 1. Furthermore, the projected carcinogenic risk for the park worker, the construction worker, and the recreation child visitor are within the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ).

The projected carcinogenic risk for the adult, child, and lifetime resident at SEAD-57 are also within the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ). Estimated non-carcinogenic HIs for the adult and child resident exceed the USEPA preferred limit of 1. However, further evaluation of the adult resident's HI indicates that there are no individual target organs that are stressed at a level in excess of 1, but an equivalent evaluation of the distribution of the child resident's HI still indicates that there are possible impacts in excess of the USEPA's limit of 1. All of the hazard quotients for soil effects, except for those estimated for arsenic, are attributed to soil EPCs that are below federal RSL and state SCO values for residential soil or unrestricted use. Further, all soil EPCs are comparable to background soil concentrations that have been identified in the area of the Depot. Additionally, with reference to the estimated hazard quotient for ingestion of groundwater which is driven by the presence of arsenic and antimony, both of these compounds are contained at concentrations that are below federal MCLs and state GA groundwater standards. Therefore, the Army contends that the non-carcinogenic hazard indices projected for the child resident are comparable to those that would be experience in any residential area and are overly conservative.

7.4 SEAD-002-R-01 (EOD-2)

7.4.1 *Conservation/Recreational Scenario*

Receptor	Hazard Index	Cancer Risk
Park Worker	3.8E-01	3.6E-06
Construction Worker	1.1E00	5.4E-07
Recreational Child Visitor	2.0E-01	4.3E-07

Estimated non-carcinogenic HIs for the park worker and recreational child visitor receptors at EOD-2 are below the USEPA-preferred limit (i.e., 1); the estimated HI for the construction worker receptor is above the USEPA

limit. Estimated cancer risk levels for the construction worker, park worker, and recreational child visitor



receptors at EOD-2 are all within or below the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ) for carcinogenic risk.

Two exposure pathways, ingestion of soil (62%) and inhalation of dust in ambient air (36%) represent approximately 98% of the elevated HI calculated for the construction worker. The distribution of the contributing COPCs to the elevated HI for the construction worker is summarized below.

<b>Contributions to Construction Worker's Hazard Index</b>					
<b>Analyte</b>	<b>Soil Ingestion (62.0%)</b>	<b>Dermal Contact Soil (1.9%)</b>	<b>Inhalation of Dust (36.1%)</b>	<b>Total</b>	<b>Percentage of Total</b>
Methyl cyclohexane			4.2E-12	4.2E-12	0.0%
Chrysene	4.7E-03	1.8E-03		6.5E03	0.6%
Aluminum	5.2E-02	1.6E-04	3.7E-02	8.9E-02	7.9%
Arsenic	3.9E-02	3.5E-03		4.2E-02	3.7%
Cobalt	1.3E-01	4.0E-04	2.3E-02	1.6E-01	13.8%
Iron	2.7E-01	8.1E-04		2.7E-01	23.9%
Manganese	2.0E-01	1.5E-02	3.5E-01	5.7E-01	50.1%
<b>Total</b>	<b>7.0E-01</b>	<b>2.2E-02</b>	<b>4.1E-01</b>	<b>1.1E00</b>	<b>100%</b>

The allocation of the construction worker's elevated HI among target organs or systems is summarized below. As is noted, none of the affected target organs or systems listed show evidence of hazards in excess of the USEPA limit of 1. Therefore, the apparent elevated HI for the construction worker is considered a conservative estimate and no unacceptable level of hazard is present for the construction worker at SEAD-002-R-01 EOD Area 2.

<b>Allocation of Construction Worker's HI to Target Organs/Systems</b>		
<b>Target Organ or Effect</b>	<b>Estimated HI</b>	<b>Contributing COPCs</b>
Central Nervous System or Neuro Development	0.44	Aluminum and Manganese
Skin	0.04	Arsenic
Lungs	0.16	Cobalt
Heart	0.43	Cobalt and Iron
Liver	0.27	Iron
Endocrine Glands	0.27	Iron

#### 7.4.2 Residential Scenario

Estimated cancer risk levels for the adult, child, and lifetime resident at EOD-2 are within the USEPA preferred range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ). Estimated non-carcinogenic hazard indices for the adult and child residential receptors at EOD-2 are above the USEPA preferred limit of 1. The distribution of impacts via the exposure of the adult and child residents to soil at EOD is summarized below.





Pathway/Receptors	Hazard Index	Cancer Risk
Inhalation of Dust in Ambient Air	1.1E+00	1.3E-06
Ingestion of Soil	3.0E-01	4.4E-06
Dermal Contact to Soil	1.2E-02	1.3E-06
<b>TOTAL for RESIDENT ADULT</b>	<b>1.4E+00</b>	<b>7.0E-06</b>

Inhalation of Dust in Ambient Air	2.2E+00	6.8E-07
Ingestion of Soil	2.8E+00	1.0E-05
Dermal Contact to Soil	8.1E-02	2.1E-06
<b>TOTAL for RESIDENT CHILD</b>	<b>5.1E+00</b>	<b>1.0E-05</b>

Inhalation of Dust in Ambient Air		2.0E-06
Ingestion of Soil		1.5E-05
Dermal Contact to Soil		3.3E-06
<b>TOTAL for LIFETIME RESIDENT</b>		<b>2.0E-05</b>

Contributions to the adult and child resident's HI by the COPCs identified at the site are summarized below and the allocation of these to affected target organs or systems is provided in the third table that is below the COPC allocation summaries.

Contributions to Adult Resident's Hazard Index					
Analyte	Soil Ingestion (21.1%)	Dermal Contact Soil (0.9%)	Inhalation of Dust (78.0%)	Total	Percentage of Total
Methyl cyclohexane			1.1E-11	1.1E-11	0.0%
Chrysene	2.0E-03	1.0E-03		3.0E-03	0.2%
Aluminum	2.2E-02	8.8E-05	9.9E-02	1.2E-01	8.6%
Arsenic	1.6E-02	2.0E-03		1.8E-02	1.3%
Cobalt	5.6E-02	2.2E-04	6.3E-02	1.2E-01	8.5%
Iron	1.1E-01	4.6E-04		1.1E-01	8.2%
Manganese	8.6E-02	8.6E-03	9.3E-01	1.0E00	73.2%
<b>Total</b>	<b>3.0E-01</b>	<b>1.2E-02</b>	<b>1.1E00</b>	<b>1.4E-02</b>	<b>100%</b>



Contributions to Child Resident's Hazard Index					
Analyte	Soil Ingestion (54.6%)	Dermal Contact Soil (1.6%)	Inhalation of Dust (43.8%)	Total	Percentage of Total
Methyl cyclohexane			2.3E-11	2.3E-11	0.0%
Chrysene	1.8E-02	6.7E-03		2.5E-02	0.5%
Aluminum	2.1E-01	5.8E-04	2.0E-01	4.1E-01	8.0%
Arsenic	1.5E-01	1.E-02		1.7E-01	3.3%
Cobalt	5.2E-01	1.5E-03	1.3E-01	6.5E-01	12.8%
Iron	1.1E-00	3.0E-03		1.1E00	21.1%
Manganese	8.1E-01	5.6E-02	1.9E00	2.8E00	54.3%
<b>Total</b>	<b>2.8E00</b>	<b>8.1E-02</b>		<b>5.1E00</b>	<b>100%</b>

Allocation of Adult and Child Resident HI to Target Organs/Systems		
Target Organ or Effect	Estimated HI	Contributing COPCs
Central Nervous System or Neuro Development	<b>Adult, 1.12</b>   <b>Child, 3.21</b>	Aluminum and Manganese
Skin	Adult, 0.18   Child, 0.17	Arsenic
Lungs	Adult, 0.12   Child, 0.65	Cobalt
Heart	Adult, 0.23   <b>Child, 1.75</b>	Cobalt and Iron
Liver	Adult, 0.11   <b>Child, 1.10</b>	Iron
Endocrine Glands	Adult, 0.11   <b>Child, 1.10</b>	Iron

The summary above suggests that hazard indices in excess of USEPA's limit of 1 are estimated for the adult's and child's central nervous systems, and for the child's heart, liver, and endocrine glands. The largest components of the hazard quotients are associated with soil that contains aluminum, cobalt, iron, and manganese. The soil EPCs generating the elevated hazard indices are summarized below.

Analyte	EPC (mg/kg)	USEPA RSL (mg/kg)	NYSDEC SCO (mg/kg)	SEDA Soil Avg. (mg/kg)	SEDA Std. Dev. (mg/kg)
Aluminum	16,097	77,000	NA	13,206	4,159
Cobalt	12	23	NA	11	4
Iron	25,037	55,000	NA	24,661	6,854
Manganese	1,512	1,800	1,600	609	335

Manganese is the COPC that is the largest contributor to both the adult's and child's elevated HI. Review of the EPC for manganese at EOD Area 2 suggests that the value used is somewhat elevated compared to soil concentrations found at other Munitions Response AOCs and compared to regional background, but the EPC is still below the concentrations identified as acceptable by the USEPA for residential soil and by the state for unrestricted use. The EPC for EOD Area 2 is derived from a sample set that consists of 12



values, of which two (i.e., 2,770 mg/kg and 859 mg/kg) contain manganese at a level that is above the regional background average value. While the average concentration derived from the 12 data points is slightly above the average background levels (648 mg/kg versus 609 mg/kg), the unusual distribution of concentrations in the data set causes the recommended upper confidence limit value to be higher than normal.

Inhalation of dusts containing manganese is also the largest individual hazard quotient estimated for both the adult and child resident's HI. As has been discussed before, the inhalation hazard quotient for manganese is based on an Rfc that is derived from an industrial study of battery manufacturing workers that were exposed to manganese dioxide. While soil may contain some amount of manganese dioxide, it is unlikely that all manganese found exists solely in the form of manganese dioxide. Furthermore the Rfc derived from this study is 4,000 times more stringent than the ACGIH's recommended TLV for manganese in industrial applications which further highlights the extremely conservative nature of this calculation.

With reference to the other major COPCs (i.e., aluminum, cobalt, and iron), each of these is found in the soil at EOD-2 at concentrations that are below USEPA residential soil RSL guidance values, and at concentrations that are consistent with regional background levels, each being within one standard deviation of the accepted average background concentration found in samples from the Depot. This suggests that the concentrations observed at EOD-2 are just as likely to be associated with natural soil, and not attributable to contamination that has occurred at the site due to its historic use.

#### 7.4.3 Conclusion

Estimated carcinogenic risk for conservation/recreation receptors (i.e., parker worker, construction worker, and recreation child visitor) and residential/resort receptors (adult, child and lifetime resident) are within the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ). Elevated non-carcinogenic HIs are estimated for the construction worker and the adult and child resident receptors but the EPCs leading to these results are generally lower than USEPA RSLs for residential soil and applicable state SCO guidance values. Specific target organs or systems which may be affected are the central nervous systems for the adult and child resident, and the child's heart, liver and endocrine systems. However, each of the identified components of the elevated HIs from contaminant levels that are consistent with background concentrations or for contaminants where there is a significant level of uncertainty associated with the reference dose used. Therefore, the elevated non-carcinogenic hazards are believed to overestimate the hazards that actually exist at EOD-2.

### 7.5 SEAD-002-R-01 (EOD-3)

#### 7.5.1 Conservation/Recreational Scenario

Estimated non-carcinogenic HIs for the park worker, construction worker, and recreational child visitor receptors at EOD-3 are below the USEPA limit of 1. Estimated cancer risk levels for the construction worker, park worker, and recreational child visitor receptors at EOD-3 are below the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ) for carcinogenic risk.



Receptor	Hazard Index	Cancer Risk
Park Worker	2.3E-01	2.1E-06
Construction Worker	7.3E-01	3.5E-07
Recreational Child Visitor	1.3E-01	2.7E-07

7.5.2 Residential Scenario

The estimated non-carcinogenic HI for the adult residential receptor at EOD-3 is below the USEPA limit of 1; the estimated HI for the child resident at EOD-3 is above 1. Estimated cancer risk levels for the adult and child residential receptors at EOD-3 are within the acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ) for carcinogenic risk.

Pathway/Receptor	Hazard Index	Cancer Risk
Inhalation of Dust in Ambient Air	5.5E-01	1.2E-06
Ingestion of Soil	2.2E-01	3.0E-06
Dermal Contact to Soil	6.4E-03	3.6E-07
<b>TOTAL for RESIDENT ADULT</b>	<b>7.8E-01</b>	<b>4.6E-06</b>

Inhalation of Dust in Ambient Air	1.1E+00	6.0E-07
Ingestion of Soil	2.0E+00	7.0E-06
Dermal Contact to Soil	4.2E-02	5.9E-07
<b>TOTAL for RESIDENT CHILD</b>	<b>3.2E+00</b>	<b>8.2E-06</b>

Inhalation of Dust in Ambient Air		1.9E-06
Ingestion of Soil		1.0E-05
Dermal Contact to Soil		9.5E-07
<b>TOTAL for LIFETIME RESIDENT</b>		<b>1.3E-05</b>

Contributions to the child resident's HI by the COPCs identified at the site are summarized below and the allocation of these to affected target organs or systems is provided below the initial COPC analysis.

Contributions to Child Resident's Hazard Index					
	Soil Ingestion (63.7%)	Dust Inhalation (35%)	Dermal Contact (1.3%)	Total	Percentage of Total
Methyl Cyclohexane		2.9E-11		2.92E-11	0.0%
Aluminum	2.0E-01	2.1E-01	5.6E-04	4.09E-01	12.7%
Arsenic	1.8E-01		1.5E-02	1.97E-01	6.1%
Cobalt	4.1E-01	1.1E-01	1.1E-03	5.14E-01	16.0%
Iron	9.4E-01		2.6E-03	9.46E-01	29.4%
Manganese	3.2E-01	8.1E-01	2.2E-02	1.15E00	35.8%
<b>Total</b>	<b>2.05E00</b>	<b>1.12E00</b>	<b>4.20E-02</b>	<b>3.22E00</b>	<b>100%</b>





Target Organ or Effect	Estimated HI	Contributing COPCs
Central Nervous System or Neuro Development	<b>Child, 1.55</b>	Aluminum and Manganese
Skin	Child, 0.20	Arsenic
Lungs	Child, 0.51	Cobalt
Heart	<b>Child, 1.46</b>	Cobalt and Iron
Liver	Child, 0.95	Iron
Endocrine Glands	Child, 0.95	Iron

The summary of potential effects to target organs or systems suggests that hazard indices in excess of USEPA’s preferred limit of 1 are estimated for child’s central nervous systems and for the heart. The largest components of the identified hazard quotients are associated with soil that contains aluminum, cobalt, iron, and manganese. The soil EPCs generating the elevated hazard indices are summarized below.

Analyte	EPC (mg/kg)	RSL (mg/kg)	NYSDEC SCO (mg/kg)	SEDA Soil Avg. (mg/kg)	SEDA Std. Dev. (mg/kg)
Aluminum	15,559	77,000	NA	13,206	4,159
Cobalt	9.5	23	NA	11	4
Iron	22,138	55,000	NA	24,661	6,854
Manganese	600	1,800	1,600	609	335

As is noted, the EPC for each of the identified metals is below its listed USEPA RSL for residential soil. The EPC for manganese is also below its respective New York SCO value, and the EPC used for each of the metals generally agrees with the background concentrations at the Depot. The Army reiterates that the hazard quotient derived for manganese is overly conservative as it is based on inhalation of manganese dioxide, which is not the only form of manganese that is likely to be found at the site. Therefore, it is the Army’s contention that the observed risk associated with metals at EOD-3 are due to prevailing background conditions and are can not be distinguished with effects that may be associated with the natural setting at the Depot.

7.5.3 Conclusion

It is the Army’s conclusion that the environmental conditions that remain at EOD-3 pose no unacceptable non-carcinogenic hazards nor carcinogenic risks to conservation / recreational receptors or residential / resort receptors.

7.6 SEAD-007-R-01 (Grenade Range)

7.6.1 Conservation/Recreational Scenario

Estimated non-carcinogenic His for the park worker, construction worker, and recreational child visitor receptors at the Grenade Range are below the USEPA limit of 1. Estimated cancer risk levels for the



construction worker, park worker, and recreational child visitor receptors at the Grenade Range are within or below the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ) for carcinogenic risk.

Receptor	Hazard Index	Cancer Risk
Park Worker	2.6E-01	2.1E-06
Construction Worker	8.2E-01	3.2E-07
Recreational Child Visitor	1.4E-01	2.6E-07

7.6.2 Residential Scenario

The estimated non-carcinogenic HI for the adult residential receptor at the Grenade Range is below the USEPA preferred limit for non-carcinogenic risk; the child resident's estimated non-carcinogenic HI at the Grenade Range is above the USEPA limit of 1. Estimated cancer risk levels for the adult and child residential receptors at the grenade range are within and below the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ).

Pathway/Receptor	Hazard Index	Cancer Risk
Inhalation of Dust in Ambient Air	7.0E-01	1.6E-06
Ingestion of Soil	2.3E-01	2.8E-06
Dermal Contact to Soil	6.5E-03	3.3E-07
<b>TOTAL for RESIDENT ADULT</b>	<b>9.3E-01</b>	<b>4.7E-06</b>

Inhalation of Dust in Ambient Air	1.4E+00	8.0E-07
Ingestion of Soil	2.2E+00	6.5E-06
Dermal Contact to Soil	4.2E-02	5.4E-07
<b>TOTAL for RESIDENT CHILD</b>	<b>3.6E+00</b>	<b>7.8E-06</b>

Inhalation of Dust in Ambient Air		2.4E-06
Ingestion of Soil		9.2E-06
Dermal Contact to Soil		8.8E-07
<b>TOTAL for LIFETIME RESIDENT</b>		<b>1.3E-05</b>

Five metals contribute to the estimated elevated HI for the child. Their estimated individual contributions are summarized below by exposure pathway.



<b>Contributions to Child Resident's Hazard Index</b>					
<b>Analyte</b>	<b>Soil Ingestion (59.8%)</b>	<b>Dust Inhalation (39.1%)</b>	<b>Dermal Contact (1.2%)</b>	<b>Total</b>	<b>Percentage of Total</b>
Aluminum	2.0E-01	2.5E-01	5.6E-04	4.55E-01	12.6%
Arsenic	1.7E-01		1.4E-02	1.82E-01	5.0%
Cobalt	4.7E-01	1.5E-01	1.3E-03	6.21E-01	17.2%
Iron	9.8E-01		2.8E-03	9.88E-01	27.3%
Manganese	3.4E-01	1.0E01	2.4E-02	1.37E00	37.9%
<b>Total</b>	<b>2.16E00</b>	<b>1.41E00</b>	<b>4.23E-02</b>	<b>3.62E00</b>	<b>100%</b>

The ingestion of soil represents approximately 60% of the HI for the child residential receptor, while the inhalation of dust accounts for approximately 39% of the estimated HI. As discussed for each AOC, five metal COPCs (aluminum, arsenic, cobalt, iron, and manganese) account for the ingestion hazard. As shown in the table below, each of the EPCs, exclusive of the one for arsenic, are below the USEPA RSLs for residential soil. The EPCs for arsenic and manganese are also below their respective NYS SCO values. Finally, as has also been seen at the other AOCs, the concentrations found at the Grenade Range are in general agreement with the background concentrations found at the Depot.

<b>Analyte</b>	<b>EPC (mg/kg)</b>	<b>RSL (mg/kg)</b>	<b>NYSDEC Soil Obj. (mg/kg)</b>	<b>SEDA Soil Avg. (mg/kg)</b>	<b>SEDA Std. Dev. (mg/kg)</b>
Aluminum	15,771	77,000	NA	13,206	4159
Arsenic	3.9	0.39	13	5.2	2.8
Cobalt	11.1	23	NA	11	4
Iron	23,107	55,000	NA	24,661	6854
Manganese	632	1,800	1,600	609	335

Target organs and systems potential impacted by the exposure of soil containing the identified concentrations are summarized below.

<b>Target Organ or Effect</b>	<b>Estimated HI</b>	<b>Contributing COPCs</b>
Central Nervous System or Neuro Development	<b>Child, 1.82</b>	Aluminum and Manganese
Skin	Child, 0.18	Arsenic
Lungs	Child, 0.62	Cobalt
Heart	<b>Child, 1.61</b>	Cobalt and Iron
Liver	Child, 0.99	Iron
Endocrine Glands	Child, 0.99	Iron

Potential effects are again estimated for the child central nervous system and the heart, but in each case these result from the exposure to soil that contains metals at concentrations that are consistent with the regional background. Therefore it is the Army's position that the child resident HIs overestimate the level of hazard that is likely to remain at the site.



7.6.3 Conclusion

Environmental conditions at the Grenade Range are not believed to pose any inordinate level of hazard or risk to conservation/recreation or residential receptors. The elevated level of hazard estimated for the resident child results can be attributed to concentrations of contaminants that are generally consistent with regional background concentrations and that are generally below USEPA RSLs and NYS SOC values.

7.7 SEAD-70

7.7.1 Conservation/Recreational Scenario

Receptor	Hazard Index	Cancer Risk
Park Worker	2.7E-01	4.1E-06
Construction Worker	8.5E-01	6.6E-07
Recreational Child Visitor	1.6E-01	5.3E-07

Estimated non-carcinogenic HI for the park worker, construction worker, and recreational child visitor receptors at SEAD-70 are all below the USEPA limit of 1. Estimated cancer risk levels for the construction worker, park worker, and recreational child visitor

receptors at SEAD-70 are all within or below the USEPA acceptable range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ) for carcinogenic risk.

7.7.2 Residential Scenario

The estimated non-carcinogenic HI for the adult residential receptor at SEAD-70 is below the USEPA limit of 1; the estimated HI for the child residential receptor at SEAD-70 is above 1. Estimated cancer risk levels for the adult, child, and lifetime residential receptors at SEAD-70 are within the USEPA accepted range (i.e.,  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ ).

Pathway/Receptor	Hazard Index	Cancer Risk
Inhalation of Dust in Ambient Air	4.3E-01	1.5E-06
Ingestion of Soil	2.6E-01	6.0E-06
Intake of Groundwater	2.0E-01	0.0E+00
Dermal Contact to Soil	5.4E-03	7.2E-07
Dermal Contact to Groundwater	4.6E-03	0.0E+00
<b>TOTAL for RESIDENT ADULT</b>	<b>8.9E-01</b>	<b>8.2E-06</b>

Inhalation of Dust in Ambient Air	8.7E-01	7.8E-07
Ingestion of Soil	2.4E+00	1.4E-05
Intake of Groundwater	6.8E-01	0.0E+00
Dermal Contact to Soil	3.5E-02	1.2E-06
Dermal Contact to Groundwater	7.9E-03	0.0E+00
<b>TOTAL for RESIDENT CHILD</b>	<b>4.0E+00</b>	<b>1.6E-05</b>





Inhalation of Dust in Ambient Air		2.3E-06
Ingestion of Soil		2.0E-05
Intake of Groundwater		0.0E00
Dermal Contact to Soil		1.9E-06
Dermal Contact to Groundwater		0.0E00
<b>TOTAL for LIFETIME RESIDENT</b>		<b>2.4E-05</b>

The apportionment of the child’s elevated HI by the five COPCs at SEAD-70 is summarized in the table below.

Contributions to Child Resident’s Hazard Index							
	Soil Ingestion (59.7%)	Dermal Contact Soil (1.3%)	Inhalation of Dust (21.7%)	Ingestion of Groundwater (17.0%)	Dermal Contact Groundwater (0.2%)	Total	Percentage of Total
Aluminum	1.6E-01	4.4E-04	1.6E-01			3.16E-01	7.9%
Arsenic	3.6E-01	3.0E-02				3.92E-01	9.8%
Cobalt	5.1E-01	1.4E-03	1.3E-01			6.34E-01	15.8%
Iron	1.1E00	3.1E-03		6.8E-01	7.9E-03	1.82E00	45.2%
Manganese	2.5E-01	1.7E-02	5.9E-01			8.55E-01	21.3%
<b>Total</b>	<b>2.40E00</b>	<b>5.27E-02</b>	<b>8.73E-01</b>	<b>6.84E-01</b>	<b>7.85E-03</b>	<b>4.01E00</b>	<b>100%</b>

The potential effects to the child’s target organs or systems are summarized below. As is seen, elevated effects are projected for the child’s central nervous system, heart, liver and endocrine glands.

Target Organ or Effect	Estimated HI	Contributing COPCs
Central Nervous System or Neuro Development	<b>Child, 1.17</b>	Aluminum and Manganese
Skin	Child, 0.39	Arsenic
Lungs	Child, 0.63	Cobalt
Heart	<b>Child, 2.45</b>	Cobalt and Iron
Liver	<b>Child, 1.82</b>	Iron
Endocrine Glands	<b>Child, 1.82</b>	Iron

Three exposure pathways, ingestion of soil, inhalation of dust in ambient air, and intake of groundwater account for 98% of the HI for the child receptor. The hazard quotients estimated due to exposure to groundwater via either ingestion or dermal contact are derived from a sample set that consists of four samples of groundwater. Each of these samples was collected during the ESI with a bailer. The iron EPC (2.14 mg/L) used for groundwater is the maximum concentration measured in the groundwater which was found in the sample that contained the highest level of turbidity (325 NTUs). Each of the other three samples contained lower levels of turbidity (less than 50 NTUs) and all of the other iron concentrations in groundwater were below the state’s GA standard of 300 µg/L. Furthermore, as has been discussed previously, the shallow groundwater aquifer underlying the Seneca site is not productive enough to provide water for domestic purposes, so this exposure pathway is considered incomplete.



The ingestion of soil represents approximately 60% of the HI estimated for the child receptor, while the inhalation of dust accounts for approximately 22% of the estimated HI. As discussed for each of the other AOCs, five metal COPCs (aluminum, arsenic, cobalt, iron, and manganese) account for the ingestion hazard. As shown in the table below, each of the EPCs, exclusive of the one for arsenic, are below the USEPA RSLs for residential soil. The EPCs for arsenic and manganese are also below their respective NYS SCO values. Further, the EPCs for aluminum, cobalt, iron, and manganese are consistent with background soil concentrations at the Depot, each being within one standard deviation of the accepted average background concentration found in samples from the Depot. Arsenic was found at an EPC that is slightly above one standard deviation more than the Depot’s average, but at a concentration that is within the range of concentrations that are in the Depot’s background dataset. Furthermore, the estimated arsenic contribution to the child’s HI is not at a level in excess of the USEPA threshold of 1 at the target organ level.

Analyte	EPC (mg/kg)	RSL (mg/kg)	NYSDEC Soil Obj. (mg/kg)	SEDA Soil Avg. (mg/kg)	SEDA Std. Dev. (mg/kg)
Aluminum	12,400	77,000	NA	13,206	4,159
Arsenic	8.5	0.39	13	5.2	2.8
Cobalt	12	23	NA	11	4
Iron	26,300	55,000	NA	24,661	6,854
Manganese	465	1,800	1,600	609	335

7.7.3 Conclusion

It is the Army’s position that environmental conditions at SEAD-70 do not pose any inordinate level of hazard or risk to conservation/recreation or residential receptors. The elevated level of hazard estimated for the resident child is partially attributable to concentrations that are consistent with regional background concentrations of metals in soils and that are generally below USEPA RSL and NYS SCO values. Further, the apparent hazard for the child resident is associated with an elevated iron concentration in groundwater that was collected from a monitoring well with a bailer. This sample contained significantly more iron than samples from other SEAD-70 wells that contained iron concentrations below 300 µg/L.

7.8 Risk Characterization Results for Lead Exposures

Risk characterization for exposure to lead was conducted based on a comparison between the estimated blood lead level and the target mean blood level (PbB) of concern. Adult blood lead level was estimated based on the USEPA Adult Lead Model (version 5/19/05). Child blood lead level was estimated based on the USEPA, IEUBK model (IEUBK win v1.1 build 9). The target PbB level of concern is 10.0 µg/dL for a child and 25 µg/dL for an adult (USEPA, 1994, 2003d). Lead was identified as a COPC in soil at SEAD-46 and SEAD-57. This section presents the results of the quantitative and qualitative assessment of the risk from lead exposure at the sites.



### 7.8.1 SEAD-46

The concentrations of lead in the blood of adults and of children exposed to soil at SEAD-46 are presented in Attachment-A, Table 12 and Attachment-A, Table 13, respectively. The maximum estimated concentration of lead in the blood of adults exposed to soil at SEAD-46 is 1.5 µg/dL; the maximum concentration of lead in the blood of children is 1.3 µg/dL.

### 7.8.2 SEAD-57

The concentrations of lead in the blood of adults and of children exposed to soil at SEAD-46 are presented in Attachment-A, Table 12 and Table 13, respectively. The estimated concentrations of lead in the blood of adults exposed to soil at SEAD-46 are equal to or less than 1.6 µg/dL; the concentrations of lead in the blood of children are equal to or less than 1.2 µg/dL.

## 8. Uncertainties

### 8.1 General

All risk assessments involve well-founded assumptions and professional judgment to varying degrees. Naturally, “assumptions” and “judgment” imply uncertainty in the final risk estimates. From data collection through risk characterization, there is uncertainty associated with each component of this risk assessment. Parsons addressed these uncertainties by consistently making conservative assumptions with respect to risk and exposure parameters. As a result, this risk assessment provides conservative estimates of the risk to receptors at all five AOCs, and it is unlikely that this assessment underestimates that risk.

### 8.2 Manganese Toxicity Value

The primary site-specific uncertainty associated with this risk assessment is the evaluation of the hazard index for manganese (i.e., the manganese toxicity value). This is a significant uncertainty since the HI for the inhalation of manganese-contaminated dust accounts for 70% or more of the HIs for the inhalation of dust in ambient air at all AOCs.

To obtain the HIs for inhalation of manganese-contaminated dust, Parsons employed calculations using a Reference Concentration (RfC) for chronic inhalation of manganese-contaminated dust (see section 6). The RfC for manganese used by Parsons was derived in a USEPA (1998) study that investigates the inhalation of manganese dioxide dust. The RfC value promulgated by the USEPA is an uncertain number; the USEPA assigns the RfC an uncertainty factor of 1000, reflecting a low degree of confidence in its value. In addition to the USEPA uncertainty in the RfC, it is unlikely that all of the identified manganese in the soil at the five AOCs exists as manganese dioxide. The exact composition of the manganese in the soil at the AOCs is unknown, but it is known that of the source of manganese at the five AOCs is natural soil.

Lastly, it is important to note that the inhalation reference dose used in this risk assessment is 4000 times lower than the American Conference of Governmental Industrial Hygienists’ (ACGIH’s) threshold limit value, which is the concentration of a substance to which workers in industrial situations can be exposed without adverse effects. This fact further emphasizes the conservative nature of the RfC used in this risk assessment.



## 8.3 Groundwater

### 8.3.1 *Analysis of Groundwater*

It is uncertain whether or not future occupants at the Depot will ever contact groundwater at any of the AOCs. Three groundwater exposure pathways were analyzed nevertheless, as a conservative approach to ascertaining the potential risk. However, it is unlikely that groundwater would ever be used as a potable water source at the Depot since the aquifer is likely not sufficiently productive and an alternate source of potable water at the Depot already exists (see section 5.2 Receptors, Exposure Pathways, and Exposure profiles). The inclusion of groundwater analysis further emphasizes the conservative nature of this risk assessment.

### 8.3.2 *Sample Methods*

Another specific uncertainty associated with this risk assessment is the use or disuse of groundwater sample results that were obtained during the ESI sampling event for SEAD-57. Groundwater sample results collected during all ESI sampling events were obtained using bailers instead of low-flow sampling procedures like all other groundwater samples in this risk assessment. Bailers tend to create more turbidity in samples than do low-flow sampling procedures, and, as such, metal concentrations in samples obtained with bailers tend to be greater than metal concentrations obtained with low-flow sampling procedures. The uncertainty over metal concentrations used in this risk assessment is limited to the calculations for SEAD-57; nevertheless, Parsons evaluated both bailer-obtained and low-flow-obtained samples as a conservative approach.

## 9. **Conclusion**

The evaluation of potential cancer risks at the AOCs suggests that there is a potential risk to the lifetime resident at SEAD-46; there are no carcinogenic risks estimated for the adult or child resident, or conservation/recreational receptors (park worker, construction worker, recreational child visitor) at SEAD-46. Further examination of the lifetime residents' cancer risk indicates that it is derived from the ingestion of groundwater containing arsenic at a concentration that is below the federal MCL for drinking water and is thus suspected to be an overly conservative number. Additionally, groundwater at SEAD-46 and at all of the other Munitions Response AOCs is unlikely to be used as a potable water source since available information indicates that the shallow aquifer that underlies the Depot yields poorly and groundwater levels frequently drop due to inaccessible levels seasonal fluctuations. Furthermore, an alternative municipal potable water supply exists at the Depot that is derived from a non-groundwater source (Lake Seneca). There are no unacceptable levels of cancer risk determined for conservation/recreational or residential receptors at any of the other AOCs evaluated.

The evaluation of non-carcinogenic hazard levels suggests that there are a number of instances where non-carcinogenic hazard levels in excess of the USAEAP preferred limit of 1 are estimated for the construction worker, the adult resident, and the child resident. In many cases, the evaluation of potential effects to target organs or systems of the body indicate that such risks for the construction worker and adult resident are reduced to below 1, but the child resident levels remain at levels in excess of 1. However, in each of these instances, the non-carcinogenic hazard indices are caused by concentrations of metal COPCs in the soil which are below USEPA residential soil RSLs and where available, below New





York SCOs for unrestricted use. Furthermore, in all cases the EPC concentrations are consistent with background soil concentrations. Therefore potential adverse impacts from the Army's historic use of the land can not be separated from natural sources.

Based on the information presented above it is the Army's contention that none of the Munitions Response sites (SEAD-46, SEAD-57, SEAD-002-R-01 [EOD Area 2 or EOD Area 3], SEAD-07-R-001, or SEAD-70) contain residual contamination at levels that pose unacceptable risk or level of hazard to potential conservation/recreational or residential receptors.

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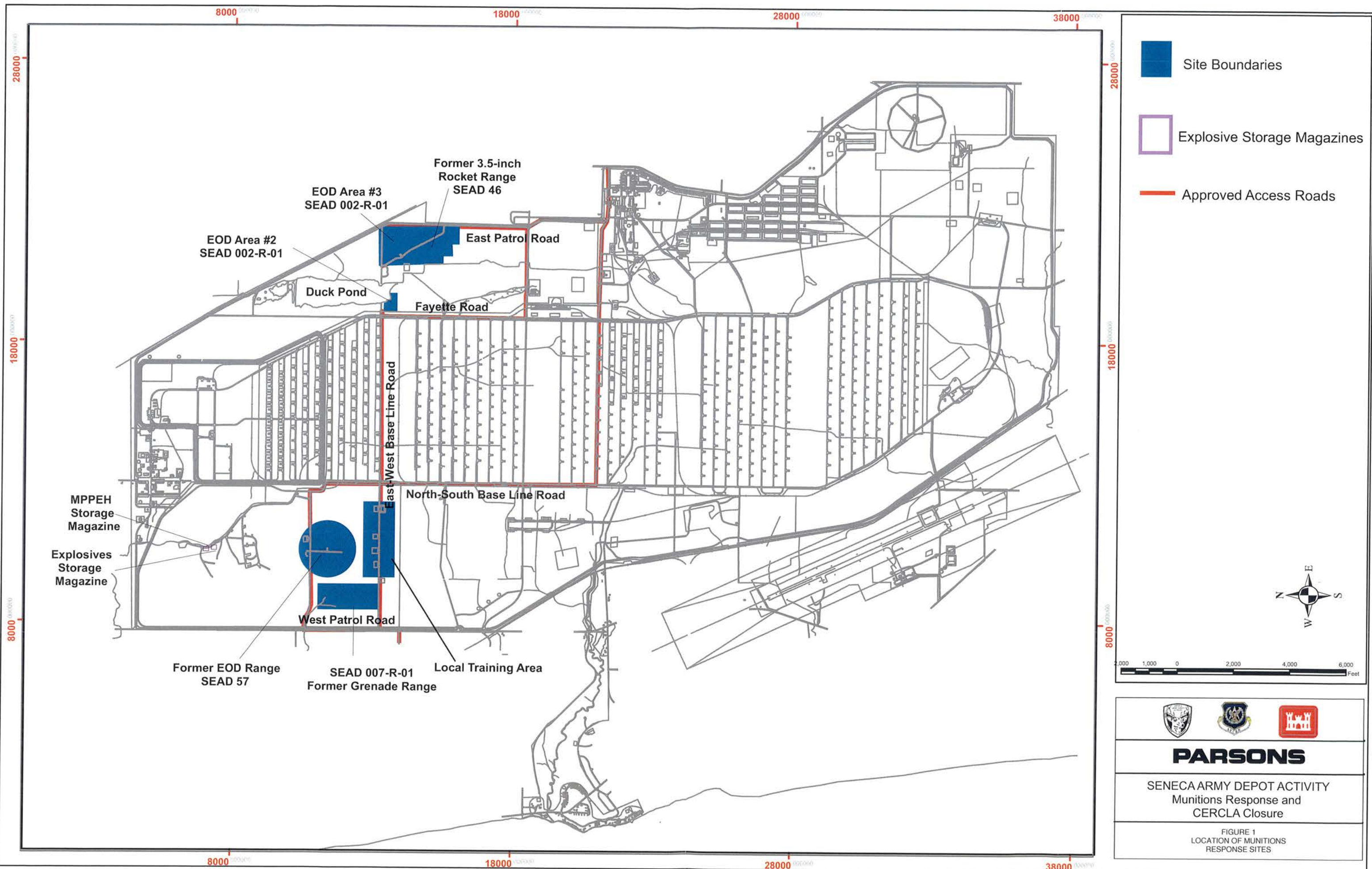
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## Figures





- Site Boundaries
- Explosive Storage Magazines
- Approved Access Roads



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SENECA ARMY DEPOT ACTIVITY  
Munitions Response and  
CERCLA Closure

FIGURE 1  
LOCATION OF MUNITIONS  
RESPONSE SITES







Approximate Extent of SEAD-46

EOD #3

EARTHEN BERM

Wooded Area

Wooded Area

Wooded Area

Wet Area

Wooded Area

748740 749240 749740 750240

1007788 1007288 1006788 1006288 1005788 1005288



Grid Coordinates  
(New York State Plane, Central)

SEAD 46 Limit of Work



997750+  
748750

N  
W  
E  
S

748740 749240 749740 750240



**PARSONS**

SENECA ARMY DEPOT ACTIVITY  
Munitions Response and CERCLA Closure

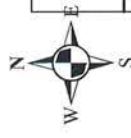
FIGURE 2  
SEAD-46, Small Arms Range  
(3.5-inch Rocket Range)





SEAD 57 1000 foot radius

Grid Coordinates  
 997750+ 748750  
 (New York State Plane, Central)



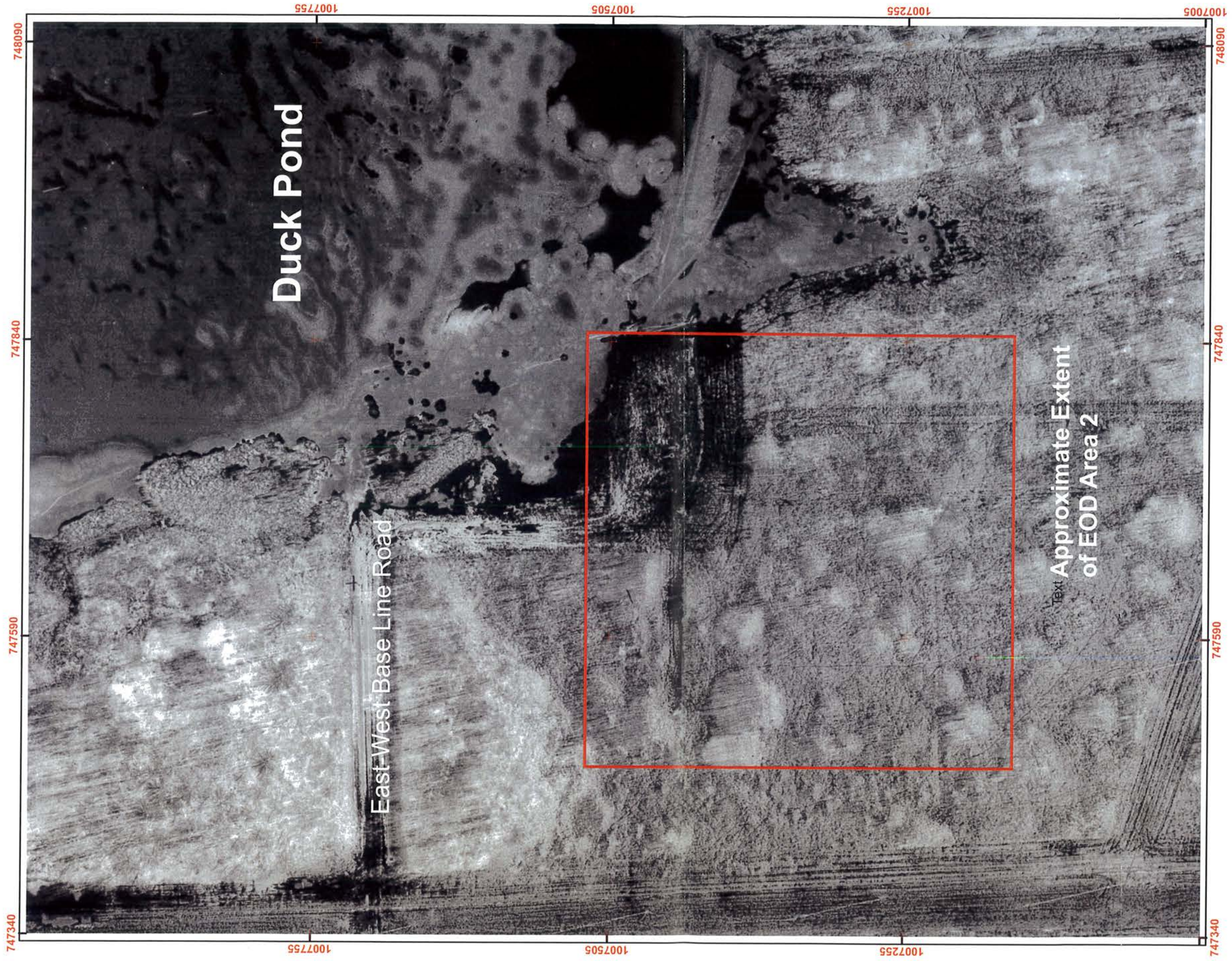
**PARSONS**

SENECA ARMY DEPOT ACTIVITY  
 Munitions Response and CERCLA Closure

FIGURE 3  
 SEAD-57, Explosive Ordnance  
 Detonation Area







□ EOD Area 2 Limit of Work


997750+ 748750  
Grid Coordinates  
(New York State Plane, Central)



<p>SENECA ARMY DEPOT ACTIVITY Munitions Response and CERCLA Closure</p>	
<p>FIGURE 4 SEAD-002-R-01, Explosive Ordnance Detonation Area 2</p>	





 EOD Area 3 Limit of Work

997750+  
748750

Grid Coordinates  
(New York State Plane, Central)



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SENECA ARMY DEPOT ACTIVITY  
Munitions Response and CERCLA Closure

FIGURE 5  
SEAD-002-R-01, Explosive Ordnance  
Detonation Area 3







Grenade Range Limit of Work    997750 + 748750 Grid Coordinates (New York State Plane, Central)

Location of Target

Firing Point and Observation Tower



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SENECA ARMY DEPOT ACTIVITY Munitions Response and CERCLA Closure
FIGURE 6 SEAD-007-R-01, Grenade Range



**Attachment A**

**SEAD-46 – 3.5-inch Rocket Range**



TABLE 1  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	
								BE46-1	BE46-2	BE46-3	BE46-4	BE46-5	BE46-6	BE46-7	BE46-8	SS46-1		
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
								464001	464002	464003	464004	464005	464006	464007	464008	464009	464010	464011
								1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0
								2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	0.5
								36507	36507	36507	36507	36507	36508	36508	36508	36508	36509	
								SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
								P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	
<b>Volatile Organic Compounds</b>								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
1,1,1-Trichloroethane	UG KG	0	0%	680	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
1,1,2,2-Tetrachloroethane	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
1,1,2-Trichloroethane	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
1,1-Dichloroethane	UG KG	0	0%	270	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
1,1-Dichloroethene	UG KG	0	0%	330	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
1,2-Dichloroethane	UG KG	0	0%	20	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
1,2-Dichloroethene (total)	UG KG	0	0%	19	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
1,2-Dichloropropane	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Acetone	UG KG	410	100%	50	27	30	31	200 J	110 J	200 J	150 J	160 J	32 J	48 J		140 J		
Benzene	UG KG	12	23%	60	0	7	31	1 J	10 U	1 J	9 U	9 U	12	1 J	2 J	14 U		
Bromodichloromethane	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Bromoform	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Carbon disulfide	UG KG	20	39%		0	12	31	6 J	10 U	10 U	9 U	3 J	8 J	6 J	2 J	14 U		
Carbon tetrachloride	UG KG	0	0%	760	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Chlorobenzene	UG KG	0	0%	1100	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Chlorodibromomethane	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Chloroethane	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Chloroform	UG KG	0	0%	370	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Cis-1,3-Dichloropropene	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Ethyl benzene	UG KG	1	3%	1000	0	1	31	11 U	10 U	10 U	9 U	9 U	1 J	9 U	9 U	10 U	14 U	
Methyl bromide	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Methyl butyl ketone	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Methyl chloride	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Methyl ethyl ketone	UG KG	48	74%	120	0	23	31	11 U	9 J	10 U	15	12	9 U	9 U	10 U	16		
Methyl isobutyl ketone	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Methylene chloride	UG KG	0	0%	50	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Styrene	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Tetrachloroethene	UG KG	0	0%	1300	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Toluene	UG KG	13	90%	700	0	28	31	2 J	10 U	2 J	9 U	9 U	12	4 J	3 J	4 J		
Total Xylenes	UG KG	7	23%	260	0	7	31	1 J	10 U	1 J	9 U	9 U	7 J	2 J	2 J	14 U		
Trans-1,3-Dichloropropene	UG KG	0	0%		0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Trichloroethene	UG KG	0	0%	470	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
Vinyl chloride	UG KG	0	0%	20	0	0	31	11 U	10 U	10 U	9 U	9 U	9 U	9 U	9 U	10 U	14 U	
<b>Semivolatile Organic Compounds</b>																		
1,2,4-Trichlorobenzene	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 U		
1,2-Dichlorobenzene	UG KG	0	0%	1100	0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 UJ		
1,3-Dichlorobenzene	UG KG	0	0%	2400	0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 UJ		
1,4-Dichlorobenzene	UG KG	0	0%	1800	0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 UJ		
2,4,5-Trichlorophenol	UG KG	0	0%		0	0	31	190 UJ	190 UJ	200 UJ	190 UJ	180 UJ	190 UJ	180 UJ	180 UJ	270 U		
2,4,6-Trichlorophenol	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 U		
2,4-Dichlorophenol	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 U		
2,4-Dimethylphenol	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 U		
2,4-Dinitrophenol	UG KG	0	0%		0	0	31	190 UR	190 UJ	200 UJ	190 UJ	180 UJ	180 UJ	180 UR	180 UR	270 UR		
2,4-Dinitrotoluene	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 U		
2,6-Dinitrotoluene	UG KG	130	3%		0	1	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 U		
2-Chloronaphthalene	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 UJ		
2-Chlorophenol	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 U		
2-Methylnaphthalene	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 U		
2-Methylphenol	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 UJ		
2-Nitroaniline	UG KG	0	0%		0	0	31	190 UJ	190 UJ	200 UJ	190 UJ	190 UJ	180 UJ	190 UJ	180 UJ	270 U		
2-Nitrophenol	UG KG	0	0%		0	0	31	77 UJ	78 UJ	81 UJ	78 UJ	77 UJ	76 UJ	78 UJ	74 UJ	110 U		



TABLE 1  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	
								BE46-1 SOIL	BE46-2 SOIL	BE46-3 SOIL	BE46-4 SOIL	BE46-5 SOIL	BE46-6 SOIL	BE46-7 SOIL	BE46-8 SOIL	SS46-1 SOIL	
								464001	464002	464003	464004	464005	464006	464007	464008	464009	464010
								1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0
								2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	0.5
								36507	36507	36507	36507	36507	36508	36508	36508	36509	
								SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
								P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2-Nitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
HMX	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Nitrobenzene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
RDX	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Tetryl	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
<b>Pesticides and PCBs</b>																	
4,4'-DDD	UG KG	12	3%	3.3	1	1	31	3.8 U	3.9 U	4.1 U	3.9 U	3.8 U	3.8 U	3.9 U	3.7 U	3.7 U	5.6 U
4,4'-DDE	UG KG	3.7	10%	3.3	1	31	3.8 U	3.9 U	4.1 U	3.9 U	3.8 U	3.8 U	3.9 U	3.7 U	3.7 U	3.7 U	5.6 U
4,4'-DDT	UG KG	0	0%	3.3	0	0	31	3.8 U	3.9 U	4.1 U	3.9 U	3.8 U	3.8 U	3.9 U	3.7 U	3.7 U	5.6 U
Aldrin	UG KG	0	0%	5	0	0	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	2.9 U
Alpha-BHC	UG KG	0	0%	20	0	0	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	2.9 U
Alpha-Chlordane	UG KG	3.5	6%	94	0	2	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	3.5
Aroclor-1016	UG KG	0	0%	100	0	0	31	38 U	39 U	41 U	39 U	38 U	38 U	39 U	37 U	37 U	56 U
Aroclor-1221	UG KG	0	0%	100	0	0	31	78 U	80 U	83 U	80 U	78 U	76 U	78 U	75 U	75 U	110 U
Aroclor-1232	UG KG	0	0%	100	0	0	31	38 U	39 U	41 U	39 U	38 U	38 U	39 U	37 U	37 U	56 U
Aroclor-1242	UG KG	0	0%	100	0	0	31	38 U	39 U	41 U	39 U	38 U	38 U	39 U	37 U	37 U	56 U
Aroclor-1248	UG KG	0	0%	100	0	0	31	38 U	39 U	41 U	39 U	38 U	38 U	39 U	37 U	37 U	56 U
Aroclor-1254	UG KG	0	0%	100	0	0	31	38 U	39 U	41 U	39 U	38 U	38 U	39 U	37 U	37 U	56 U
Aroclor-1260	UG KG	0	0%	100	0	0	31	38 U	39 U	41 U	39 U	38 U	38 U	39 U	37 U	37 U	56 U
Beta-BHC	UG KG	0	0%	36	0	0	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	2.9 U
Delta-BHC	UG KG	0	0%		0	0	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	2.9 U
Dieldrin	UG KG	46	32%	40	2	10	31	3.8 U	3.9 U	4.1 U	3.9 U	3.8 U	3.8 U	3.9 U	3.7 U	3.7 U	5.6 U
Endosulfan I	UG KG	5.8	3%	2400	0	1	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	2.9 U
Endosulfan II	UG KG	2.3	3%	2400	0	1	31	3.8 U	3.9 U	4.1 U	3.9 U	3.8 U	3.8 U	3.9 U	3.7 U	3.7 U	5.6 U
Endosulfan sulfate	UG KG	0	0%	2400	0	0	31	3.8 U	3.9 U	4.1 U	3.9 U	3.8 U	3.8 U	3.9 U	3.7 U	3.7 U	5.6 U
Endrin	UG KG	5.1	10%	14	0	3	31	3.8 U	3.9 U	4.1 U	3.9 U	3.8 U	3.8 U	3.9 U	3.7 U	3.7 U	5.6 U
Endrin aldehyde	UG KG	0	0%		0	0	31	3.8 U	3.9 U	4.1 U	3.9 U	3.8 U	3.8 U	3.9 U	3.7 U	3.7 U	5.6 U
Endrin ketone	UG KG	3.1	3%		0	1	31	3.8 U	3.9 U	4.1 U	3.9 U	3.8 U	3.8 U	3.9 U	3.7 U	3.7 U	5.6 U
Gamma-BHC Lindane	UG KG	0	0%	100	0	0	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	2.9 U
Gamma-Chlordane	UG KG	1.9	3%	94	0	1	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	2.9 U
Heptachlor	UG KG	0	0%	42	0	0	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	2.9 U
Heptachlor epoxide	UG KG	0	0%		0	0	31	2 U	2 U	2.1 U	2 U	2 U	2 U	1.9 U	2 U	2 U	2.9 U
Methoxychlor	UG KG	0	0%		0	0	31	20 U	20 U	21 U	20 U	20 U	20 U	19 U	20 U	19 U	29 U
Toxaphene	UG KG	0	0%		0	0	31	200 U	200 U	210 U	200 U	200 U	190 U	200 U	190 U	200 U	290 U
<b>Metals</b>																	
Aluminum	MG KG	16500	100%		0	31	31	12600	13800	12100	12100	12900	11100	12700	8890	13000	
Antimony	MG KG	0.73	13%		0	4	31	0.42 UJ	0.46 UJ	0.47 UJ	0.47 UJ	0.44 UJ	0.48 UJ	0.51 UJ	0.48 UJ	0.82 UJ	
Arsenic	MG KG	7.9	100%	13	0	31	31	3.6	3.9	4.1	3.8	3.7	3.8	4.4	3.8	4.4	
Barium	MG KG	152	100%	350	0	31	31	92.6	113	95.8	92	94.4	80.5	88.2	62.7	67.8	
Beryllium	MG KG	1.2	100%	7.2	0	31	31	0.85 J	0.95 J	0.85 J	0.8 J	0.88 J	0.88 J	0.9 J	0.62 J	0.8 J	
Cadmium	MG KG	0.09	3%	2.5	0	1	31	0.06 U	0.07 U	0.06 U	0.06 U	0.06 U	0.06 U	0.05 U	0.07 U	0.09 U	
Calcium	MG KG	69300	100%		0	31	31	27400	14900	26800	39000	7410	26500	38000	38300	3300	
Chromium	MG KG	26.3	100%	30	0	31	31	20.9	20	21.9	18.7	20.1	18.5	19.1	15.6	16 J	
Cobalt	MG KG	20	100%		0	31	31	11.7	9.3 J	10.5 J	10.2 J	9.8 J	13.6	6.8 J	6.6 J		
Copper	MG KG	41.15	100%	50	0	31	31	25.6	17.4	20.7	23.2	19.3	21.8	17.9	14.2	17.9	
Cyanide	MG KG	0	0%	27	0	0	31	0.56 U	0.57 U	0.6 U	0.55 U	0.52 U	0.58 U	0.59 U	0.55 U	0.8 U	
Iron	MG KG	39100	100%		0	31	31	27000 J	26800 J	24900 J	24800 J	25200 J	22900	26700	17900	19600 J	
Lead	MG KG	73	100%	63	1	31	31	15.3 J	14.9 J	13.5 J	15.3 J	13.7 J	22.5 J	55.5 J	10.7 J	20.2	

TABLE 1  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	
								BE46-1	BE46-2	BE46-3	BE46-4	BE46-5	BE46-6	BE46-7	BE46-8	SS46-1		
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
								464001	464002	464003	464004	464005	464006	464007	464008	464009	464010	464011
								1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
								2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
								36507	36507	36507	36507	36507	36508	36508	36508	36508	36508	36509
								SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
								P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Magnesium	MG/KG	12800	100%		0	31	31	9350	6670	6890	12800	7130	12800	9080	11600	3250		
Manganese	MG/KG	1170	97%	1600	0	30	31	568	698	593	526	531	618	677	384	307 J		
Mercury	MG/KG	0.17	81%	0.18	0	25	31	0.12 J	0.1 J	0.09 J	0.08 J	0.08 J	0.13 J	0.09 J	0.09 J	0.07 J		
Nickel	MG/KG	47.4	100%	30	12	31	31	<b>35.4</b>	25.7	<b>30.2</b>	29.9	27.6	26.6	<b>35.3</b>	20.6	18 J		
Potassium	MG/KG	1770	100%		0	31	31	1190	817 J	1010	974	865 J	1470	980	950 J	1370 J		
Selenium	MG/KG	0.81	6%	3.9	0	2	31	0.49 UJ	0.53 UJ	0.45 UJ	0.46 UJ	0.51 UJ	0.52 UJ	0.43 UJ	0.54 UJ	0.73 UJ		
Silver	MG/KG	0.3175	3%	2	0	1	31	0.25 UJ	0.27 UJ	0.28 UJ	0.28 UJ	0.26 UJ	0.29 UJ	0.3 UJ	0.28 UJ	0.58 UJ		
Sodium	MG/KG	272	45%		0	14	31	98.8 J	98.6 U	205 J	107 J	94.2 U	272 J	162 J	136 J	135 U		
Thallium	MG/KG	3.7	97%		0	30	31	1.5 J	1.2 J	3.4	2.7	1.2 J	1.5 J	1.3 J	1.4 J	0.82 U		
Vanadium	MG/KG	29.3	100%		0	31	31	21.6	24.7	21.7	20.8	22.4	20.8	21.9	17.4	23.1		
Zinc	MG/KG	115	100%	109	1	31	31	67.8	51.1	85.3	64.6	72.4	66.2	66.7	56.5	62.6 J		
Other Analytes																		
Nitrate/Nitrite Nitrogen	MG/KG	2.2	96%		0	25	26	0.67	1.5	0.94	1.9	1.9		2.2	1.5	0.02		
Percent Solids	% WW	89.5	100%		0	31	31	86.5	84.2	81.2	83.9	85.7	86.7	84.9	89.5	58.9		

Notes:

- Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)
- Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.
- A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.



TABLE I  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-11	SS46-15	SS46-16	SS46-17	SS46-18	SS46-19	SS46-20	SS46-21		
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
								464014	464024	464015	464029	464030	464025	464013	464022	464026	
								0	0	0	0	0	0	0	0	0	
								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
								36508	36509	36508	36510	36510	36509	36508	36509	36509	
								SA	SA	SA	SA	SA	SA	SA	SA	SA	
								P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
<b>Volatile Organic Compounds</b>																	
1,1,1-Trichloroethane	UG:KG	0	0%	680	0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
1,1,2,2-Tetrachloroethane	UG:KG	0	0%		0	0	31	11 U	12 UR	12 U	18 U	13 U	12 UJ	12 U	14 U	14 U	
1,1,2-Trichloroethane	UG:KG	0	0%		0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
1,1-Dichloroethane	UG:KG	0	0%	270	0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
1,1-Dichloroethene	UG:KG	0	0%	330	0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
1,2-Dichloroethane	UG:KG	0	0%	20	0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
1,2-Dichloroethene (total)	UG:KG	0	0%	19	0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
1,2-Dichloropropane	UG:KG	0	0%		0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Acetone	UG:KG	410	100%	50	27	30	30	300 J	72 J	210 J	240 J	340 J	220 J	380 J	160 J	220 J	
Benzene	UG:KG	12	23%	60	0	7	31	11 U	2 J	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Bromodichloromethane	UG:KG	0	0%		0	0	31	11 U	12 U	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Bromoform	UG:KG	0	0%		0	0	31	11 U	12 UR	12 U	18 U	13 U	12 UJ	12 U	14 U	14 U	
Carbon disulfide	UG:KG	20	39%		0	12	31	11 U	11 J	12 U	18 UJ	13 UJ	20 J	12 U	14 U	14 U	
Carbon tetrachloride	UG:KG	0	0%	760	0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Chlorobenzene	UG:KG	0	0%	1100	0	0	31	11 U	12 UR	12 U	18 U	13 U	12 UJ	12 U	14 U	14 U	
Chlorodibromomethane	UG:KG	0	0%		0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Chloroethane	UG:KG	0	0%		0	0	31	11 U	12 UJ	12 U	18 UJ	13 UJ	12 UJ	12 U	14 U	14 UJ	
Chloroform	UG:KG	0	0%	370	0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Cis-1,3-Dichloropropene	UG:KG	0	0%		0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Ethyl benzene	UG:KG	1	3%	1000	0	1	31	11 U	12 UR	12 U	18 U	13 U	12 UJ	12 U	14 U	14 U	
Methyl bromide	UG:KG	0	0%		0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Methyl butyl ketone	UG:KG	0	0%		0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Methyl chloride	UG:KG	0	0%		0	0	31	11 UJ	12 UJ	12 UJ	18 UJ	13 UJ	12 UJ	12 UJ	14 UJ	14 UJ	
Methyl ethyl ketone	UG:KG	48	74%	120	0	23	31	28	12 UJ	27	25 J	29 J	12 U	48	17	23	
Methyl isobutyl ketone	UG:KG	0	0%		0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Methylene chloride	UG:KG	0	0%	50	0	0	31	11 U	12 UJ	12 U	18 UJ	13 UJ	12 U	12 U	14 U	14 U	
Styrene	UG:KG	0	0%		0	0	31	11 U	12 UR	12 U	18 U	13 U	12 UJ	12 U	14 U	14 U	
Tetrachloroethene	UG:KG	0	0%	1300	0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Toluene	UG:KG	13	90%	700	0	28	31	6 J	9 J	8 J	4 J	4 J	4 J	5 J	2 J	2 J	
Total Xylenes	UG:KG	7	23%	260	0	7	31	11 U	12 UR	12 U	18 U	13 U	12 UJ	12 U	14 U	14 U	
Trans-1,3-Dichloropropene	UG:KG	0	0%		0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Trichloroethene	UG:KG	0	0%	470	0	0	31	11 U	12 UJ	12 U	18 U	13 U	12 U	12 U	14 U	14 U	
Vinyl chloride	UG:KG	0	0%	20	0	0	31	11 U	12 UJ	12 U	18 UJ	13 UJ	12 UJ	12 U	14 U	14 U	
<b>Semivolatile Organic Compounds</b>																	
1,2,4-Trichlorobenzene	UG:KG	0	0%		0	0	31	130 UJ	89 U	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
1,2-Dichlorobenzene	UG:KG	0	0%	1100	0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
1,3-Dichlorobenzene	UG:KG	0	0%	2400	0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
1,4-Dichlorobenzene	UG:KG	0	0%	1800	0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
2,4,5-Trichlorophenol	UG:KG	0	0%		0	0	31	320 UJ	220 UJ	210 UJ	250 UJ	220 UJ	220 UJ	1100 UJ	260 UJ	250 UJ	
2,4,6-Trichlorophenol	UG:KG	0	0%		0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
2,4-Dichlorophenol	UG:KG	0	0%		0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
2,4-Dimethylphenol	UG:KG	0	0%		0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
2,4-Dinitrophenol	UG:KG	0	0%		0	0	31	320 UR	220 UR	210 UJ	250 UR	220 UR	220 UR	1100 UR	260 UR	250 UR	
2,4-Dinitrotoluene	UG:KG	0	0%		0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
2,6-Dinitrotoluene	UG:KG	170	3%		0	1	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	130 J	110 UJ	100 UJ	
2-Chloronaphthalene	UG:KG	0	0%		0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
2-Chlorophenol	UG:KG	0	0%		0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
2-Methylnaphthalene	UG:KG	0	0%		0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
2-Methylphenol	UG:KG	0	0%		0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	
2-Nitroaniline	UG:KG	0	0%		0	0	31	320 UJ	220 UJ	210 UJ	250 UJ	220 UJ	220 UJ	1100 UJ	260 UJ	250 UJ	
2-Nitrophenol	UG:KG	0	0%		0	0	31	130 UJ	89 UJ	88 UJ	100 UJ	93 UJ	90 UJ	450 UJ	110 UJ	100 UJ	



TABLE I  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	
								SS46-11	SS46-15	SS46-16	SS46-17	SS46-18	SS46-19	SS46-2	SS46-20	SS46-21	
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
2-Nitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
HMX	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Nitrobenzene	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
RDX	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Tetryl	UG KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
<b>Pesticides and PCBs</b>																	
4,4'-DDD	UG KG	12	3%	3.3	1	1	31	4.3 UJ	4.4 U	4.4 U	5.2 U	12	4.5 U	4.5 U	5.4 U	5.2 U	5.2 U
4,4'-DDE	UG KG	3.7	10%	3.3	1	1	31	4.3 UJ	2 J	4.4 U	5.2 U	4.6 U	1.8 J	4.5 U	4.5 U	5.4 U	5.2 U
4,4'-DDT	UG KG	0	0%	3.3	0	0	31	4.3 UJ	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U	5.2 U
Aldrin	UG KG	0	0%	5	0	0	31	2.2 UJ	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Alpha-BHC	UG KG	0	0%	20	0	0	31	2.2 UJ	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Alpha-Chlordane	UG KG	3.5	6%	94	0	2	31	1.3 UJ	2.3 U	1.5 J	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Aroclor-1016	UG KG	0	0%	100	0	0	31	43 UJ	44 U	44 U	52 U	46 U	45 U	45 U	54 U	52 U	52 U
Aroclor-1221	UG KG	0	0%	100	0	0	31	88 UJ	90 U	88 U	100 U	94 U	92 U	91 U	110 U	100 U	100 U
Aroclor-1232	UG KG	0	0%	100	0	0	31	43 UJ	44 U	44 U	52 U	46 U	45 U	45 U	54 U	52 U	52 U
Aroclor-1242	UG KG	0	0%	100	0	0	31	43 UJ	44 U	44 U	52 U	46 U	45 U	45 U	54 U	52 U	52 U
Aroclor-1248	UG KG	0	0%	100	0	0	31	43 UJ	44 U	44 U	52 U	46 U	45 U	45 U	54 U	52 U	52 U
Aroclor-1254	UG KG	0	0%	100	0	0	31	43 UJ	44 U	44 U	52 U	46 U	45 U	45 U	54 U	52 U	52 U
Aroclor-1260	UG KG	0	0%	100	0	0	31	43 UJ	44 U	44 U	52 U	46 U	45 U	45 U	54 U	52 U	52 U
Beta-BHC	UG KG	0	0%	36	0	0	31	2.2 UJ	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Delta-BHC	UG KG	0	0%		0	0	31	2.2 UJ	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Dieldrin	UG KG	46	32%	40	2	10	31	46 J	4.4 U	4.4 U	5.2 U	28 J	4.3 J	4.5 U	5.4 U	5.2 U	5.2 U
Endosulfan I	UG KG	5.8	3%	2400	0	1	31	2.2 UJ	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Endosulfan II	UG KG	2.3	3%	2400	0	1	31	4.3 UJ	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U	5.2 U
Endosulfan sulfate	UG KG	0	0%	2400	0	0	31	4.3 UJ	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U	5.2 U
Endrin	UG KG	5.1	10%	14	0	3	31	4.3 UJ	4.4 U	4.4 U	5.2 U	3.1 J	4.5 U	4.5 U	5.4 U	5.2 U	5.2 U
Endrin aldehyde	UG KG	0	0%		0	0	31	4.3 UJ	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U	5.2 U
Endrin ketone	UG KG	3.1	3%		0	1	31	4.3 UJ	4.4 U	4.4 U	5.2 U	4.6 U	4.5 U	4.5 U	5.4 U	5.2 U	5.2 U
Gamma-BHC Lindane	UG KG	0	0%	100	0	0	31	2.2 UJ	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Gamma-Chlordane	UG KG	1.9	3%	94	0	1	31	2.2 UJ	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Heptachlor	UG KG	0	0%	42	0	0	31	2.2 UJ	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Heptachlor epoxide	UG KG	0	0%		0	0	31	2.2 UJ	2.3 U	2.2 U	2.6 U	2.4 U	2.3 U	2.3 U	2.8 U	2.6 U	2.6 U
Methoxychlor	UG KG	0	0%		0	0	31	22 UJ	23 U	22 U	26 U	24 U	23 U	23 U	28 U	26 U	26 U
Toxaphene	UG KG	0	0%		0	0	31	220 UJ	230 U	220 U	260 U	240 U	230 U	230 U	280 U	260 U	260 U
<b>Metals</b>																	
Aluminum	MG KG	16500	100%		0	31	31	13900	9020	11100	14400	12600	13500	12000	14400	15300	15300
Antimony	MG KG	0.73	13%		0	4	31	0.53 UJ	0.73 UR	0.57 UJ	0.56 UR	0.51 J	0.72 UR	0.52 UJ	0.85 UR	0.8 UR	0.8 UR
Arsenic	MG KG	7.9	100%	13	0	31	31	6.1	2.9	4.1	4	5.7	5.1	4.8	5.2	7.9	7.9
Barium	MG KG	152	100%	350	0	31	31	96.6	205.3 J	77.5	149	67.4	67.2	95	93.9	134	134
Beryllium	MG KG	1.2	100%	7.2	0	31	31	1.1 J	0.31 J	0.79 J	0.82 J	0.73 J	0.56 J	0.93 J	0.51 J	0.58 J	0.58 J
Cadmium	MG KG	0.09	3%	2.5	0	1	31	0.07 U	0.09 J	0.07 U	0.05 U	0.04 U	0.08 U	0.07 U	0.09 U	0.09 U	0.09 U
Calcium	MG KG	69300	100%		0	31	31	4060	18400 J	2610	7400 J	2520 J	6660 J	4390 J	6480 J	6480 J	6480 J
Chromium	MG KG	26.3	100%	30	0	31	31	22.7	16.9 J	16	13	14.1 J	26.3 J	19.9	19 J	20.9 J	20.9 J
Cobalt	MG KG	20	100%		0	31	31	12.3	9.6 J	10.1 J	6.1 J	11.2 J	11 J	11 J	13.5 J	13.5 J	13.5 J
Copper	MG KG	41.15	100%	50	0	31	31	30.3	37.8	16.5	21.4 J	20.1 J	29.1	24.2	20.3	30.6	30.6
Cyanide	MG KG	0	0%	27	0	0	31	0.65 U	0.59 U	0.65 U	0.75 U	0.68 U	0.65 U	0.62 U	0.69 U	0.76 U	0.76 U
Iron	MG KG	39100	100%		0	31	31	28600 J	20800 J	19500 J	19200 J	21200 J	25000 J	25000 J	24300 J	30800 J	30800 J
Lead	MG KG	73	100%	63	1	31	31	31.6 J	34.8	26.4 J	22.1	24.4	27.9	22.1 J	26.8	28.1	28.1

TABLE 1  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-11 SOIL 464014	SS46-15 SOIL 464024	SS46-16 SOIL 464015	SS46-17 SOIL 464029	SS46-18 SOIL 464030	SS46-19 SOIL 464025	SS46-20 SOIL 464013	SS46-21 SOIL 464022		
Magnesium	MG/KG	12800	100%		0	31	31	4490	4910	2850	3880 J	3310 J	5210	4180	3890	6230	
Manganese	MG/KG	1170	97%	1600	0	30	31	672	0.11 UJ	750	245 J	368 J	404 J	700	741 J	1170 J	
Mercury	MG/KG	0.17	81%	0.18	0	25	31	0.12 J	0.06 U	0.17 J	0.07 J	0.1 J	0.11 J	0.16 J	0.07 U	0.11 J	
Nickel	MG/KG	47.4	100%	30	12	31	31	<b>38.7</b>	<b>34.5</b> J	19.1	18.7 J	23 J	<b>35.7</b> J	29.4	25.6 J	<b>44.7</b> J	
Potassium	MG/KG	1770	100%		0	31	31	1310	1020 J	976 J	1260 J	1350	1510	1410	1450 J	1690	
Selenium	MG/KG	0.81	6%	3.9	0	2	31	0.55 UJ	0.64 U	0.55 UJ	0.81 J	0.54 U	0.64 U	0.55 UJ	0.76 U	0.71 U	
Silver	MG/KG	0.3175	3%	2	0	1	31	0.31 UJ	0.51 UJ	0.34 UJ	0.33 UJ	0.28 UJ	0.5 UJ	0.31 UJ	0.6 UJ	0.56 UJ	
Sodium	MG/KG	272	45%		0	14	31	127 J	193 J	108 J	75.1 J	62.4 U	118 U	102 U	140 U	132 U	
Thallium	MG/KG	3.7	97%		0	30	31	2 J	2 J	1.6 J	0.91 J	1.6 J	1.9 J	1.9 J	2.2 J	3.3	
Vanadium	MG/KG	29.3	100%		0	31	31	25.4	12.5 J	19.6	23.3	21.7	22.2	22.4	25.4	28.6	
Zinc	MG/KG	115	100%	109	1	31	31	83.2	65.7 J	58	69.1 J	64.4 J	77 J	84.7	84.1 J	97.3 J	
<b>Other Analytes</b>																	
Nitrate/Nitrite Nitrogen	MG/KG	2.2	96%		0	25	26		0.04		0.94	0.01	0.01		0.05	0.01 U	
Percent Solids	% WW	89.5	100%		0	31	31	75.8	73.7	75.3	63.7	71.2	73.1	72.9	61	63.6	

Notes:

- (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)
- (2) Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.
- (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.

TABLE I  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	
								SS46-22	SS46-23	SS46-24	SS46-3	SS46-4	SS46-5	SS46-6	SS46-7	SW/SD46-1		
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	
								464031	464032	464033	464010	464009	464008	464021	464020	463000		
								0	0	0	0	0	0	0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2	
								36510	36510	36510	36508	36508	36508	36509	36509	36510	36511	
								SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
								P1S1 R1	P1S1 R1	P1S1 R1	P1S1 R1	P1S1 R1	P1S1 R1	P1S1 R1	P1S1 R1	P1S1 R1	P1S1 R1	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
<b>Volatile Organic Compounds</b>																		
1,1,1-Trichloroethane	UG:KG	0	0%	680	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
1,1,2,2-Tetrachloroethane	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
1,1,2-Trichloroethane	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
1,1-Dichloroethane	UG:KG	0	0%	270	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
1,2-Dichloroethane	UG:KG	0	0%	330	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
1,2-Dichloroethane	UG:KG	0	0%	20	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
1,2-Dichloroethane (total)	UG:KG	0	0%	19	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
1,2-Dichloropropane	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Acetone	UG:KG	410	100%	50	27	30	30	410 J	320 J	260 J	210 J	160 J	280 J	380 J	320 J	280 J	280 J	
Benzene	UG:KG	12	23%	60	0	7	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	2 J	12 U	12 U	
Bromodichloromethane	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Bromoform	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Carbon disulfide	UG:KG	20	39%		0	12	31	13 UJ	13 UJ	12 UJ	12 U	11 U	12 U	4 J	11 U	2 J	2 J	
Carbon tetrachloride	UG:KG	0	0%	760	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Chlorobenzene	UG:KG	0	0%	1100	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Chlorobromomethane	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Chloroethane	UG:KG	0	0%		0	0	31	13 UJ	13 UJ	12 UJ	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Chloroform	UG:KG	0	0%	370	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Cis-1,3-Dichloropropene	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Ethyl benzene	UG:KG	1	3%	1000	0	1	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Methyl bromide	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Methyl butyl ketone	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Methyl chloride	UG:KG	0	0%		0	0	31	13 UJ	13 UJ	12 UJ	12 UJ	11 UJ	12 UJ	17 UJ	12 UJ	12 UJ	12 UJ	
Methyl ethyl ketone	UG:KG	48	74%	120	0	23	31	43 J	40 J	26 J	25	18	27	35	35	22 J	22 J	
Methyl isobutyl ketone	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Methylene chloride	UG:KG	0	0%	50	0	0	31	13 UJ	13 UJ	12 UJ	12 U	11 U	12 U	17 U	12 U	12 U	12 UJ	
Styrene	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Tetrachloroethene	UG:KG	0	0%	1300	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Toluene	UG:KG	13	90%	700	0	28	31	10 J	5 J	6 J	7 J	4 J	6 J	9 J	5 J	6 J	6 J	
Total Xylenes	UG:KG	7	23%	260	0	7	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	3 J	12 U	12 U	
Trans-1,3-Dichloropropene	UG:KG	0	0%		0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Trichloroethene	UG:KG	0	0%	470	0	0	31	13 U	13 U	12 U	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
Vinyl chloride	UG:KG	0	0%	20	0	0	31	13 UJ	13 UJ	12 UJ	12 U	11 U	12 U	17 U	12 U	12 U	12 U	
<b>Semivolatile Organic Compounds</b>																		
1,2,4-Trichlorobenzene	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
1,2-Dichlorobenzene	UG:KG	0	0%	1100	0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
1,3-Dichlorobenzene	UG:KG	0	0%	2400	0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
1,4-Dichlorobenzene	UG:KG	0	0%	1800	0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2,4,5-Trichlorophenol	UG:KG	0	0%		0	0	31	230 UJ	240 UJ	220 UJ	220 UJ	210 UJ	220 UJ	250 UJ	210 UJ	200 UJ	200 UJ	
2,4,6-Trichlorophenol	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2,4-Dichlorophenol	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2,4-Dimethylphenol	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2,4-Dinitrophenol	UG:KG	0	0%		0	0	31	230 UR	240 UR	220 UR	220 UJ	210 UJ	220 UJ	250 UR	210 UR	200 UR	200 UR	
2,4-Dinitrotoluene	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2,6-Dinitrotoluene	UG:KG	130	3%		0	1	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2-Chloronaphthalene	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2-Chlorophenol	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2-Methylnaphthalene	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2-Methylphenol	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	
2-Nitroanisole	UG:KG	0	0%		0	0	31	230 UJ	240 UJ	220 UJ	220 UJ	210 UJ	220 UJ	250 UJ	210 UJ	200 UJ	200 UJ	
2-Nitrophenol	UG:KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ	80 UJ	

TABLE 1  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

					SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
					SS46-22	SS46-23	SS46-24	SS46-3	SS46-4	SS46-5	SS46-6	SS46-7	SS46-8	SS46-9	SS46-10	SS46-11
					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					464031	464032	464033	464010	464009	464008	464021	464020	464021	464020	464021	463000
					0	0	0	0	0	0	0	0	0	0	0	0
					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2
					36510	36510	36510	36508	36508	36508	36508	36509	36508	36509	36511	36511
					SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
					P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI
Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
3-Nitroaniline	UG/KG	0	0%		0	0	31	230 UJ	240 UJ	220 UJ	220 UJ	210 UJ	220 UJ	250 U	210 U	200 UJ
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	31	230 UJ	240 UJ	220 UJ	220 UJ	210 UJ	220 UJ	250 U	210 U	200 UJ
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ
4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
4-Chloroaniline	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
4-Methylphenol	UG/KG	13	6%	330	0	2	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	6.2 J	80 UJ
4-Nitroaniline	UG/KG	0	0%		0	0	31	230 UJ	240 UJ	220 UJ	220 UJ	210 UJ	220 UJ	250 U	210 U	200 UJ
4-Nitrophenol	UG/KG	0	0%		0	0	31	230 UJ	240 UJ	220 UJ	220 UJ	210 UJ	220 UJ	250 UR	210 UR	200 UJ
Acenaphthene	UG/KG	0	0%	20000	0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Acenaphthylene	UG/KG	0	0%	100000	0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Anthracene	UG/KG	0	0%	100000	0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Benzo(a)anthracene	UG/KG	34	23%	1000	0	7	31	4.3 J	98 UJ	6.3 J	93 UJ	87 UJ	90 UJ	8.9 J	4.7 J	80 UJ
Benzo(a)pyrene	UG/KG	30	45%	1000	0	14	31	6.6 J	98 UJ	7.4 J	93 UJ	87 UJ	9.5 J	16 J	7.8 J	80 UJ
Benzo(b)fluoranthene	UG/KG	47	48%	1000	0	15	31	5.5 J	98 UJ	8.8 J	93 UJ	87 UJ	11 J	14 J	7.5 J	80 UJ
Benzo(ghi)perylene	UG/KG	17	3%	100000	0	1	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Benzo(k)fluoranthene	UG/KG	33	48%	800	0	15	31	6.5 J	98 UJ	7.8 J	93 UJ	87 UJ	6.8 J	15 J	6.4 J	80 UJ
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	780	10%		0	3	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Butylbenzylphthalate	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Carbazole	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Chrysene	UG/KG	40	32%	1000	0	10	31	5.4 J	5.3 J	7 J	93 UJ	87 UJ	90 UJ	14 J	6.1 J	80 UJ
Di-n-butylphthalate	UG/KG	1100	19%		0	6	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	5.7 J	80 UJ
Di-n-octylphthalate	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Dibenz(a,h)anthracene	UG/KG	0	0%	330	0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Dibenzofuran	UG/KG	0	0%	7000	0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Diethyl phthalate	UG/KG	11	3%		0	1	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Dimethylphthalate	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Fluoranthene	UG/KG	36	52%	100000	0	16	31	9.8 J	7.9 J	6.2 J	93 UJ	87 UJ	12 J	23 J	13 J	80 UJ
Fluorene	UG/KG	0	0%	30000	0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Hexachlorobenzene	UG/KG	11	3%	330	0	1	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Hexachlorobutadiene	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 UJ	87 UJ	80 UJ
Hexachloroethane	UG/KG	9.9	3%		0	1	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	19	6%	500	0	2	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Isophorone	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
N-Nitrosodiphenylamine	UG/KG	59	6%		0	2	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Naphthalene	UG/KG	3.5	3%	12000	0	1	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Nitrobenzene	UG/KG	0	0%		0	0	31	94 UJ	98 UJ	90 UJ	93 UJ	87 UJ	90 UJ	100 U	87 U	80 UJ
Pentachlorophenol	UG/KG	0	0%	800	0	0	31	230 UJ	240 UJ	220 UJ	220 UJ	210 UJ	220 UJ	250 U	210 U	200 UJ
Phenanthrene	UG/KG	25.1	45%	100000	0	14	31	6.4 J	4.9 J	90 UJ	93 UJ	87 UJ	6.6 J	12 J	6.2 J	80 UJ
Phenol	UG/KG	33	32%	330	0	10	31	4.9 J	16 J	9.9 J	93 UJ	87 UJ	90 UJ	100 U	87 U	4.2 J
Pyrene	UG/KG	32	55%	100000	0	17	31	9.5 J	8.7 J	5.5 J	93 UJ	87 UJ	13 J	16 J	8.2 J	80 UJ
<b>Explosives</b>																
1,3,5-Trinitrobenzene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U

TABLE I  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-22 SOIL 464031	SS46-23 SOIL 464032	SS46-24 SOIL 464033	SS46-3 SOIL 464010	SS46-4 SOIL 464009	SS46-5 SOIL 464008	SS46-6 SOIL 464021	SS46-7 SOIL 464020	SW SD46-1 SEDIMENT 463000
								0	0	0	0	0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2
								36510	36510	36510	36508	36508	36509	36509	36511	36511
								SA	SA	SA	SA	SA	SA	SA	SA	SA
								PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2-Nitrotoluene	UG/KG	0	0%		0	0	31	120 UJ	120 UJ	120 UJ	120 U	120 U	120 U	120 U	120 U	120 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
HMX	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Nitrobenzene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
RDX	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Tetryl	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
<b>Pesticides and PCBs</b>																
4,4'-DDD	UG/KG	12	3%	3.3	1	1	31	4.7 U	4.9 U	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U	4.3 U	4 U
4,4'-DDE	UG/KG	3.7	10%	3.3	1	3	31	4.7 U	4.9 U	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U	3.7 J	4 U
4,4'-DDT	UG/KG	0	0%	3.3	0	0	31	4.7 U	4.9 U	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U	4.3 U	4 U
Aldrin	UG/KG	0	0%	5	0	0	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Alpha-BHC	UG/KG	0	0%	20	0	0	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Alpha-Chlordane	UG/KG	3.5	6%	94	0	2	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Aroclor-1016	UG/KG	0	0%	100	0	0	31	47 U	49 U	45 U	46 U	43 U	45 U	51 U	43 U	40 U
Aroclor-1221	UG/KG	0	0%	100	0	0	31	96 U	100 U	92 U	94 U	88 U	91 U	100 U	88 U	82 U
Aroclor-1232	UG/KG	0	0%	100	0	0	31	47 U	49 U	45 U	46 U	43 U	45 U	51 U	43 U	40 U
Aroclor-1242	UG/KG	0	0%	100	0	0	31	47 U	49 U	45 U	46 U	43 U	45 U	51 U	43 U	40 U
Aroclor-1248	UG/KG	0	0%	100	0	0	31	47 U	49 U	45 U	46 U	43 U	45 U	51 U	43 U	40 U
Aroclor-1254	UG/KG	0	0%	100	0	0	31	47 U	49 U	45 U	46 U	43 U	45 U	51 U	43 U	40 U
Aroclor-1260	UG/KG	0	0%	100	0	0	31	47 U	49 U	45 U	46 U	43 U	45 U	51 U	43 U	40 U
Beta-BHC	UG/KG	0	0%	36	0	0	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Delta-BHC	UG/KG	0	0%	0	0	0	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Dieldrin	UG/KG	46	32%	40	2	10	31	16 J	4.9 U	4.5 U	10 J	4.6	4.5 U	9 J	45 J	4 U
Endosulfan I	UG/KG	5.8	3%	2400	0	1	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Endosulfan II	UG/KG	2.3	3%	2400	0	1	31	4.7 U	4.9 U	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U	2.3 J	4 U
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	31	4.7 U	4.9 U	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U	4.3 U	4 U
Endrin	UG/KG	5.1	10%	14	0	3	31	4.7 U	4.9 U	4.5 U	2.4 J	4.3 U	4.5 U	5.1 U	5.1 J	4 U
Endrin aldehyde	UG/KG	0	0%	0	0	0	31	4.7 U	4.9 U	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U	4.3 U	4 U
Endrin ketone	UG/KG	3.1	3%	0	1	1	31	4.7 U	4.9 U	4.5 U	4.6 U	4.3 U	4.5 U	5.1 U	3.1 J	4 U
Gamma-BHC Lindane	UG/KG	0	0%	100	0	0	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Gamma-Chlordane	UG/KG	1.9	3%	94	0	1	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Heptachlor	UG/KG	0	0%	42	0	0	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Heptachlor epoxide	UG/KG	0	0%	0	0	0	31	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.3 U	2.6 U	2.2 U	2.1 U
Methoxychlor	UG/KG	0	0%	0	0	0	31	24 U	25 U	23 U	24 U	22 U	23 U	26 U	22 U	21 U
Toxaphene	UG/KG	0	0%	0	0	0	31	240 U	250 U	230 U	240 U	220 U	230 U	260 U	220 U	210 U
<b>Metals</b>																
Aluminum	MG/KG	16500	100%		0	31	31	14100	12900	15300	12100	12500	12500	13900	11600	14600
Antimony	MG/KG	0.73	13%		0	4	31	0.52 UR	0.48 UR	0.4 UR	0.55 UJ	0.56 UJ	0.57 UJ	0.81 UR	0.59 UR	0.73 J
Arsenic	MG/KG	7.9	100%	13	0	31	31	5.6	5.5	6.2	4.4	4.5	4.2	4.7	4.2	3.9
Barium	MG/KG	152	100%	350	0	31	31	139	119	109	95.1	99.6	97.2	115	79.1	56.1
Beryllium	MG/KG	1.2	100%	7.2	0	31	31	1 J	0.95 J	1.2	0.84 J	0.84 J	0.94 J	0.64 J	0.46 J	0.88
Cadmium	MG/KG	0.09	3%	2.5	0	1	31	0.05 U	0.04 U	0.04 U	0.06 U	0.07 U	0.06 U	0.09 U	0.07 U	0.03 U
Calcium	MG/KG	69300	100%		0	31	31	4110 J	4330 J	3390 J	7000	3340	5510	8090 J	23200 J	4940 J
Chromium	MG/KG	26.3	100%	30	0	31	31	15.5 J	12.2 J	16.9 J	18.3	19.2	19.7	18.3 J	17.3 J	19.3 J
Cobalt	MG/KG	20	100%		0	31	31	9.3 J	9 J	16.2	9.8 J	9.9 J	10.4 J	8.5 J	11.1	12.1
Copper	MG/KG	41.15	100%	50	0	31	31	22 J	21.8 J	27.6 J	22.9	21.3	22.1	26.5	24.4	21.5 J
Cyanide	MG/KG	0	0%	27	0	0	31	0.71 U	0.75 U	0.61 U	0.7 U	0.63 U	0.66 U	0.74 U	0.61 U	0.54 U
Iron	MG/KG	39100	100%		0	31	31	24200 J	23400 J	32300 J	23700 J	24800	24400	22900 J	22400 J	30300 J
Lead	MG/KG	73	100%	63	1	31	31	21.7	23.9	20.9	22.8 J	73 J	30.1 J	37	49.7	21.1

TABLE 1  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SS46-22	SS46-23	SS46-24	SS46-3	SS46-4	SS46-5	SS46-6	SS46-7	SW/SD46-1	
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT
								464031	464032	464033	464010	464009	464008	464021	464020	464020	463000
								0	0	0	0	0	0	0	0	0	0
								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.2
								36510	36510	36510	36508	36508	36508	36509	36509	36511	
								SA	SA	SA	SA	SA	SA	SA	SA	SA	
								P1S1 RJ	P1S1 RJ	P1S1 RJ	P1S1 RJ	P1S1 RJ	P1S1 RJ	P1S1 RJ	P1S1 RJ	P1S1 RJ	
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Magnesium	MG/KG	12800	100%		0	31	31	3720 J	3400 J	4860 J	4580	3490	4460	4550	11100	5450 J	
Manganese	MG/KG	1170	97%	1600	0	30	31	577 J	498 J	1000 J	475	531	569	345 J	611 J	371 J	
Mercury	MG/KG	0.17	81%	0.18	0	25	31	0.09 J	0.12	0.06 U	0.15 J	0.13 J	0.15 J	0.1 J	0.08 J	0.07 J	
Nickel	MG/KG	47.4	100%	30	12	31	31	25.3 J	24.5 J	<b>43.3 J</b>	27.2	24.6	27.6	28.6 J	29.4 J	<b>39.1 J</b>	
Potassium	MG/KG	1770	100%		0	31	31	1630	1630	1320	1310	1390	1230	1770	1500	887	
Selenium	MG/KG	0.81	6%	3.9	0	2	31	0.6 U	0.57 J	0.45 U	0.48 UJ	0.52 UJ	0.49 UJ	0.72 U	0.53 U	0.41 U	
Silver	MG/KG	0.3175	3%	2	0	1	31	0.31 UJ	0.28 UJ	0.24 UJ	0.32 UJ	0.33 UJ	0.33 UJ	0.57 UJ	0.42 UJ	0.21 UJ	
Sodium	MG/KG	272	45%		0	14	31	68.8 U	63.3 U	52.6 U	89.1 U	96.4 U	91.1 U	133 U	97.8 U	86.8 J	
Thallium	MG/KG	3.7	97%		0	30	31	1.2 J	2.3	2.5	1.4 J	1.1 J	1.6 J	1.3 J	1.7 J	1.9	
Vanadium	MG/KG	29.3	100%		0	31	31	24.7	23.7	26.7	21.5	22.2	22.8	23.7	20.3	21.6	
Zinc	MG/KG	115	100%	109	1	31	31	79.2 J	78 J	<b>118 J</b>	75.6	71.8	70.9	89.2 J	71 J	64.6 J	
<b>Other Analytes</b>																	
Nitrate/Nitrite Nitrogen	MG/KG	2.2	96%		0	25	26	0.16	0.43	0.05		2.1	0.63	0.23	0.7	0.09	
Percent Solids	% WW	89.5	100%		0	31	31	70	67.1	73.3	70.7	75.5	73.3	65.4	75.7	81.8	

Notes:

- Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)
- Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.
- A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.



TABLE I  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SW/SD46-2 SEDIMENT 463001	SW/SD46-3 SEDIMENT 463002	SW/SD46-4 SEDIMENT 463003	SS46-13 SOIL 464027/464028
								0	0	0	0
								0.2	0.2	0.2	0.5
								36511	36511	36510	36510
								SA	SA	SA	SADU
								P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)
<b>Volatile Organic Compounds</b>											
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	31	13 U	14 UR	12 U	12.5 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	31	13 U	14 UR	12 U	12.5 U
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	31	13 U	14 UR	12 U	12.5 U
1,1-Dichloroethane	UG/KG	0	0%	270	0	0	31	13 U	14 UR	12 U	12.5 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	31	13 U	14 UR	12 U	12.5 U
1,2-Dichloroethane	UG/KG	0	0%	26	0	0	31	13 U	14 UR	12 U	12.5 U
1,2-Dichloroethane (total)	UG/KG	0	0%	19	0	0	31	13 U	14 UR	12 U	12.5 U
1,2-Dichloropropane	UG/KG	0	0%		0	0	31	13 U	14 UR	12 U	12.5 U
Acetone	UG/KG	410	100%	50	27	30	30	250 J	27 J	160 J	210 J
Benzene	UG/KG	12	23%	60	0	7	31	13 U	14 UR	12 U	12.5 U
Bromodichloromethane	UG/KG	0	0%	0	0	0	31	13 U	14 UR	12 U	12.5 U
Bromoform	UG/KG	0	0%	0	0	0	31	13 U	14 UR	12 U	12.5 U
Carbon disulfide	UG/KG	20	39%	0	12	31	31	13 UJ	2 J	12 UJ	12.5 UJ
Carbon tetrachloride	UG/KG	0	0%	760	0	0	31	13 U	14 UR	12 U	12.5 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	31	13 U	14 UR	12 U	12.5 U
Chlorodibromomethane	UG/KG	0	0%	0	0	0	31	13 U	14 UR	12 U	12.5 U
Chloroethane	UG/KG	0	0%	0	0	0	31	13 UJ	14 UR	12 UJ	12.5 UJ
Chloroform	UG/KG	0	0%	370	0	0	31	13 U	14 UR	12 U	12.5 U
Cis-1,3-Dichloropropene	UG/KG	0	0%	0	0	0	31	13 U	14 UR	12 U	12.5 U
Ethyl benzene	UG/KG	1	3%	1000	0	1	31	13 U	14 UR	12 U	12.5 U
Methyl bromide	UG/KG	0	0%	0	0	0	31	13 U	14 UR	12 U	12.5 U
Methyl butyl ketone	UG/KG	0	0%	0	0	0	31	13 U	14 UR	12 U	12.5 U
Methyl chloride	UG/KG	0	0%	0	0	0	31	13 UJ	14 UR	12 UJ	12.5 UJ
Methyl ethyl ketone	UG/KG	48	74%	120	0	23	31	25 J	14 UR	19 J	21.5 J
Methyl isobutyl ketone	UG/KG	0	0%	0	0	0	31	13 U	14 UR	12 U	12.5 U
Methylene chloride	UG/KG	0	0%	50	0	0	31	13 UJ	14 UR	12 UJ	12.5 UJ
Styrene	UG/KG	0	0%	0	0	0	31	13 U	14 UR	12 U	12.5 U
Tetrachloroethene	UG/KG	0	0%	1300	0	0	31	13 U	14 UR	12 U	12.5 U
Toluene	UG/KG	13	90%	700	0	28	31	13 J	12 J	13	3.5 J
Total Xylenes	UG/KG	7	23%	260	0	7	31	13 U	3 J	12 U	12.5 U
Trans-1,3-Dichloropropene	UG/KG	0	0%	0	0	0	31	13 U	14 UR	12 U	12.5 U
Trichloroethene	UG/KG	0	0%	470	0	0	31	13 U	14 UR	12 U	12.5 U
Vinyl chloride	UG/KG	0	0%	20	0	0	31	13 UJ	14 UR	12 UJ	12.5 UJ
<b>Semivolatile Organic Compounds</b>											
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
2,4,5-Trichlorophenol	UG/KG	0	0%	0	0	0	31	240 UJ	250 UJ	220 UJ	220 UJ
2,4,6-Trichlorophenol	UG/KG	0	0%	0	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
2,4-Dichlorophenol	UG/KG	0	0%	0	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
2,4-Dimethylphenol	UG/KG	0	0%	0	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
2,4-Dinitrophenol	UG/KG	0	0%	0	0	0	31	240 UR	250 UR	220 UR	220 UR
2,4-Dinitrotoluene	UG/KG	0	0%	0	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
2,6-Dinitrotoluene	UG/KG	130	3%	0	1	31	31	97 UJ	100 UJ	92 UJ	91 UJ
2-Chloronaphthalene	UG/KG	0	0%	0	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
2-Chlorophenol	UG/KG	0	0%	0	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
2-Methylnaphthalene	UG/KG	0	0%	0	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
2-Methylphenol	UG/KG	0	0%	0	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
2-Nitroanisole	UG/KG	0	0%	0	0	0	31	240 UJ	250 UJ	220 UJ	220 UJ
2-Nitrophenol	UG/KG	0	0%	0	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ

TABLE 1  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SW/SD46-2	SW/SD46-3	SW/SD46-4	SS46-13
								SEDIMENT	SEDIMENT	SEDIMENT	SOIL
								463002	463002	463003	464027/464028
								0	0	0	0
								0.2	0.2	0.2	0.5
								36511	36511	36510	36510
								SA	SA	SA	SADU
								P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
3-Nitroaniline	UG/KG	0	0%		0	0	31	240 UJ	250 UJ	220 UJ	220 UJ
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	31	240 UJ	250 UJ	220 UJ	220 UJ
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
4-Chloroaniline	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
4-Methylphenol	UG/KG	13	6%	330	0	2	31	97 UJ	100 UJ	92 UJ	91 UJ
4-Nitroaniline	UG/KG	0	0%		0	0	31	240 UJ	250 UJ	220 UJ	220 UJ
4-Nitrophenol	UG/KG	0	0%		0	0	31	240 UJ	250 UJ	220 UJ	220 UJ
Acenaphthene	UG/KG	0	0%	20000	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Acenaphthylene	UG/KG	0	0%	100000	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Anthracene	UG/KG	0	0%	100000	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Benzo(a)anthracene	UG/KG	34	23%	1000	0	7	31	3.3 J	100 UJ	92 UJ	91 UJ
Benzo(a)pyrene	UG/KG	30	45%	1000	0	14	31	97 UJ	100 UJ	92 UJ	6.6 J
Benzo(b)fluoranthene	UG/KG	47	48%	1000	0	15	31	6 J	100 UJ	92 UJ	25.95 J
Benzo(ghi)perylene	UG/KG	17	3%	100000	0	1	31	97 UJ	100 UJ	92 UJ	91 UJ
Benzo(k)fluoranthene	UG/KG	33	48%	800	0	15	31	7.4 J	100 UJ	92 UJ	25.9 J
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Bis(2-Ethylhexyl)phthalate	UG/KG	780	10%		0	3	31	97 UJ	100 UJ	92 UJ	91 UJ
Butylbenzylphthalate	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Carbazole	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Chrysene	UG/KG	40	32%	1000	0	10	31	7.2 J	100 UJ	92 UJ	25.75 J
Di-n-butylphthalate	UG/KG	1100	19%		0	6	31	97 UJ	100 UJ	92 UJ	25.1 J
Di-n-octylphthalate	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Dibenz(a,h)anthracene	UG/KG	0	0%	330	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Dibenzofuran	UG/KG	0	0%	7000	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Diethyl phthalate	UG/KG	11	3%		0	1	31	97 UJ	100 UJ	92 UJ	91 UJ
Dimethylphthalate	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Fluoranthene	UG/KG	36	52%	100000	0	16	31	8.9 J	100 UJ	92 UJ	8 J
Fluorene	UG/KG	0	0%	30000	0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Hexachlorobenzene	UG/KG	11	3%	330	0	1	31	97 UJ	100 UJ	92 UJ	91 UJ
Hexachlorobutadiene	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Hexachloroethane	UG/KG	9.9	3%		0	1	31	97 UJ	100 UJ	92 UJ	91 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	19	6%	500	0	2	31	97 UJ	100 UJ	92 UJ	91 UJ
Isophorone	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
N-Nitrosodiphenylamine	UG/KG	59	6%		0	2	31	97 UJ	100 UJ	92 UJ	91 UJ
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Naphthalene	UG/KG	3.5	3%	12000	0	1	31	97 UJ	100 UJ	92 UJ	91 UJ
Nitrobenzene	UG/KG	0	0%		0	0	31	97 UJ	100 UJ	92 UJ	91 UJ
Pentachlorophenol	UG/KG	0	0%	800	0	0	31	240 UJ	250 UJ	220 UJ	220 UJ
Phenanthrene	UG/KG	25.1	45%	100000	0	14	31	5 J	100 UJ	92 UJ	25.1 J
Phenol	UG/KG	33	32%	330	0	10	31	7.6 J	8.9 J	92 J	8.7 J
Pyrene	UG/KG	32	55%	100000	0	17	31	8 J	100 UJ	92 UJ	8 J
<b>Explosives</b>											
1,3,5-Trinitrobenzene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
1,3-Dinitrobenzene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
2,4,6-Trinitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	31	120 U	120 U	120 U	120 U

TABLE I  
3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46 SW-SD46-2 SEDIMENT 463001	SEAD-46 SW-SD46-3 SEDIMENT 463002	SEAD-46 SW-SD46-4 SEDIMENT 463003	SEAD-46 SS46-13 SOIL 464027-464028
								0	0	0	0
								0.2	0.2	0.2	0.5
								36511	36511	36510	36510
								SA	SA	SA	SADU
								P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)
2-Nitrotoluene	UG:KG	0	0%		0	0	31	120 UJ	120 UJ	120 UJ	120 UJ
2-amino-4,6-Dimethyltoluene	UG:KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG:KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG:KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
4-amino-2,6-Dimethyltoluene	UG:KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
HMX	UG:KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
Nitrobenzene	UG:KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
RDX	UG:KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
Tetryl	UG:KG	0	0%		0	0	31	120 U	120 U	120 U	120 U
<b>Pesticides and PCBs</b>											
4,4'-DDD	UG:KG	12	3%	3.3	1	1	31	4.8 U	5.1 U	4.5 U	4.55 U
4,4'-DDE	UG:KG	3.7	10%	3.3	1	3	31	4.8 U	5.1 U	4.5 U	4.55 U
4,4'-DDT	UG:KG	0	0%	3.3	0	0	31	4.8 U	5.1 U	4.5 U	4.55 U
Aldrin	UG:KG	0	0%	5	0	0	31	2.5 U	2.6 U	2.3 U	2.35 U
Alpha-BHC	UG:KG	0	0%	20	0	0	31	2.5 U	2.6 U	2.3 U	2.35 U
Alpha-Chlordane	UG:KG	3.5	6%	94	0	2	31	2.5 U	2.6 U	2.3 U	2.35 U
Aroclor-1016	UG:KG	0	0%	100	0	0	31	48 U	51 U	45 U	45.5 U
Aroclor-1221	UG:KG	0	0%	100	0	0	31	98 U	100 U	92 U	92.5 U
Aroclor-1232	UG:KG	0	0%	100	0	0	31	48 U	51 U	45 U	45.5 U
Aroclor-1242	UG:KG	0	0%	100	0	0	31	48 U	51 U	45 U	45.5 U
Aroclor-1248	UG:KG	0	0%	100	0	0	31	48 U	51 U	45 U	45.5 U
Aroclor-1254	UG:KG	0	0%	100	0	0	31	48 U	51 U	45 U	45.5 U
Aroclor-1260	UG:KG	0	0%	100	0	0	31	48 U	51 U	45 U	45.5 U
Beta-BHC	UG:KG	0	0%	36	0	0	31	2.5 U	2.6 U	2.3 U	2.35 U
Delta-BHC	UG:KG	0	0%	0	0	0	31	2.5 U	2.6 U	2.3 U	2.35 U
Dieldrin	UG:KG	46	32%	40	2	10	31	4.8 U	5.1 U	4.5 U	4.55 U
Endosulfan I	UG:KG	5.8	3%	2400	0	1	31	2.5 U	2.6 U	2.3 U	2.35 U
Endosulfan II	UG:KG	2.3	3%	2400	0	1	31	4.8 U	5.1 U	4.5 U	4.55 U
Endosulfan sulfate	UG:KG	0	0%	2400	0	0	31	4.8 U	5.1 U	4.5 U	4.55 U
Endrin	UG:KG	5.1	10%	14	0	3	31	4.8 U	5.1 U	4.5 U	4.55 U
Endrin aldehyde	UG:KG	0	0%	0	0	0	31	4.8 U	5.1 U	4.5 U	4.55 U
Endrin ketone	UG:KG	3.1	3%	0	1	1	31	4.8 U	5.1 U	4.5 U	4.55 U
Gamma-BHC-Lindane	UG:KG	0	0%	100	0	0	31	2.5 U	2.6 U	2.3 U	2.35 U
Gamma-Chlordane	UG:KG	1.9	3%	94	0	1	31	2.5 U	2.6 U	2.3 U	2.35 U
Heptachlor	UG:KG	0	0%	42	0	0	31	2.5 U	2.6 U	2.3 U	2.35 U
Heptachlor epoxide	UG:KG	0	0%	0	0	0	31	2.5 U	2.6 U	2.3 U	2.35 U
Methoxychlor	UG:KG	0	0%	0	0	0	31	25 U	26 U	23 U	23.5 U
Toxaphene	UG:KG	0	0%	0	0	0	31	250 U	260 U	230 U	235 U
<b>Metals</b>											
Aluminum	MG:KG	16500	100%		0	31	31	15200	16500	16000	14250
Antimony	MG:KG	0.73	13%		0	4	31	0.64 UR	0.66 J	0.57 UR	0.56 J
Arsenic	MG:KG	7.9	100%	13	0	31	31	6.1	7.2	6.2	5.2
Barium	MG:KG	152	100%	350	0	31	31	152	127	84.7	81.7
Beryllium	MG:KG	1.2	100%	7.2	0	31	31	1.1 J	1.2	1.1 J	0.835 J
Cadmium	MG:KG	0.09	3%	2.5	0	1	31	0.06 U	0.04 U	0.05 U	0.045 U
Calcium	MG:KG	69300	100%		0	31	31	3470 J	69300 J	2640 J	2970 J
Chromium	MG:KG	26.3	100%	30	0	31	31	15.9 J	23.1 J	22.6 J	16
Cobalt	MG:KG	20	100%		0	31	31	12.8 J	20	13.9	9.65 J
Copper	MG:KG	41.15	100%	50	0	31	31	19.5 J	32.5 J	29.9	41.15 J
Cyanide	MG:KG	0	0%	27	0	0	31	0.73 U	0.77 U	0.67 U	0.675 U
Iron	MG:KG	39100	100%		0	31	31	29700 J	39100 J	30100 J	24450 J
Lead	MG:KG	73	100%	63	1	31	31	15.4	22	20.2	50.75

TABLE 1  
 3.5" ROCKET RANGE (SEAD-46) SOIL SAMPLE RESULTS  
 SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								SW/SD46-2 SEDIMENT 463001	SW/SD46-3 SEDIMENT 463002	SW/SD46-4 SEDIMENT 463003	SS46-13 SOIL 464027/464028
								0	0	0	0
								0.2	0.2	0.2	0.5
								36511	36511	36510	36510
								SA	SA	SA	SADU
								P1S1 RI	P1S1 RI	P1S1 RI	P1S1 RI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)
Magnesium	MG/KG	12800	100%		0	31	31	4770 J	8910 J	4680	3580 J
Manganese	MG/KG	1170	97%	1600	0	30	31	1070 J	756 J	537 J	408 J
Mercury	MG/KG	0.17	81%	0.18	0	25	31	0.05 U	0.08 U	0.07 J	0.065 U
Nickel	MG/KG	47.4	100%	30	12	31	31	<b>31.8 J</b>	<b>47.4 J</b>	<b>38.2 J</b>	22.8 J
Potassium	MG/KG	1770	100%		0	31	31	1410 J	1260	1120 J	1135 J
Selenium	MG/KG	0.81	6%	3.9	0	2	31	0.73 U	0.55 U	0.65 U	0.57 U
Silver	MG/KG	0.3175	3%	2	0	1	31	0.38 UJ	0.29 UJ	0.34 UJ	0.3175 J
Sodium	MG/KG	272	45%		0	14	31	116 J	66.8 J	75 U	64.8 J
Thallium	MG/KG	3.7	97%		0	30	31	2.4 J	3.7	1.6 J	2 J
Vanadium	MG/KG	29.3	100%		0	31	31	29.3	27.1	26.4	24.8
Zinc	MG/KG	115	100%	109	1	31	31	71.2 J	82.5 J	76.3 J	69.05 J
<b>Other Analytes</b>											
Nitrate/Nitrite Nitrogen	MG/KG	2.2	96%		0	25	26	0.09	0.06	0.03	0.055 J
Percent Solids	% WW	89.5	100%		0	31	31	67.9	64.9	72.7	72.4

Notes:

- Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.doc.state.ny.us/website/regs/subpart375\\_6.html](http://www.doc.state.ny.us/website/regs/subpart375_6.html)
- Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.
- A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								MW46-1	MW46-1	MW46-2	MW46-2	MW46-3
								GW	GW	GW	GW	GW
								462000	462100	462004	462101	462005
							16	16	10.5	10.5	10.5	13
							16	16	10.5	10.5	10.5	13
							1 22 2000	4 25 2000	1 22 2000	4 25 2000	1 23 2000	
							SA	SA	SA	SA	SA	
							RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
							1	2	1	2	1	1
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
<b>Volatile Organic Compounds</b>												
1,1,1,2-Tetrachloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0%	0.04	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0%	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0%	0	0	0	12	25 U	25 U	25 U	25 U	25 U
Acetone	UG/L	0	0%	0	0	0	12	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0%	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0%	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoforn	UG/L	0	0%	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Buryl chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetoneitrile	UG/L	0	0%	0	0	0	12	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	UG/L	0	0%	7	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichloromethyl methyl ketone	UG/L	0	0%	0	0	0	11	25 U	25 U	25 U	25 U	25 U
Ethyl benzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl ether	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl methacrylate	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Meta-Para Xylene	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl 2-propenoate	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Tertbutyl Ether	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl bromide	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl butyl ketone	UG/L	0	0%	0	0	0	12	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl ethyl ketone	UG/L	0	0%	0	0	0	12	5 U	5 U	5 U	5 U	5 U
Methyl iodide	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								MW46-1	MW46-1	MW46-2	MW46-2	MW46-3
								GW	GW	GW	GW	GW
							462000	462100	462004	462101	462005	
							16	16	10.5	10.5	13	
							16	16	10.5	10.5	13	
							1/22/2000	4/25/2000	1/22/2000	4/25/2000	1/23/2000	
							SA	SA	SA	SA	SA	
							RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
							1	2	1	2	1	
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Methyl isobutyl ketone	UG/L	0	0%		0	0	12	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl methacrylate	UG/L	0	0%	50	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene bromide	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	UG/L	0	0%		0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	12	0.5 U	25 UJ	25 UJ	25 UJ	25 UJ
Ortho Xylene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachloroethane	UG/L	0	0%	5	0	0	6	0.5 UJ	2 UR	0.5 UJ	2 UR	0.5 UJ
Propionitrile	UG/L	0	0%		0	0	12	25 U	25 U	25 U	25 U	25 U
Propylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran	UG/L	0	0%		0	0	12	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Toluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total Xylenes	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%		0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0%	2	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
<b>Semivolatile Organic Compounds</b>												
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	12	1.1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	12	1.1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	12	1.1 U	1 U	1 U	1 U	1 U
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	12	2.6 U	2.6 U	2.5 U	2.5 U	2.6 U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	12	1.1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	UG/L	0	0%		0	0	12	2.6 UJ	2.6 U	2.5 UJ	2.5 U	2.6 UJ
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	12	1.1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
2-Methylphenol	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
2-Nitroaniline	UG/L	0	0%	5	0	0	12	2.6 U	2.6 U	2.5 U	2.5 U	2.6 U
2-Nitrophenol	UG/L	0	0%	1	0	0	12	1.1 U	1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	6	1.1 U	1 UR	1 U	1 UR	1 U
3-Nitroaniline	UG/L	0	0%	5	0	0	12	2.6 UJ	2.6 UJ	2.5 UJ	2.5 UJ	2.6 UJ
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	12	2.6 U	2.6 U	2.5 U	2.5 U	2.6 U
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	12	1.1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0%	5	0	0	12	1.1 U	1 UJ	1 U	1 UJ	1 U
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
4-Methylphenol	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
4-Nitroaniline	UG/L	0	0%	5	0	0	12	2.6 UJ	2.6 UJ	2.5 UJ	2.5 UJ	2.6 UJ
4-Nitrophenol	UG/L	0	0%	1	0	0	12	2.6 U	2.6 U	2.5 U	2.5 U	2.6 U
Acenaphthene	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
Acenaphthylene	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
Anthracene	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	UG/L	0	0%		0	0	12	1.1 U	1 U	1 U	1 U	1 U
Benzo(a)pyrene	UG/L	0	0%	0	0	0	12	1.1 U	1 U	1 U	1 U	1 U

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	SEAD-46		SEAD-46		SEAD-46		SEAD-46		SEAD-46	
		MW46-1		MW46-1		MW46-2		MW46-2		MW46-3	
		GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
		462000	462100	462004	462005	462005	462005	462005	462005	462005	462005
		16	16	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
		16	16	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
		1 22 2000	4 25 2000	1 22 2000	4 25 2000	1 22 2000	4 25 2000	1 22 2000	4 25 2000	1 23 2000	1 23 2000
		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA
		RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
		1	2	1	2	1	2	1	2	1	2
		Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Benzo(b)fluoranthene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Benzo(ghi)perylene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Benzo(k)fluoranthene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Bis(2-Chloroethoxy)methane	UG L	0	0%	5	0	0	12	1.1 U	1 U	1 U	1 U
Bis(2-Chloroethyl)ether	UG L	0	0%	1	0	0	12	1.1 U	1 U	1 U	1 U
Bis(2-Chloroisopropyl)ether	UG L	0	0%	5	0	0	12	1.1 U	1 U	1 U	1 U
Bis(2-Ethylhexyl)phthalate	UG L	0	0%	5	0	0	12	1.1 U	1 U	1 U	1 U
Butylbenzylphthalate	UG L	0.057	8%	0	1	12	0.057 U	1 U	1 U	1 U	1 U
Carbazole	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Chrysene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Di-n-butylphthalate	UG L	0	0%	50	0	0	12	1.1 U	1 U	1 U	1 U
Di-n-octylphthalate	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Dibenz(a,h)anthracene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Dibenzofuran	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Diethyl phthalate	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Dimethylphthalate	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Fluoranthene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Fluorene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Hexachlorobenzene	UG L	0	0%	0.04	0	0	12	1.1 U	1 U	1 U	1 U
Hexachlorobutadiene	UG L	0	0%	0.5	0	0	12	1.1 U	1 U	1 U	1 U
Hexachlorocyclopentadiene	UG L	0	0%	5	0	0	12	1.1 U	1 U	1 U	1 U
Hexachloroethane	UG L	0	0%	5	0	0	12	1.1 U	1 U	1 U	1 U
Indeno(1,2,3-cd)pyrene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Isophorone	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
N-Nitrosodiphenylamine	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
N-Nitrosodipropylamine	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Naphthalene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Nitrobenzene	UG L	0	0%	0.4	0	0	12	1.1 U	1 U	1 U	1 U
Pentachlorophenol	UG L	0	0%	1	0	0	12	2.6 U	2.6 U	2.5 U	2.6 U
Phenanthrene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
Phenol	UG L	0	0%	1	0	0	12	1.1 U	1 U	1 U	1 U
Pyrene	UG L	0	0%	0	0	12	1.1 U	1 U	1 U	1 U	1 U
<b>Explosives</b>											
1,3,5-Trinitrobenzene	UG L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U
1,3-Dinitrobenzene	UG L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U
2,4,6-Trinitrotoluene	UG L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U
2,4-Dinitrotoluene	UG L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U
2,6-Dinitrotoluene	UG L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U
2-Nitrotoluene	UG L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U
2-amino-4,6-Dinitrotoluene	UG L	0	0%	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
3-Nitrotoluene	UG L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U
4-Nitrotoluene	UG L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U
4-amino-2,6-Dinitrotoluene	UG L	0	0%	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
HMX	UG L	0	0%	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Nitrobenzene	UG L	0	0%	0.4	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U
RDX	UG L	0	0%	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Tetryl	UG L	0	0%	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
<b>Pesticides and PCBs</b>											
4,4'-DDD	UG L	0	0%	0.3	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDE	UG L	0	0%	0.2	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDT	UG L	0	0%	0.2	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	UG L	0	0%	0	0	12	0.0052 U	0.005 U	0.005 U	0.005 U	0.0052 U
Alpha-BHC	UG L	0	0%	0.01	0	0	12	0.0052 U	0.005 U	0.005 U	0.0052 U
Alpha-Chlordanes	UG L	0	0%	0	0	12	0.0052 U	0.005 U	0.005 U	0.0052 U	0.0052 U
Aroclor 1016	UG L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG L	0	0%	0.09	0	0	12	0.21 U	0.2 U	0.2 U	0.21 U
Aroclor-1232	UG L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								MW46-1	MW46-1	MW46-2	MW46-2	MW46-3
								GW	GW	GW	GW	GW
								462000	462100	462004	462101	462005
							16	16	10.5	10.5	10.5	13
							16	16	10.5	10.5	10.5	13
							1/22/2000	4/25/2000	1/22/2000	4/25/2000	4/25/2000	1/23/2000
							SA	SA	SA	SA	SA	SA
							RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
							1	2	1	2	1	1
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1254	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beta-BHC	UG/L	0	0%	0.04	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U
Delta-BHC	UG/L	0	0%	0.04	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U
Dieldrin	UG/L	0	0%	0.004	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I	UG/L	0	0%		0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U
Endosulfan II	UG/L	0	0%		0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0	0%		0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin	UG/L	0	0%	0	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin aldehyde	UG/L	0	0%	5	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin ketone	UG/L	0	0%	5	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Gamma-BHC/Lindane	UG/L	0	0%	0.05	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U
Gamma-Chlordane	UG/L	0	0%	0	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U
Heptachlor	UG/L	0	0%	0.04	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U
Heptachlor epoxide	UG/L	0	0%	0.03	0	0	12	0.0052 U	0.005 U	0.0051 U	0.005 U	0.0052 U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	12	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Methoxychlor	UG/L	0	0%	35	0	0	12	0.052 U	0.05 U	0.051 U	0.05 U	0.052 U
Toxaphene	UG/L	0	0%	0.06	0	0	12	0.52 U	0.5 U	0.51 U	0.5 U	0.52 U
<b>Metals</b>												
Aluminum	UG/L	500	100%		0	12	12	73.9 J	342 J	498 J	170 J	500
Antimony	UG/L	5.5	8%	3	1	1	12	5.5 J	4.6 U	5.4 U	4.6 U	5.4 U
Arsenic	UG/L	4	25%	10	0	3	12	2.6 J	2.5 U	2.4 U	2.5 U	2.4 U
Barium	UG/L	79.5	100%	1000	0	12	12	79.5 J	70.2 J	43.3 J	41.2 J	45.4 J
Beryllium	UG/L	0	0%	4	0	0	12	0.6 U	0.3 U	0.6 U	0.3 U	0.6 U
Cadmium	UG/L	0	0%	5	0	0	12	0.8 U	0.3 U	0.8 U	0.3 U	0.8 U
Calcium	UG/L	98400	100%		0	12	12	81700	86500 J	83500	87200 J	88100
Chromium	UG/L	2.5	50%	50	0	6	12	1.4 J	2.2 U	2.4 J	2.2 U	2.5 J
Cobalt	UG/L	0	0%	0	0	0	12	3.5 U	3 U	3.5 U	3 U	3.5 U
Copper	UG/L	7	8%	200	0	1	12	1.6 U	2.1 U	1.6 U	2.1 U	1.6 U
Cyanide	UG/L	0	0%	0	0	0	12	10 U	10 U	10 U	10 U	10 U
Iron	UG/L	568	100%	300	4	12	12	204 J	398 J	485 J	120 J	568 J
Iron+Manganese	UG/L	641.4	100%	500	2	12	12	497.1 J	308 J	813.8 J	128.1 J	641.4 J
Lead	UG/L	0	0%	15	0	0	12	1 U	2.3 U	1 U	2.3 U	1 U
Magnesium	UG/L	24600	100%		0	12	12	24600	22800	17200	17400	17400
Manganese	UG/L	104	100%	300	0	12	12	104	99.1	28.8	8.1 J	73.4
Mercury	UG/L	0	0%	0.7	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	UG/L	0	0%	100	0	0	12	4.2 U	2.9 U	4.2 U	2.9 U	4.2 U
Potassium	UG/L	5890	100%		0	12	12	5890	3050 J	615 J	840 J	1720 J
Selenium	UG/L	2.4	8%	10	0	1	12	2.2 U	4 UJ	2.2 U	4 UJ	2.2 U
Silver	UG/L	2.2	17%	50	0	2	12	1 U	1.9 U	1 U	2.1 J	1 U
Sodium	UG/L	4980	100%	20000	0	12	12	4980 J	4430 J	2640 J	688 J	865 J
Thallium	UG/L	4	8%	2	1	1	12	3.6 U	3.9 UJ	3.6 U	3.9 UJ	3.6 U
Vanadium	UG/L	3.7	17%	0	2	2	12	3.5 J	2.9 U	3.7 J	2.9 U	2.8 U
Zinc	UG/L	3.9	67%		0	8	12	2.9 J	2.8 J	3.8 J	1.5 U	2.7 J
<b>Other Analytes</b>												
COD	MG/L	8	33%		0	2	6		5 U		5 U	
Nitrate/Nitrite Nitrogen	MG/L	0.25	100%	10000	0	12	12	0.02	0.03	0.03	0.02	0.13
Total Dissolved Solids	MG/L	364	100%		0	6	6		334		314	
Total Hardness-CaCO3	MG/L	290	100%		0	6	6		290		280	

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)  
(2) Shading indicates a concentration above the groundwater standard.

U = compound was not detected  
J = the reported value is an estimated concentration  
R = the analytical result was rejected during data validation.



TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								MW46-3	MW46-4	MW46-4	MW46-5	MW46-5
								GW	GW	GW	GW	GW
							462102	462003	462103	462002	462104	
							13	23	23	10	10	
							13	23	23	10	10	
							4.25.2000	1.22.2000	4.25.2000	1.22.2000	4.25.2000	
							SA	SA	SA	SA	SA	
							RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
							2	1	2	1	2	
							Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
<b>Volatile Organic Compounds</b>												
1,1,1,2-Tetrachloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	10	0.5 UR	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0%	0.04	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0%	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0%	0	0	0	12	25 U	25 U	25 U	25 U	25 U
Acetone	UG/L	0	0%	0	0	0	12	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0%	1	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0%	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0%	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile	UG/L	0	0%	0	0	0	12	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	UG/L	0	0%	7	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichloromethyl methyl ketone	UG/L	0	0%	0	0	0	11	25 U	25 U	25 U	25 U	25 U
Ethyl benzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl ether	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl methylacrylate	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachloromethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Meta-Para-Xylene	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl 2-propenoate	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Tertbutyl Ether	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl bromide	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl butyl ketone	UG/L	0	0%	0	0	0	12	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl ethyl ketone	UG/L	0	0%	0	0	0	12	5 U	5 U	5 U	5 U	5 U
Methyl iodide	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units								SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
		Maximum		Criteria	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
		Value	Detection					2	1	2	1	2	
Methyl isobutyl ketone	UG/L	0	0%		0	0	12	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	
Methyl methacrylate	UG/L	0	0%	50	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Methylene bromide	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Methylene chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Naphthalene	UG/L	0	0%		0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Nitrobenzene	UG/L	0	0%	0.4	0	0	12	25 UJ	25 UJ	25 U	25 UJ	25 U	
Ortho Xylene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Pentachloroethane	UG/L	0	0%	5	0	0	6	2 UR	0.5 UJ	2 UR	0.5 UJ	2 UR	
Propionitrile	UG/L	0	0%		0	0	12	25 U	25 U	25 U	25 U	25 U	
Propylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Styrene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Tetrachloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Tetrahydrofuran	UG/L	0	0%		0	0	12	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	
Toluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Total Xylenes	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trans-1,4-Dichloro-2-butene	UG/L	0	0%		0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Trichlorofluoromethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Vinyl chloride	UG/L	0	0%	2	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
n-Butylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
p-Chlorotoluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
p-Isopropyltoluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
sec-Butylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
tert-Butylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
<b>Semivolatile Organic Compounds</b>													
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	12	1 U	1 U	1 U	1 U	1 U	
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	12	1 U	1 U	1 U	1 U	1 U	
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	12	1 U	1 U	1 U	1 U	1 U	
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	12	1 U	1 U	1 U	1 U	1 U	
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	12	2.5 U	2.5 U	2.5 U	2.6 U	2.5 U	
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	12	1 U	1 U	1 U	1 U	1 U	
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	12	1 U	1 U	1 U	1 U	1 U	
2,4-Dimethylphenol	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
2,4-Dinitrophenol	UG/L	0	0%		0	0	12	2.5 U	2.5 UJ	2.5 U	2.6 UJ	2.5 U	
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	12	1 U	1 U	1 U	1 U	1 U	
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	12	1 U	1 U	1 U	1 U	1 U	
2-Chloronaphthalene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
2-Chlorophenol	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
2-Methylnaphthalene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
2-Methylphenol	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
2-Nitroaniline	UG/L	0	0%	5	0	0	12	2.5 U	2.5 U	2.5 U	2.6 U	2.5 U	
2-Nitrophenol	UG/L	0	0%	1	0	0	12	1 U	1 UJ	1 U	1 U	1 U	
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	6	1 UR	1 U	1 UR	1 U	1 UR	
3-Nitroaniline	UG/L	0	0%	5	0	0	12	2.5 UJ	2.5 UJ	2.5 UJ	2.6 UJ	2.5 UJ	
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	12	2.5 U	2.5 U	2.5 U	2.6 U	2.5 U	
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	12	1 U	1 U	1 U	1 U	1 U	
4-Chloroaniline	UG/L	0	0%	5	0	0	12	1 UJ	1 U	1 UJ	1 U	1 UJ	
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
4-Methylphenol	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
4-Nitroaniline	UG/L	0	0%	5	0	0	12	2.5 UJ	2.5 UJ	2.5 UJ	2.6 UJ	2.5 UJ	
4-Nitrophenol	UG/L	0	0%	1	0	0	12	2.5 U	2.5 U	2.5 U	2.6 U	2.5 U	
Acenaphthene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
Acenaphthylene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
Anthracene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
Benzo(a)anthracene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	
Benzo(a)pyrene	UG/L	0	0%	0	0	0	12	1 U	1 U	1 U	1 U	1 U	

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	SEAD-46						SEAD-46		SEAD-46		SEAD-46		SEAD-46	
		MW46-3						MW46-4		MW46-4		MW46-5		MW46-5	
		Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)	RI PHASE 1 STEP 1 Value (Q)
Benzol(b)fluoranthene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Benzol(g,h,i)perylene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Benzol(k)fluoranthene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Bis(2-Ethylhexyl)phthalate	UG/L	0	0%	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Butylbenzylphthalate	UG/L	0.057	8%		0	1	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Carbazole	UG/L	0	0%		0	0	12	1 UJ	1 U	1 UJ	1 U	1 U	1 UJ	1 UJ	
Chrysene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Di-n-butylphthalate	UG/L	0	0%	50	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Di-n-octylphthalate	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Dibenzofuran	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Diethyl phthalate	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Dimethylphthalate	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Fluoranthene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Fluorene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Hexachloroethane	UG/L	0	0%	5	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Indeno(1,2,3-cd)pyrene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Isophorone	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
N-Nitrosodiphenylamine	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
N-Nitrosodipropylamine	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Naphthalene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Nitrobenzene	UG/L	0	0%	0.4	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Pentachlorophenol	UG/L	0	0%	1	0	0	12	2.5 U	2.5 U	2.5 U	2.6 U	2.5 U	2.5 U	2.5 U	
Phenanthrene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Phenol	UG/L	0	0%	1	0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
Pyrene	UG/L	0	0%		0	0	12	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
<b>Explosives</b>															
1,3,5-Trinitrobenzene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
1,3-Dinitrobenzene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2,4,6-Trinitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2-Nitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2-amino-4,6-Dinitrotoluene	UG/L	0	0%		0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
3-Nitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
4-Nitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
4-amino-2,6-Dinitrotoluene	UG/L	0	0%		0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
HMX	UG/L	0	0%		0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
Nitrobenzene	UG/L	0	0%	0.4	0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
RDX	UG/L	0	0%		0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
Tetryl	UG/L	0	0%		0	0	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
<b>Pesticides and PCBs</b>															
4,4'-DDD	UG/L	0	0%	0.3	0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.012 U	0.012 U	
4,4'-DDE	UG/L	0	0%	0.2	0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.012 U	0.012 U	
4,4'-DDT	UG/L	0	0%	0.2	0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.01 U	0.012 U	0.012 U	
Aldrin	UG/L	0	0%	0	0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0053 U	0.0058 U	0.0058 U	
Alpha-BHC	UG/L	0	0%	0.01	0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0053 U	0.0058 U	0.0058 U	
Alpha-Chlordane	UG/L	0	0%	0	0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0053 U	0.0058 U	0.0058 U	
Aroclor-1016	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	
Aroclor-1221	UG/L	0	0%	0.09	0	0	12	0.21 U	0.21 U	0.22 U	0.21 U	0.21 U	0.23 U	0.23 U	
Aroclor-1232	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	
Aroclor-1242	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	
Aroclor-1248	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.11 U	0.1 U	0.1 U	0.12 U	0.12 U	

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-46	SEAD-46	SEAD-46	SEAD-46	SEAD-46
								MW46-3	MW46-4	MW46-4	MW46-5	MW46-5
								GW	GW	GW	GW	GW
								462102	462003	462103	462002	462104
								13	23	23	10	10
								13	23	23	10	10
								4/25/2000	1/22/2000	4/25/2000	1/22/2000	4/25/2000
								SA	SA	SA	SA	SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
								2	1	2	1	2
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1254	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.11 U	0.1 U	0.12 U
Aroclor-1260	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U	0.11 U	0.1 U	0.12 U
Beta-BHC	UG/L	0	0%	0.04	0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0058 U
Delta-BHC	UG/L	0	0%	0.04	0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0058 U
Dieldrin	UG/L	0	0%	0.004	0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.012 U
Endosulfan I	UG/L	0	0%		0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0058 U
Endosulfan II	UG/L	0	0%		0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.012 U
Endosulfan sulfate	UG/L	0	0%		0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.012 U
Endrin	UG/L	0	0%	0	0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.012 U
Endrin aldehyde	UG/L	0	0%	5	0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.012 U
Endrin ketone	UG/L	0	0%	5	0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.012 U
Gamma-BHC/Lindane	UG/L	0	0%	0.05	0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0058 U
Gamma-Chlordane	UG/L	0	0%	0	0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0058 U
Heptachlor	UG/L	0	0%	0.04	0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0058 U
Heptachlor epoxide	UG/L	0	0%	0.03	0	0	12	0.0052 U	0.0052 U	0.0054 U	0.0053 U	0.0058 U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	12	0.01 U	0.01 U	0.011 U	0.01 U	0.012 U
Methoxychlor	UG/L	0	0%	35	0	0	12	0.052 U	0.052 U	0.054 U	0.053 U	0.058 U
Toxaphene	UG/L	0	0%	0.06	0	0	12	0.52 U	0.52 U	0.54 U	0.53 U	0.58 U
<b>Metals</b>												
Aluminum	UG/L	500	100%		0	12	12	120 J	105 J	205 J	206	123 J
Antimony	UG/L	5.5	8%	3	1	1	12	4.6 U	5.4 U	4.6 U	5.4 U	4.6 U
Arsenic	UG/L	4	25%	10	0	3	12	2.5 U	2.5 U	2.5 U	4 J	2.5 U
Barium	UG/L	79.5	100%	1000	0	12	12	37.8 J	45.6 J	43.9 J	50.3 J	50 J
Beryllium	UG/L	0	0%	4	0	0	12	0.3 U	0.6 U	0.3 U	0.6 U	0.3 U
Cadmium	UG/L	0	0%	5	0	0	12	0.3 U	0.8 U	0.3 U	0.8 U	0.3 U
Calcium	UG/L	98400	100%		0	12	12	77900 J	90500	85600 J	98400	97400 J
Chromium	UG/L	2.5	50%	50	0	6	12	2.2 U	1.5 J	2.2 U	1.1 J	2.2 U
Cobalt	UG/L	0	0%	0	0	0	12	3 U	3 U	3 U	3 U	3 U
Copper	UG/L	7	8%	200	0	1	12	2.1 U	1.6 U	2.1 U	1.6 U	2.1 U
Cyanide	UG/L	0	0%	0	0	0	12	10 U	10 U	10 U	10 U	10 U
Iron	UG/L	568	100%	300	4	12	12	89.2 J	183 J	208 J	267 J	111 J
Iron+Manganese	UG/L	641.4	100%	500	2	12	12	99.5 J	233.3 J	217.8 J	341.4 J	117.7 J
Lead	UG/L	0	0%	15	0	0	12	2.3 U	1 U	2.3 U	1 U	2.3 U
Magnesium	UG/L	24600	100%		0	12	12	15000	16100	14700	17100	16200
Manganese	UG/L	104	100%	300	0	12	12	10.3 J	50.3	9.8 J	74.4	6.7 J
Mercury	UG/L	0	0%	0.7	0	0	12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	UG/L	0	0%	100	0	0	12	2.9 U	4.2 U	2.9 U	4.2 U	2.9 U
Potassium	UG/L	5890	100%		0	12	12	1050 J	1540 J	1480 J	1240 J	1110 J
Selenium	UG/L	2.4	8%	10	0	1	12	4 UJ	2.4 J	4 UJ	2.2 U	4 UJ
Silver	UG/L	2.2	17%	50	0	2	12	1.9 U	1 U	1.9 U	1 U	1.9 U
Sodium	UG/L	4980	100%	20000	0	12	12	897 J	4060 J	948 J	3190 J	1110 J
Thallium	UG/L	4	8%	2	1	1	12	3.9 UJ	3.6 U	3.9 UJ	3.6 U	3.9 UJ
Vanadium	UG/L	3.7	17%	0	0	2	12	2.9 U	2.9 U	2.9 U	2.8 U	2.9 U
Zinc	UG/L	3.9	67%		0	8	12	2 J	2.1 U	1.8 J	2.9 J	1.5 U
<b>Other Analytes</b>												
COD	MG/L	8	33%		0	2	6	5 U		8		5 U
Nitrate/Nitrite Nitrogen	MG/L	0.25	100%	10000	0	12	12	0.15		0.19	0.02	0.25
Total Dissolved Solids	MG/L	364	100%		0	6	6	266		312		364
Total Hardness-CaCO3	MG/L	290	100%		0	6	6	250		250		290

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)  
(2) Shading indicates a concentration above the groundwater standard.

U = compound was not detected  
J = the reported value is an estimated concentration  
R = the analytical result was rejected during data validation.

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-46	SEAD-46
								MW46-6	MW46-6
								GW	GW
							462001	462105	
							13	13	
							13	13	
							1.22.2000	4/26.2000	
							SA	SA	
							RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
							1	2	
							Value (Q)	Value (Q)	
<b>Volatile Organic Compounds</b>									
1,1,1,2-Tetrachloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	10	0.5 U	0.5 UR
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	12	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0%	0.04	0	0	12	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	12	0.5 U	0.5 UJ
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	12	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	12	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	12	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0%	1	0	0	12	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	12	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	12	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0%	0	0	0	12	25 U	25 UJ
Acetone	UG/L	0	0%	0	0	0	12	5 U	5 U
Acrylonitrile	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Allyl chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Benzene	UG/L	0	0%	1	0	0	12	0.5 U	0.5 U
Bromobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Bromochloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0%	80	0	0	12	0.5 U	0.5 U
Bromoform	UG/L	0	0%	80	0	0	12	0.5 U	0.5 U
Butyl chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Chloroacetonitrile	UG/L	0	0%	0	0	0	12	25 U	25 U
Chlorobenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	12	0.5 U	0.5 U
Chloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Chloroform	UG/L	0	0%	7	0	0	12	0.5 U	0.5 U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	12	0.5 U	0.5 U
Dichlorodifluoromethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Dichloromethyl methyl ketone	UG/L	0	0%	0	0	0	11	25 U	25 UR
Ethyl benzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Ethyl ether	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U
Ethyl methacrylate	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	12	0.5 U	0.5 U
Hexachloroethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Isopropylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Meta Para Xylene	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U
Methacrylonitrile	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Methyl 2-propenoate	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U
Methyl Tertbutyl Ether	UG/L	0	0%	0	0	0	12	0.5 U	0.5 U
Methyl bromide	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Methyl butyl ketone	UG/L	0	0%	0	0	0	12	2.5 U	2.5 U
Methyl chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Methyl ethyl ketone	UG/L	0	0%	0	0	0	12	5 U	5 U
Methyl iodide	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-46	SEAD-46
								MW46-6	MW46-6
								GW	GW
								462105	462105
							13	13	13
							13	13	13
							1/22/2000	4/26/2000	4/26/2000
							SA	SA	SA
							RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
							1	2	2
							Value (Q)	Value (Q)	Value (Q)
Methyl isobutyl ketone	UG/L	0	0%		0	0	12	2.5 U	2.5 U
Methyl methacrylate	UG/L	0	0%	50	0	0	12	0.5 U	0.5 U
Methylene bromide	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Methylene chloride	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Naphthalene	UG/L	0	0%		0	0	12	0.5 U	0.5 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	12	25 UJ	25 U
Ortho Xylene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Pentachloroethane	UG/L	0	0%	5	0	0	6	0.5 UJ	2 UR
Propionitrile	UG/L	0	0%		0	0	12	25 U	25 U
Propylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Styrene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Tetrachloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Tetrahydrofuran	UG/L	0	0%		0	0	12	2.5 U	2.5 U
Toluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Total Xylenes	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	12	0.5 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%		0	0	12	0.5 U	0.5 U
Trichloroethene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0%	2	0	0	12	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0%	5	0	0	12	0.5 U	0.5 U
<b>Semivolatile Organic Compounds</b>									
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	12	1 U	1.1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	12	1 U	1.1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	12	1 U	1.1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	12	1 U	1.1 U
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	12	2.6 U	2.7 U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	12	1 U	1.1 U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	12	1 U	1.1 U
2,4-Dimethylphenol	UG/L	0	0%		0	0	12	1 U	1.1 U
2,4-Dinitrophenol	UG/L	0	0%		0	0	12	2.6 UJ	2.7 U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	12	1 U	1.1 U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	12	1 U	1.1 U
2-Chloronaphthalene	UG/L	0	0%		0	0	12	1 U	1.1 U
2-Chlorophenol	UG/L	0	0%		0	0	12	1 U	1.1 U
2-Methylnaphthalene	UG/L	0	0%		0	0	12	1 U	1.1 U
2-Methylphenol	UG/L	0	0%		0	0	12	1 U	1.1 U
2-Nitroaniline	UG/L	0	0%	5	0	0	12	2.6 U	2.7 U
2-Nitrophenol	UG/L	0	0%	1	0	0	12	1 U	1.1 U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	6	1 U	1.1 UR
3-Nitroaniline	UG/L	0	0%	5	0	0	12	2.6 UJ	2.7 UJ
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	12	2.6 U	2.7 U
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	12	1 U	1.1 U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	12	1 U	1.1 U
4-Chloroaniline	UG/L	0	0%	5	0	0	12	1 U	1.1 UJ
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	12	1 U	1.1 U
4-Methylphenol	UG/L	0	0%		0	0	12	1 U	1.1 U
4-Nitroaniline	UG/L	0	0%	5	0	0	12	2.6 UJ	2.7 UJ
4-Nitrophenol	UG/L	0	0%	1	0	0	12	2.6 U	2.7 U
Acenaphthene	UG/L	0	0%		0	0	12	1 U	1.1 U
Acenaphthylene	UG/L	0	0%		0	0	12	1 U	1.1 U
Anthracene	UG/L	0	0%		0	0	12	1 U	1.1 U
Benzo(a)anthracene	UG/L	0	0%		0	0	12	1 U	1.1 U
Benzo(a)pyrene	UG/L	0	0%	0	0	0	12	1 U	1.1 U

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-46	SEAD-46
								MW46-6	MW46-6
								GW	GW
								462001	462105
								13	13
								13	13
								1-22-2000	4-26-2000
								SA	SA
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 1
								1	2
								Value (Q)	Value (Q)
Benzo(b)fluoranthene	UG/L	0	0%		0	0	12	1 U	1.1 U
Benzo(ghi)perylene	UG/L	0	0%		0	0	12	1 U	1.1 U
Benzo(k)fluoranthene	UG/L	0	0%		0	0	12	1 U	1.1 U
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	12	1 U	1.1 U
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	12	1 U	1.1 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	12	1 U	1.1 U
Bis(2-Ethylhexyl)phthalate	UG/L	0	0%	5	0	0	12	1 U	1.1 U
Butylbenzylphthalate	UG/L	0.057	8%		0	1	12	1 U	1.1 U
Carbazole	UG/L	0	0%		0	0	12	1 U	1.1 U
Chrysene	UG/L	0	0%		0	0	12	1 U	1.1 U
Di-n-butylphthalate	UG/L	0	0%	50	0	0	12	1 U	1.1 U
Di-n-octylphthalate	UG/L	0	0%		0	0	12	1 U	1.1 U
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	12	1 U	1.1 U
Dibenzofuran	UG/L	0	0%		0	0	12	1 U	1.1 U
Diethyl phthalate	UG/L	0	0%		0	0	12	1 U	1.1 U
Dimethylphthalate	UG/L	0	0%		0	0	12	1 U	1.1 U
Fluoranthene	UG/L	0	0%		0	0	12	1 U	1.1 U
Fluorene	UG/L	0	0%		0	0	12	1 U	1.1 U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	12	1 U	1.1 U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	12	1 U	1.1 U
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	12	1 U	1.1 U
Hexachloroethane	UG/L	0	0%	5	0	0	12	1 U	1.1 U
Indeno(1,2,3-cd)pyrene	UG/L	0	0%		0	0	12	1 U	1.1 U
Isophorone	UG/L	0	0%		0	0	12	1 U	1.1 U
N-Nitrosodiphenylamine	UG/L	0	0%		0	0	12	1 U	1.1 U
N-Nitrosodipropylamine	UG/L	0	0%		0	0	12	1 U	1.1 U
Naphthalene	UG/L	0	0%		0	0	12	1 U	1.1 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	12	1 U	1.1 U
Pentachlorophenol	UG/L	0	0%	1	0	0	12	2.6 U	2.7 U
Phenanthrene	UG/L	0	0%		0	0	12	1 U	1.1 U
Phenol	UG/L	0	0%	1	0	0	12	1 U	1.1 U
Pyrene	UG/L	0	0%		0	0	12	1 U	1.1 U
<b>Explosives</b>									
1,3,5-Trinitrobenzene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U
1,3-Dinitrobenzene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U
2,4,6-Trinitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U
2-Nitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U
2-amino-4,6-Dinitrotoluene	UG/L	0	0%	0	0	0	12	0.25 U	0.25 U
3-Nitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U
4-Nitrotoluene	UG/L	0	0%	5	0	0	12	0.25 U	0.25 U
4-amino-2,6-Dinitrotoluene	UG/L	0	0%	0	0	0	12	0.25 U	0.25 U
HMX	UG/L	0	0%	0	0	0	12	0.25 U	0.25 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	12	0.25 U	0.25 U
RDX	UG/L	0	0%	0	0	0	12	0.25 U	0.25 U
Tetryl	UG/L	0	0%	0	0	0	12	0.25 U	0.25 U
<b>Pesticides and PCBs</b>									
4,4'-DDD	UG/L	0	0%	0.3	0	0	12	0.01 U	0.01 U
4,4'-DDE	UG/L	0	0%	0.2	0	0	12	0.01 U	0.01 U
4,4'-DDT	UG/L	0	0%	0.2	0	0	12	0.01 U	0.01 U
Aldrin	UG/L	0	0%	0	0	0	12	0.0052 U	0.0053 U
Alpha-BHC	UG/L	0	0%	0.01	0	0	12	0.0052 U	0.0053 U
Alpha-Chlordane	UG/L	0	0%	0	0	0	12	0.0052 U	0.0053 U
Aroclor-1016	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U
Aroclor-1221	UG/L	0	0%	0.09	0	0	12	0.21 U	0.21 U
Aroclor-1232	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U
Aroclor-1242	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U
Aroclor-1248	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U

TABLE 2  
3.5" ROCKET RANGE (SEAD-46) GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-46	SEAD-46
								MW46-6	MW46-6
								GW	GW
								462105	462105
								13	13
								13	13
								1/22/2000	4/26/2000
								SA	SA
							RI PHASE 1 STEP 1	RI PHASE 1 STEP 1	
							1	2	
							Value (Q)	Value (Q)	
Aroclor-1254	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U
Aroclor-1260	UG/L	0	0%	0.09	0	0	12	0.1 U	0.1 U
Beta-BHC	UG/L	0	0%	0.04	0	0	12	0.0052 U	0.0053 U
Delta-BHC	UG/L	0	0%	0.04	0	0	12	0.0052 U	0.0053 U
Dieldrin	UG/L	0	0%	0.004	0	0	12	0.01 U	0.01 U
Endosulfan I	UG/L	0	0%		0	0	12	0.0052 U	0.0053 U
Endosulfan II	UG/L	0	0%		0	0	12	0.01 U	0.01 U
Endosulfan sulfate	UG/L	0	0%		0	0	12	0.01 U	0.01 U
Endrin	UG/L	0	0%	0	0	0	12	0.01 U	0.01 U
Endrin aldehyde	UG/L	0	0%	5	0	0	12	0.01 U	0.01 U
Endrin ketone	UG/L	0	0%	5	0	0	12	0.01 U	0.01 U
Gamma-BHC/Lindane	UG/L	0	0%	0.05	0	0	12	0.0052 U	0.0053 U
Gamma-Chlordane	UG/L	0	0%	0	0	0	12	0.0052 U	0.0053 U
Heptachlor	UG/L	0	0%	0.04	0	0	12	0.0052 U	0.0053 U
Heptachlor epoxide	UG/L	0	0%	0.03	0	0	12	0.0052 U	0.0053 U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	12	0.01 U	0.01 U
Methoxychlor	UG/L	0	0%	35	0	0	12	0.052 U	0.053 U
Toxaphene	UG/L	0	0%	0.06	0	0	12	0.52 U	0.53 U
<b>Metals</b>									
Aluminum	UG/L	500	100%		0	12	12	341	86.2 J
Antimony	UG/L	5.5	8%	3	1	1	12	5.4 U	4.6 U
Arsenic	UG/L	4	25%	10	0	3	12	2.7 J	2.5 U
Barium	UG/L	79.5	100%	1000	0	12	12	42.6 J	40.6 J
Beryllium	UG/L	0	0%	4	0	0	12	0.6 U	0.3 U
Cadmium	UG/L	0	0%	5	0	0	12	0.8 U	0.3 U
Calcium	UG/L	98400	100%		0	12	12	82200	81000 J
Chromium	UG/L	2.5	50%	50	0	6	12	1.9 J	2.2 U
Cobalt	UG/L	0	0%	0	0	0	12	3.5 U	3 U
Copper	UG/L	7	8%	200	0	1	12	7 J	2.1 U
Cyanide	UG/L	0	0%	0	0	0	12	10 U	10 U
Iron	UG/L	568	100%	300	4	12	12	337 J	88.9 J
Iron+Manganese	UG/L	641.4	100%	500	2	12	12	350.6 J	93 J
Lead	UG/L	0	0%	15	0	0	12	1 U	2.3 U
Magnesium	UG/L	24600	100%		0	12	12	15200	14500
Manganese	UG/L	104	100%	300	0	12	12	13.6 J	4.1 J
Mercury	UG/L	0	0%	0.7	0	0	12	0.1 U	0.1 U
Nickel	UG/L	0	0%	100	0	0	12	4.2 U	2.9 U
Potassium	UG/L	5890	100%		0	12	12	1070 J	729 J
Selenium	UG/L	2.4	8%	10	0	1	12	2.2 U	4 U
Silver	UG/L	2.2	17%	50	0	2	12	1 U	2.2 J
Sodium	UG/L	4980	100%	20000	0	12	12	1890 J	784 J
Thallium	UG/L	4	8%	2	1	1	12	4 J	3.9 U
Vanadium	UG/L	3.7	17%	0	0	2	12	2.8 U	2.9 U
Zinc	UG/L	3.9	67%		0	8	12	3.9 J	1.5 U
<b>Other Analytes</b>									
COD	MG/L	8	33%		0	2	6		8
Nitrate/Nitrite Nitrogen	MG/L	0.25	100%	10000	0	12	12	0.19	0.16
Total Dissolved Solids	MG/L	364	100%		0	6	6		273
Total Hardness-CaCO3	MG/L	290	100%		0	6	6		250

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)
- (2) Shading indicates a concentration above the groundwater standard.

U = compound was not detected  
J = the reported value is an estimated concentration  
R = the analytical result was rejected during data validation.



TABLE 3A  
 OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-46 SOIL  
 SENECA ARMY DEPOT ACTIVITY

Scenario Time frame: Current/Future  
 Medium: Soil  
 Exposure Medium: Soil  
 Exposure Point: SEAD-46

CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (mg/kg)	Q Maximum Detected Concentration <sup>1</sup> (mg/kg)	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (mg/kg)	Concentration Used for Screening <sup>2</sup> (mg/kg)	Background Value <sup>3</sup> (mg/kg)	Screening Value <sup>4</sup> (mg/kg)	Potential ARAR/TBC Source	ARAR/TBC Value <sup>5</sup> (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>6</sup>
<b>VOC</b>													
67-64-1	Acetone	0.027	J 0.41	J SS46-22	30 / 30	0 - 0	0.41		6100	NYSDEC Subpart 375-6	0.05	NO	BSL
71-43-2	Benzene	0.001	J 0.012	J BE46-6	7 / 30	0.009 - 0.018	0.012		1.1	NYSDEC Subpart 375-6	0.06	NO	BSL
75-15-0	Carbon disulfide	0.002	J 0.02	J SS46-19	12 / 31	0.009 - 0.018	0.02		67			NO	BSL
100-41-4	Ethyl benzene	0.001	J 0.001	J BE46-6	1 / 29	0.009 - 0.018	0.001		5.7	NYSDEC Subpart 375-6	1	NO	BSL
78-93-3	Methyl ethyl ketone	0.048	J 0.048	J SS46-2	23 / 31	0.009 - 0.012	0.048		2800	NYSDEC Subpart 375-6	0.12	NO	BSL
108-88-3	Toluene	0.002	J 0.013	J SW/SD46-2	28 / 31	0.009 - 0.01	0.013		500	NYSDEC Subpart 375-6	0.7	NO	BSL
1330-20-7	Total Xylenes	0.001	J 0.007	J BE46-6	7 / 30	0.009 - 0.018	0.007		60	NYSDEC Subpart 375-6	0.26	NO	BSL
<b>SVOC</b>													
606-20-2	2,6-Dinitrotoluene	0.13	J 0.13	J SS46-2	1 / 31	0.074 - 0.13	0.13		6.1			NO	BSL
106-44-5	4-Methylphenol	0.062	J 0.013	J SS46-2	2 / 31	0.074 - 0.13	0.013		31	NYSDEC Subpart 375-6	0.33	NO	BSL
56-55-3	Benzo(a)anthracene	0.0033	J 0.034	J SS46-15	7 / 31	0.074 - 0.45	0.034		0.15	NYSDEC Subpart 375-6	1	NO	CSG
50-32-8	Benzo(b)pyrene	0.0059	J 0.03	J SS46-15	14 / 31	0.019 - 0.45	0.03		0.15	NYSDEC Subpart 375-6	1	YES	ASL
205-99-2	Benzo(k)fluoranthene	0.0055	J 0.047	J SS46-15	15 / 31	0.074 - 0.45	0.047		0.15	NYSDEC Subpart 375-6	1	NO	CSG
191-24-2	Benzo(g)herylene	0.017	J 0.017	J SS46-15	1 / 31	0.074 - 0.45	0.017		100	NYSDEC Subpart 375-6	100	NO	NSV
207-08-9	Benzo(k)fluoranthene	0.0044	J 0.033	J SS46-15	15 / 31	0.074 - 0.45	0.033		1.5	NYSDEC Subpart 375-6	0.8	NO	CSG
117-81-7	Bis(2-Ethylhexyl)phthalate	0.028	J 0.78	J SS46-11	3 / 31	0.052 - 0.45	0.78		35			NO	BSL
218-01-9	Chrysene	0.057	J 0.04	J SS46-15	10 / 31	0.074 - 0.45	0.04		15	NYSDEC Subpart 375-6	1	NO	CSG
84-74-2	Dib-n-butylphthalate	0.053	J 1.1	J SS46-2	6 / 31	0.074 - 0.13	1.1		610			NO	BSL
84-66-2	Diethyl phthalate	0.011	J 0.011	J SS46-11	1 / 31	0.0036 - 0.45	0.011		4900			NO	BSL
206-44-0	Fluoranthene	0.062	J 0.036	J SS46-15	16 / 31	0.074 - 0.45	0.036		230	NYSDEC Subpart 375-6	100	NO	BSL
118-74-1	Hexachlorobenzene	0.011	J 0.011	J BE46-8	1 / 31	0.076 - 0.45	0.011		35	NYSDEC Subpart 375-6	0.33	NO	BSL
67-72-1	Hexachloroethane	0.0099	J 0.0099	J BE46-8	1 / 31	0.076 - 0.45	0.0099		35	NYSDEC Subpart 375-6	0.5	NO	CSG
67-72-1	Indeno(1,2,3-cd)pyrene	0.012	J 0.019	J SS46-15	2 / 31	0.076 - 0.45	0.019		99			NO	BSL
86-30-6	N-Nitrosodiphenylamine	0.015	J 0.059	J SS46-2	2 / 31	0.074 - 0.13	0.059		3.9	NYSDEC Subpart 375-6	12	NO	BSL
91-20-3	Naphthalene	0.0035	J 0.035	J SS46-15	1 / 31	0.074 - 0.45	0.035		1800	NYSDEC Subpart 375-6	0.33	NO	BSL
85-01-8	Phenanthrene	0.0049	J 0.0251	J SS46-13	14 / 31	0.074 - 0.45	0.0251		170	NYSDEC Subpart 375-6	100	NO	BSL
108-95-2	Phenol	0.0042	J 0.033	J SW/SD46-4	10 / 31	0.074 - 0.45	0.033		170	NYSDEC Subpart 375-6	100	NO	BSL
129-00-0	Pyrene	0.005	J 0.032	J SS46-15	17 / 31	0.076 - 0.45	0.032		2	NYSDEC Subpart 375-6	0.0033	NO	BSL
<b>Pesticides/PCBS</b>													
72-54-8	4,4'-DDD	0.012	J 0.012	J SS46-18	1 / 31	0.037 - 0.0056	0.012		1.4	NYSDEC Subpart 375-6	0.0033	NO	BSL
72-55-9	4,4'-DDE	0.0018	J 0.0037	J SS46-7	3 / 31	0.037 - 0.0056	0.0037		1.6	NYSDEC Subpart 375-6	0.0033	NO	BSL
12789-03-6	Alpha-Chlorodane	0.0015	J 0.0035	J SS46-1	2 / 31	0.0013 - 0.0028	0.0035		0.046	NYSDEC Subpart 375-6	0.04	YES	ASL
60-57-1	Dieldrin	0.003	J 0.046	J SS46-11	10 / 31	0.037 - 0.0054	0.046		0.03	NYSDEC Subpart 375-6	0.04	YES	ASL
115-29-7	Endosulfan I	0.0058	J 0.0058	J SS46-7	1 / 31	0.0019 - 0.0029	0.0058		37	NYSDEC Subpart 375-6	2.4	NO	BSL
115-29-7	Endosulfan II	0.0023	J 0.0023	J SS46-7	1 / 31	0.037 - 0.0056	0.0023		37	NYSDEC Subpart 375-6	2.4	NO	BSL
72-20-8	Endrin	0.0024	J 0.0051	J SS46-7	3 / 31	0.037 - 0.0056	0.0051		1.8	NYSDEC Subpart 375-6	0.014	NO	BSL
53494-70-5	Endrin ketone	0.0031	J 0.0031	J SS46-7	1 / 31	0.037 - 0.0056	0.0031		1.6	NYSDEC Subpart 375-6	0.094	NO	BSL
12789-03-6	Gamma-Chlordane	0.0019	J 0.0019	J SS46-21	1 / 31	0.0019 - 0.0029	0.0019		2	NYSDEC Subpart 375-6	0.0033	NO	BSL
<b>Metals</b>													
7429-90-5	Aluminum	8890	J 16500	J SW/SD46-3	31 / 31	0 - 0	16500	20,500	7700			YES	ASL
7440-36-0	Antimony	0.51	J 0.73	J SW/SD46-1	4 / 18	0.42 - 0.57	0.73	6.55	3.1			NO	BSL
7440-38-2	Arsenic	2.9	J 7.9	J SS46-21	31 / 31	0 - 0	7.9	21.5	0.39	NYSDEC Subpart 375-6	13	YES	ASL
7440-39-3	Barium	20.5	J 152	J SW/SD46-2	31 / 31	0 - 0	152	159	1500	NYSDEC Subpart 375-6	350	NO	BSL
7440-41-7	Beryllium	0.31	J 1.2	J SS46-24	31 / 31	0 - 0	1.2	1.4	16	NYSDEC Subpart 375-6	7.2	NO	BSL
7440-43-9	Cadmium	0.09	J 0.09	J SS46-15	1 / 31	0.03 - 0.09	0.09	2.9	7	NYSDEC Subpart 375-6	2.5	NO	BSL
7440-70-2	Calcium	2520	J 69300	J SW/SD46-3	31 / 31	0 - 0	69300	293,000	280			NO	NUT
7440-47-3	Chromium	12.2	J 26.3	J SS46-19	31 / 31	0 - 0	26.3	32.7	280	NYSDEC Subpart 375-6	30	NO	BSL
7440-48-4	Cobalt	6.1	J 20	J SW/SD46-3	31 / 31	0 - 0	20	29.1	2.3			YES	ASL
7440-50-8	Copper	14.2	J 41.15	J SS46-13	31 / 31	0 - 0	41.15	62.8	310	NYSDEC Subpart 375-6	50	NO	BSL

TABLE 3A  
 OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-46 SOIL  
 SENECA ARMY DEPOT ACTIVITY

Scenario Time frame:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-46

CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (mg/kg)	Maximum Detected Concentration <sup>1</sup> (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (mg/kg)	Concentration Used for Screening <sup>2</sup> (mg/kg)	Background Value <sup>3</sup> (mg/kg)	Screening Value <sup>4</sup> (mg/kg)	Potential ARAR/TBC Source	ARAR/TBC Value <sup>5</sup> (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>6</sup>
7439-89-6	Iron	17900	39100	J	SW/SD46-3	31 / 31	0	39100	381,600	5500	NYSDEC Subpart 375-6	63	YES	ASL
7439-92-1	Lead	10.7	73	J	SS46-4	31 / 31	0	73	266	40	NYSDEC Subpart 375-6	63	YES	ASL
7439-95-4	Magnesium	2850	12800	J	BE46-4	31 / 31	0	12800	29,100					NSV
7439-96-5	Manganese	245	1170	J	SS46-21	30 / 31	0.11	1170	2,380	180	NYSDEC Subpart 375-6	1600	YES	ASL
7439-97-6	Mercury	0.07	0.17	J	SS46-16	25 / 31	0.05	0.17	0.13	0.43	NYSDEC Subpart 375-6	0.18	NO	BSL
7440-02-0	Nickel	18	47.4	J	SW/SD46-3	31 / 31	0	47.4	62.3	150	NYSDEC Subpart 375-6	30	NO	BSL
7440-09-7	Potassium	817	1770	J	SS46-6	31 / 31	0	1770	3,160					NUT
7782-49-2	Selenium	0.37	0.81	J	SS46-17	2 / 31	0.41	0.81	1.7	39	NYSDEC Subpart 375-6	3.9	NO	BSL
7440-22-4	Silver	0.3175	0.3175	J	SS46-13	1 / 31	0.21	0.6	0.87	39	NYSDEC Subpart 375-6	2	NO	BSL
122-34-9	Sodium	64.8	272	J	BE46-6	14 / 31	52.6	140	269	4	NYSDEC Subpart 375-6		YES	NUT
7440-28-0	Thallium	0.91	3.7	J	SW/SD46-3	30 / 31	0.82	3.7	1.2	0.51			YES	ASL
7440-62-2	Vanadium	12.5	29.3	J	SW/SD46-2	31 / 31	0	29.3	32.7	55			NO	BSL
7440-66-6	Zinc	51.1	115	J	SS46-24	31 / 31	0	115	126	2300	NYSDEC Subpart 375-6	109	NO	BSL
Other Analytes														
14797-55-8	Nitrate/Nitrite Nitrogen	0.01	2.2		BE46-7	25 / 26	0.01	2.2		13000			NO	BSL

Notes:

- Field duplicate pairs were averaged as a discrete sample. Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- The maximum detected concentration was used for screening.
- Background value is the maximum Seneca background concentration.
- EPA Regional Screening Levels for residential soil. On-line resources available at <http://www.epa.gov/region09/superfund/prg/index.html>. Last updated April 2009. Region 9 PRGs were derived based on Direct contact exposure (ingestion and dermal contact) and a target Cancer Risk of 1E-6 or a Target Hazard Quotient of 0.1. Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium) from Marilyn Wright (2001) Dietary Reference Intakes. PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.
- Potential ARAR/TBC values are from NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)
- Rationale codes

Selection Reason:  
 Deletion Reason:

Chemicals in the Same Group were retained as COPC (CSG)  
 Above Screening Levels (ASL)  
 Essential Nutrient (NUT)  
 Below Screening Level (BSL)  
 No Screening Value (NSV)

COPC = Chemical of Potential Concern  
 ARAR/TBC = Applicable or Relevant and Appropriate Requirement To Be Considered  
 Q = Qualifier  
 J = Estimated Value

**TABLE 3B  
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-46 GROUNDWATER  
SENECA ARMY DEPOT ACTIVITY**

Scenario Time frame: Medium: Exposure Medium: Exposure Point:	CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (ug/L)	Q	Maximum Detected Concentration <sup>1</sup> (ug/L)	Q	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (ug/L)	Concentration Used for Screening <sup>2</sup> (ug/L)	Background Value <sup>3</sup> (ug/L)	Screening Value <sup>4</sup> (ug/L)	Potential ARAR/TBC Value (ug/L)	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>5</sup>
Current/Future Groundwater Groundwater Aquifer -- Tap Water																
	<b>SVOC</b>															
	85-68-7	Butylbenzylphthalate	0.057	J	0.057	J	MW46-1	1 / 12	1 - 1.1	0.057		35			NO	BSL
	<b>Metals</b>															
	7429-90-5	Aluminum	73.9	J	500	J	MW46-3	12 / 12	0 - 0	500	2,730	37,000			NO	BSL
	7440-36-0	Antimony	5.5	J	5.5	J	MW46-1	1 / 12	4.6 - 5.4	6	8	15	3	GA	NO	BSL
	7440-38-2	Arsenic	2.6	J	4	J	MW46-5	3 / 12	2.4 - 2.5	4	2	0.05	10	MCL	YES	ASL
	7440-39-3	Barium	37.8	J	79.5	J	MW46-1	12 / 12	0 - 0	80	78.2	7,300	1,000	GA	NO	BSL
	7440-70-2	Calcium	77900	J	98400	J	MW46-5	12 / 12	0 - 0	98,400	116,000				YES	NUT
	7440-47-3	Chromium	1.1	J	2.5	J	MW46-3	6 / 12	2.2 - 2.2	3	4.7		50	GA	NO	NSV
	7440-50-8	Copper	7	J	7	J	MW46-6	1 / 12	1.6 - 2.1	7	3.3	1,500	200	GA	NO	BSL
	7439-89-6	Iron	88.9	J	568	J	MW46-3	12 / 12	0 - 0	568	4,480	26,000	300	GA	NO	BSL
		Iron+Manganese	93	J	641.4	J	MW46-3	12 / 12	0 - 0	641			500	GA	YES	NA
	7439-95-4	Magnesium	14500	J	24600	J	MW46-1	12 / 12	0 - 0	24,600	28,600				YES	NSV
	7439-96-5	Manganese	4.1	J	104	J	MW46-1	12 / 12	0 - 0	104	224	880			NO	BSL
	7440-09-7	Potassium	615	J	5890	J	MW46-1	12 / 12	0 - 0	5,890	3,830				YES	NUT
	7782-49-2	Selenium	2.4	J	2.4	J	MW46-4	1 / 12	2.2 - 4	2	2	180	10	GA	NO	BSL
	7440-22-4	Silver	2.1	J	2.2	J	MW46-6	2 / 12	1 - 1.9	2	1	180	50	GA	NO	BSL
	122-34-9	Sodium	688	J	4980	J	MW46-1	12 / 12	0 - 0	4,980	14,600		20,000	GA	YES	NUT
	7440-28-0	Thallium	4	J	4	J	MW46-6	2 / 12	3.6 - 3.9	4	2	2	2	MCL	YES	ASL
	7440-62-2	Vanadium	3.5	J	3.7	J	MW46-2	2 / 12	2.8 - 2.9	3.7	5.2	260			NO	BSL
	7440-66-6	Zinc	1.8	J	3.9	J	MW46-6	8 / 12	1.5 - 2.1	3.9	23.1	11,000			NO	BSL
<b>Other Analytes</b>																
	14797-55-8	Nitrate/Nitrite Nitrogen	20		250		MW46-5	12 / 12	0 - 0	250	23.1	58,000	10,000	GA	NO	BSL

Notes:  
1. Analytical results are from the 2000 RI sampling rounds.  
Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.  
2. The maximum detected concentration was used for screening.  
3. Background values are average concentrations of background sample results.  
4. EPA Regional Screening Levels for tap water. On-line resources available at <http://www.epa.gov/region09/superfund/prg/index.html>. Last updated April 2009.  
Target Cancer Risk = 1E-6; Target Hazard Quotient = 0.1. Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs.  
Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 2L/day water intake and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 2-5 yr children (1400 mg/day for potassium) from Marilyn Wright (2001) Dietary Reference Intakes.  
For sodium, an upper limit intake of 2,400 mg/day (<http://www.mealinformation.com/dailyval.html>) was used.  
PRG for chromium (VI) was used as screening value for chromium.  
5. Rationale codes  
Above Screening Levels (ASL)  
Essential Nutrient (NUT)  
Below Screening Level (BSL)  
COPC = Chemical of Potential Concern  
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered  
MCL = Federal Maximum Contaminant Level  
GA = New York State Class GA Groundwater Standard (TOGS 1.1.1, June 1998 with updates)  
NA = Not Applicable  
Q = Qualifier  
J = Estimated Value



TABLE 4A  
SURFACE SOIL EXPOSURE POINT CONCENTRATION SUMMARY FOR SEAD-46  
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-46

CAS #	Chemical of Potential Concern	Units	Arithmetic Mean (1)	EPA ProUCL Student-t 95th UCL Value (1, 2, 4)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)		
								EPA ProUCL Recommended UCL Value	Medium EPC Statistic	Medium EPC Rationale
56-55-3	Benzo(a)anthracene	mg/kg	0.010	0.017	0.034	J	mg/kg	0.017	95% KM Student-t	Non-parametric
50-32-8	Benzo(a)pyrene	mg/kg	0.010	0.013	0.030	J	mg/kg	0.013	95% KM Student-t	Non-parametric
205-99-2	Benzo(b)fluoranthene	mg/kg	0.012	0.018	0.047	J	mg/kg	0.018	95% KM Student-t	Non-parametric
191-24-2	Benzo(ghi)perylene	mg/kg	-(3)	-(3)	0.017	J	mg/kg	0.017	-	-
207-08-9	Benzo(k)fluoranthene	mg/kg	0.011	0.015	0.033	J	mg/kg	0.015	95% KM Student-t	Non-parametric
218-01-9	Chrysene	mg/kg	12.3	0.019	0.040	J	mg/kg	0.019	95% KM Student-t	Non-parametric
67-72-1	Indeno(1,2,3-cd)pyrene	mg/kg	-(3)	-(3)	0.019	J	mg/kg	0.019	95% KM Student-t <sup>5</sup>	Non-parametric
85-01-8	Phenanthrene	mg/kg	0.008	0.011	0.025	J	mg/kg	0.011	95% KM Student-t	Non-parametric
60-57-1	Dieldrin	mg/kg	0.017	0.014	0.046	J	mg/kg	0.014	95% KM Student-t	Non-parametric
53494-70-5	Endrin ketone	mg/kg	-(3)	-(3)	0.003	J	mg/kg	0.003	-	-
7429-90-5	Aluminum	mg/kg	13507	14126	16,500		mg/kg	14126	95% Student's-t UCL	Normal
7440-38-2	Arsenic	mg/kg	5.1	5.5	7.90		mg/kg	5.547	95% Student's-t UCL	Normal
7440-48-4	Cobalt	mg/kg	11.1	12.2	20		mg/kg	12.150	95% Student's-t UCL	Normal
7439-89-6	Iron	mg/kg	25467	27,224	39,100	J	mg/kg	27224	95% Student's-t UCL	Normal
7439-92-1	Lead	mg/kg	29.3	33.9	73	J	mg/kg	33.910	95% Approximate Gamma	Gamma
7439-96-5	Manganese	mg/kg	595.7	670.8	1,170	J	mg/kg	670.8	95% KM Student-t	Non-parametric
7440-28-0	Thallium	mg/kg	1.9	2.1	3.70		mg/kg	2.114	95% KM (BCA) UCL	Non-parametric

Notes:

- Field duplicates were not averaged and presented as discreet samples. Laboratory duplicates were not included in the assessment. Non-detects were included in the dataset and 95% UCL analysis was performed as 'With ND' in ProUCL.
- The EPCs were calculated using the ProUCL (Version 4.00.02) and the EPCs were selected in accordance with the ProUCL Version 4.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).  
Q - qualifier  
J = Estimated Value  
KM = Kaplan-Meier statistical method
- Insufficient number of detects in the dataset to perform 95th UCL analysis in ProUCL. This typical means there was a single detect in the dataset for this compound.
- Bold values represent ProUCL recommended values that are greater than maximum detected value for a compound.
- Insufficient number of detects in dataset to get meaningful results from ProUCL. Warning message from ProUCL regarding dataset:  
"This may not be adequate enough to compute meaningful and reliable test statistics and estimates."  
"The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods."

TABLE 4B  
SUBFACE SOIL EXPOSURE POINT CONCENTRATION SUMMARY FOR SEAD-46  
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-46

CAS #	Chemical of Potential Concern	Units	Arithmetic Mean (1)	EPA ProUCL Student-t 95th UCL Value (1, 2, 4)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)		
								EPA ProUCL Recommended UCL Value	Medium EPC Statistic	Medium EPC Rationale
56-55-3	Benzo(a)anthracene	mg/kg	0.010	0.017	0.034	J	mg/kg	0.017	95% KM Student-t	Non-parametric
50-32-8	Benzo(a)pyrene	mg/kg	0.010	0.012	0.030	J	mg/kg	0.012	95% KM Student-t	Non-parametric
205-99-2	Benzo(b)fluoranthene	mg/kg	0.013	0.018	0.047	J	mg/kg	0.018	95% KM Student-t	Non-parametric
191-24-2	Benzo(ghi)perylene	mg/kg	-(3)	-(3)	0.017	J	mg/kg	0.017	-	-
207-08-9	Benzo(k)fluoranthene	mg/kg	0.011	0.015	0.033	J	mg/kg	0.015	95% KM Student-t	Non-parametric
218-01-9	Chrysene	mg/kg	0.012	0.019	0.040	J	mg/kg	0.019	95% KM Student-t	Non-parametric
67-72-1	Indeno(1,2,3-cd)pyrene	mg/kg	0.0155	0.021	0.019	J	mg/kg	0.021	95% KM Student-t <sup>5</sup>	Non-parametric
85-01-8	Phenanthrene	mg/kg	0.008	0.010	25.100	J	mg/kg	0.010	95% KM Student-t	Non-parametric
60-57-1	Dieldrin	mg/kg	0.017	0.011	0.046	J	mg/kg	0.011	95% KM Student-t	Non-parametric
53494-70-5	Endrin ketone	mg/kg	-(3)	-(3)	0.003	J	mg/kg	0.003	-	-
7429-90-5	Aluminum	mg/kg	13125	13665	16,500		mg/kg	13665	95% Student's-t UCL	Normal
7440-38-2	Arsenic	mg/kg	4.9	5.3	7.90		mg/kg	5.285	95% Student's-t UCL	Normal
7440-48-4	Cobalt	mg/kg	10.9	11.7	20		mg/kg	12	95% Student's-t UCL	Normal
7439-89-6	Iron	mg/kg	25224	26,565	39,100	J	mg/kg	26565	95% Student's-t UCL	Normal
7439-92-1	Lead	mg/kg	26.9	31.1	73	J	mg/kg	31	95% Approximate Gamma	Gamma
7439-96-5	Manganese	mg/kg	590.0	646.4	1,170	J	mg/kg	646	95% KM Student-t	Non-parametric
7440-28-0	Thallium	mg/kg	1.9	2.1	3.70		mg/kg	2.059	95% KM (BCA) UCL	Non-parametric

Notes:

1. Field duplicates were not averaged and presented as discreet samples. Laboratory duplicates were not included in the assessment.

Non-detects were included in the dataset and 95% UCL analysis was performed as 'With ND' in ProUCL.

2. The EPCs were calculated using the ProUCL (Version 4.00.02) and the EPCs were selected in accordance with the ProUCL Version 4.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).

Q - qualifier

J = Estimated Value

KM = Kaplan-Meier statistical method

3. Insufficient number of detects in the dataset to perform 95th UCL analysis in ProUCL. This typical means there was a single detect in the dataset for this compound.

4. Bold values represent ProUCL recommended values that are greater than maximum detected value for a compound.

5. Insufficient number of detects in dataset to get meaningful results from ProUCL. Warning message from ProUCL regarding dataset:

"This may not be adequate enough to compute meaningful and reliable test statistics and estimates."

"The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods."

TABLE 4C  
GROUNDWATER EXPOSURE POINT CONCENTRATION SUMMARY SEAD-46  
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Aquifer--Tap Water

CAS #	Chemical of Potential Concern	Units	Arithmetic Mean	Maximum Detected Concentration mg/L	Q	Reasonable Maximum Exposure (2)		
						Medium EPC Value (mg/L)	Medium EPC Statistic	Medium EPC Rationale
7440-38-2	Arsenic	mg/L	3.1E-03	0.004	J	0.004	MDC	See note
7440-28-0	Thallium	mg/L	4.0E-03	0.004	J	0.004	MDC	See note

Notes:

1. Laboratory duplicates were not included in the assessment.

Non-detectes were included in the dataset and 95% UCL analysis was performed as 'With ND' in ProUCL.

2. The maximum detected concentration was used as EPC for the RME scenario.

As residential use of groundwater has been based on the assumption that a single private well can be placed anywhere in the contaminated plume, the MDC across several rounds of monitoring was used as the EPC for groundwater as a conservative step for both the RME scenario.

EPC = Exposure Point Concentration

MDC = Maximum Detected Concentration

RME = Reasonable Maximum Exposure

3. Insufficient number of detects in dataset to get meaningful results from ProUCL. Warning message from ProUCL regarding dataset: "This may not be adequate enough to compute meaningful and reliable test statistics and estimates."

"The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods."

TABLE 4D  
 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR PARK  
 WORKERS, VISITORS, & RESIDENTS AT SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-46

Equation for Air EPC from Surface Soil (mg/m <sup>3</sup> ) =	CSsurf x PM10 x CF
Variables:	
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)	
PM10 = Average Measured PM10 Concentration = 43.02 ug/m <sup>3</sup>	
CF = Conversion Factor = 1E-9 kg/ug	

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m <sup>3</sup> )
Benzo(a)anthracene	1.7E-02	7.1E-10
Benzo(a)pyrene	1.3E-02	5.4E-10
Benzo(b)fluoranthene	1.8E-02	7.7E-10
Benzo(ghi)perylene	1.7E-02	7.3E-10
Benzo(k)fluoranthene	1.5E-02	6.4E-10
Chrysene	1.9E-02	8.0E-10
Indeno(1,2,3-cd)pyrene	1.9E-02	8.2E-10
Phenanthrene	1.1E-02	4.7E-10
Dieldrin	1.4E-02	6.1E-10
Endrin ketone	3.1E-03	1.3E-10
Aluminum	1.4E+04	6.1E-04
Arsenic	5.5E+00	2.4E-07
Cobalt	1.2E+01	5.2E-07
Iron	2.7E+04	1.2E-03
Lead	3.4E+01	1.5E-06
Manganese	6.7E+02	2.9E-05
Thallium	2.1E+00	9.1E-08



TABLE 4E  
 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR  
 CONSTRUCTION WORKER AT SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-46

Equation for Air EPC from Total Soils (mg/m <sup>3</sup> ) = CStot x PM10 x CF
Variables:
CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)
PM10 = PM10 Concentration Calculated for Construction Worker= 373 ug/m <sup>3</sup>
CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m <sup>3</sup> )
Benzo(a)anthracene	1.7E-02	7.1E-10
Benzo(a)pyrene	1.2E-02	5.3E-10
Benzo(b)fluoranthene	1.8E-02	7.6E-10
Benzo(ghi)perylene	1.7E-02	7.3E-10
Benzo(k)fluoranthene	1.5E-02	6.5E-10
Chrysene	1.9E-02	8.0E-10
Indeno(1,2,3-cd)pyrene	2.1E-02	9.2E-10
Phenanthrene	1.0E-02	4.5E-10
Dieldrin	1.1E-02	4.9E-10
Endrin ketone	3.1E-03	1.3E-10
Aluminum	1.4E+04	5.9E-04
Arsenic	5.3E+00	2.3E-07
Cobalt	1.2E+01	5.0E-07
Iron	2.7E+04	1.1E-03
Lead	3.1E+01	1.3E-06
Manganese	6.5E+02	2.8E-05
Thallium	2.1E+00	8.9E-08

TABLE 4F  
 CALCULATION OF AIR CONCENTRATION IN SHOWER FROM VOLATILIZATION OF GROUNDWATER (DAILY)  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Air
Exposure Point:	SEAD-46

Analyte	Residential Adult Time of Shower - T <sub>event</sub> (min)	Residential Adult EPC Air (mg/m <sup>3</sup> )	Residential Child Time of Shower - (min)	Residential Child EPC Air (mg/m <sup>3</sup> )	Shower - Fw Flow Rate of (L/min)	REASONABLE								
						EPC Groundwater (mg/l)	Flow Rate of in Shower-Fa (m <sup>3</sup> /min)	Volume of Bathroom-Vb (m <sup>3</sup> )	Henry Laws Constant-H (m <sup>3</sup> -atm/mol)	Asymptotic Conc.-Cinf (mg/m <sup>3</sup> )	Rate Constant- (1/min)	Efficiency Release-E (unitless)	Efficiency of Release for TCE - E-TCE	Henry Laws Constant- H-TCE (m <sup>3</sup> -atm/mol)
Arsenic	35	1.89E-02	60	1.89E-02	19	4.00E-03	2.4	12	9.85E-03	2.06E-02	0.20	6.49E-01	0.6	0.0091
Thallium	35	NA	60	NA	19	4.00E-03	2.4	12	NA					
Concentration in Air (mg/m <sup>3</sup> ) = Cinf[1+(1/(kTs)(exp(-kTs)-1)] Asymptotic Air Conc. - Cinf (mg/m <sup>3</sup> ) = [(E)(Fw)(EPCgw)]/Fa Rate Constant - k (1/min) = Fa/Vb Efficiency of Release - E (unitless) = (E-tce)(H)/(H-tce)						Variables: CA = Chemical Concentration in Air (mg/m <sup>3</sup> ) Ts = Time of Shower (minutes) Fw = Flow Rate of Shower (L/min) Fa = Flow Rate of Air in Shower (m <sup>3</sup> /min) Vb = Volume of Bathroom (m <sup>3</sup> )			Assumptions: EPC - Groundwater Data - RME 35 and 60 minutes for adult and child, respectively 2.4 (Average Air Flow) 12 (Average Bathroom Volume)					

Note:  
 Henry's law constants not available for the inorganic COPC.

TABLE 5  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 BW = Bioavailability  
 B = Bodyweight  
 AT = Averaging Time  
 EF = Exposure Frequency  
 ED = Exposure Duration

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor					
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
					(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Benzo(a)anthracene	N/A	7.3E-01	1	1.7E-02	4.07E-09	7.67E-10	3E-09	7.67E-10	6.07E-10	6.07E-10	6E-10	6.07E-10	4E-10			
Benzo(a)pyrene	N/A	7.3E+00	1	1.3E-02	3.07E-09	5.80E-10	2E-08	5.80E-10	4.59E-10	4.59E-10	4E-09	4.59E-10	3E-09			
Benzo(b)fluoranthene	N/A	7.3E-01	1	1.8E-02	4.40E-09	8.29E-10	3E-09	8.29E-10	6.57E-10	6.57E-10	6E-10	6.57E-10	5E-10			
Benzo(k)fluoranthene	N/A	N/A	1	1.7E-02	3.66E-09	6.91E-10	3E-10	6.91E-10	5.47E-10	5.47E-10	5E-11	5.47E-10	4E-11			
Chrysene	3.00E-04	7.3E-02	1	1.9E-02	4.55E-09	8.59E-10	3E-11	8.59E-10	6.80E-10	6.80E-10	6E-12	6.80E-10	5E-12			
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1	1.9E-02	4.65E-09	8.76E-10	3E-09	8.76E-10	6.94E-10	6.94E-10	6E-10	6.94E-10	5E-10			
Phenanthrene	N/A	N/A	1	1.1E-02	9.75E-09	3.48E-09	6E-08	3.48E-09	6.57E-10	6.57E-10	1E-08	6.57E-10	8E-09			
Dieldrin	5.00E-05	1.6E+01	1	1.4E-02	3.48E-09	6.57E-10	6E-08	6.57E-10	6.57E-10	6.57E-10	1E-08	6.57E-10	8E-09			
Endrin ketone	N/A	N/A	1	3.1E-03	9.68E-03	1.36E-06	1E-02	1.36E-06	4.56E-02	4.56E-02	5E-02	4.56E-02	7E-03			
Aluminum	1.00E+00	N/A	1	1.4E+04	3.80E-06	1.79E-05	2E-06	1.79E-05	2.56E-07	2.56E-07	6E-02	2.56E-07	9E-03			
Arsenic	3.00E-04	1.5E+00	1	5.5E+00	8.32E-06	3.92E-05	3E-02	3.92E-05	3.92E-05	3.92E-05	1E-01	3.92E-05	2E-02			
Cobalt	3.00E-04	N/A	1	1.2E+01	1.86E-02	8.79E-02	6E-02	8.79E-02	8.79E-02	8.79E-02	3E-01	8.79E-02	5E-02			
Iron	3.00E-01	N/A	1	2.7E+04	4.59E-04	2.17E-03	2E-02	2.17E-03	2.17E-03	2.17E-03	9E-02	2.17E-03	1E-02			
Lead	NA	N/A	1	3.4E+01	1.45E-06	6.83E-06	2E-03	6.83E-06	6.83E-06	6.83E-06	1E-02	6.83E-06	2E-03			
Manganese	2.40E-02	N/A	1	6.7E+02	4.59E-04	2.17E-03	2E-02	2.17E-03	2.17E-03	2.17E-03	9E-02	2.17E-03	1E-02			
Thallium	6.47E-04	N/A	1	2.1E+00	1.45E-06	6.83E-06	2E-03	6.83E-06	6.83E-06	6.83E-06	1E-02	6.83E-06	2E-03			
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>1E-01</b>	<b>1E-01</b>	<b>2E-06</b>	<b>1E-01</b>	<b>1E-01</b>	<b>1E-01</b>	<b>4E-07</b>	<b>1E-01</b>	<b>3E-07</b>			
					Assumptions for Park Worker			Assumptions for Construction Worker			Assumptions for Recreational Child Visitor					
					CF = 1E-06 kg/mg EPC = EPC Surface Only BW = 70 kg IR = 100 mg/day FI = 1 unitless EF = 175 days/year ED = 25 years AT (Nc) = 9,125 days AT (Car) = 25,550 days	CF = 1E-06 kg/mg EPC = EPC Surface and Subsurface BW = 70 kg IR = 330 mg/day FI = 1 unitless EF = 250 days/year ED = 1 years AT (Nc) = 365 days AT (Car) = 25,550 days	CF = 1E-06 kg/mg EPC = EPC Surface Only BW = 15 kg IR = 200 mg/day FI = 1 unitless EF = 14 days/year ED = 5 years AT (Nc) = 1,825 days AT (Car) = 25,550 days									

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA = Information not available.

TABLE 5  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (NC)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk
					Intake (mg/kg-day) (NC)	Hazard Quotient	Cancer Risk	Intake (mg/kg-day) (Car)	
Benzo(a)anthracene	N/A	7.3E-01	1	1.7E-02	7.81E-09	6E-09	1.82E-08	1E-08	2E-08
Benzo(a)pyrene	N/A	7.3E+00	1	1.3E-02	5.90E-09	4E-08	1.38E-08	1E-07	1E-07
Benzo(b)fluoranthene	N/A	7.3E-01	1	1.8E-02	8.44E-09	6E-09	1.97E-08	1E-08	2E-08
Benzo(e)fluoranthene	N/A	N/A	1	1.7E-02	7.03E-09	5E-10	1.64E-08	1E-09	2E-09
Benzo(k)fluoranthene	N/A	7.3E-02	1	1.5E-02	8.75E-09	6E-11	2.38E-07	1E-10	2E-10
Chrysene	3.00E-04	7.3E-03	1	1.9E-02	8.92E-09	7E-09	2.08E-08	2E-08	2E-08
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1	1.1E-02	6.69E-09	1E-07	1.56E-08	2E-07	4E-07
Phenanthrene	N/A	1.6E+01	1	1.4E-02	1.95E-08	4E-04	1.82E-07	4E-03	4E-07
Dieldrin	N/A	N/A	1	3.1E-03	1.94E-02	2E-02	1.81E-01	2E-01	1E-05
Endrin ketone	N/A	N/A	1	1.4E+04	7.60E-06	3E-02	7.09E-05	2E-01	9E-06
Aluminum	1.00E+00	1.5E+00	1	5.5E+00	2.61E-06	4E-06	6.08E-06	5E-01	1E-05
Arsenic	3.00E-04	N/A	1	1.2E+01	1.66E-05	6E-02	1.55E-04	1E+00	1E-05
Cobalt	3.00E-04	N/A	1	2.7E+04	3.73E-02	1E-01	3.48E-01	1E+00	1E-05
Iron	3.00E-01	N/A	1	3.4E+01	9.19E-04	4E-02	8.58E-03	4E-01	1E-05
Lead	N/A	N/A	1	6.7E+02	2.90E-06	4E-03	2.70E-05	4E-02	1E-05
Manganese	2.40E-02	N/A	1	6.7E+02	2.90E-06	4E-03	2.70E-05	4E-02	1E-05
Thallium	6.47E-04	N/A	1	2.1E+00	2.90E-06	4E-03	2.70E-05	4E-02	1E-05
<b>Total Hazard Quotient and Cancer Risk:</b>						<b>3E-01</b>		<b>2E+00</b>	<b>1E-05</b>
						Assumptions for Resident (Adult)		Assumptions for Resident (Child)	
						CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	EPC = EPC Surface Only	EPC = EPC Surface Only
						EPC = EPC Surface Only	EPC = EPC Surface Only	BW = 15 kg	BW = 15 kg
						BW = 70 kg	BW = 15 kg	IR = 200 mg/day	IR = 200 mg/day
						IR = 100 mg/day	IR = 100 mg/day	FI = 1 unitless	FI = 1 unitless
						FI = 1 unitless	FI = 1 unitless	EF = 350 days/year	EF = 350 days/year
						EF = 350 days/year	EF = 350 days/year	ED = 6 years	ED = 6 years
						ED = 24 years	ED = 24 years	AT (NC) = 2,190 days	AT (NC) = 2,190 days
						AT (NC) = 8,760 days	AT (NC) = 8,760 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days
						AT (Car) = 25,550 days	AT (Car) = 25,550 days		

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA= Information not available.

TABLE 6  
 CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Groundwater (mg/L)  
 IR = Intake Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RID (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	EPC Groundwater (mg/liter)	Park Worker			Construction Worker			Recreational Child Visitor				
				Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk		
Arsenic	3.E-04	1.5E+00	0.004	2.7E-05	9.8E-06	1E-05	3.9E-05	5.6E-07	1E-01	8E-07	1.5E-05	1.1E-06	5E-02	2E-06
Thallium	6.E-04	N/A	0.004	2.7E-05	9.8E-06	4E-02	3.9E-05	5.6E-07	6E-02	8E-07	1.5E-05	1.1E-06	2E-02	2E-06
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>1E-01</b>	<b>1E-05</b>			<b>2E-01</b>	<b>8E-07</b>			<b>7E-02</b>	<b>2E-06</b>
				<b>Assumptions for Park Worker</b>			<b>Assumptions for Construction Worker</b>			<b>Assumptions for Recreational Child Visitor</b>				
				BW = 70 kg	IR = 1 liters/day		BW = 70 kg	IR = 1 liters/day		BW = 15 kg	IR = 1.5 liters/day			
				EF = 175 days/year	ED = 25 years		EF = 250 days/year	ED = 1 years		EF = 14 days/year	ED = 5 years			
				AT (Nc) = 9,125 days	AT (Car) = 25,550 days		AT (Nc) = 365 days	AT (Car) = 25,550 days		AT (Nc) = 1,825 days	AT (Car) = 25,550 days			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A = Information not available.

TABLE 6  
 CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

$$\text{Equation for Intake (mg/kg-day)} = \frac{\text{EPC} \times \text{IR} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}}$$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Groundwater (mg/L)  
 IR = Intake Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

$$\text{Equation for Hazard Quotient} = \text{Chronic Daily Intake (Nc)} / \text{Reference Dose}$$

$$\text{Equation for Cancer Risk} = \text{Chronic Daily Intake (Car)} \times \text{Slope Factor}$$

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	EPC Groundwater (mg/liter)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk			
				Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)				
Arsenic	3.E-04	1.5E+00	0.004	1.1E-04	3.8E-05	3.8E-04	3.3E-05	1E+00	5E-05	1E-04	
Thallium	6.E-04	N/A	0.004	1.1E-04	3.8E-05	3.8E-04	3.3E-05	6E-01	2E+00	1E-04	
<b>Total Hazard Quotient and Cancer Risk:</b>				<b>5E-01</b>		<b>6E-05</b>		<b>2E+00</b>		<b>5E-05</b>	<b>1E-04</b>
				Assumptions for Resident Adult		Assumptions for Resident Child					
				BW = 70 kg	IR = 2 liters/day	BW = 15 kg	IR = 1.5 liters/day				
				EF = 350 days/year	ED = 24 years	EF = 350 days/year	ED = 6 years				
				AT (Nc) = 8,760 days	AT (Car) = 25,550 days	AT (Nc) = 2,190 days	AT (Car) = 25,550 days				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A= Information not available.

TABLE 7  
CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL,  
REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46 SOIL,  
SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CE \times SA \times AF \times ABS \times EV \times EF \times ED}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor  
 EV = Event Frequency  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (NC) / Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RfD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Park Worker		Construction Worker		Recreational Child Visitor		Cancer Risk
						Absorbed Dose (mg/kg-day) (NC)	Hazard Quotient	Absorbed Dose (mg/kg-day) (NC)	Hazard Quotient	Absorbed Dose (mg/kg-day) (NC)	Hazard Quotient	
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	1.7E-02	1.7E-02	3.49E-09	3E-09	2.98E-10	2E-10	2.21E-10	1.61E-10	
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	1.3E-02	1.2E-02	2.64E-09	2E-08	2.20E-10	2E-09	1.67E-10	1.22E-09	
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	1.8E-02	1.8E-02	3.77E-09	3E-09	3.17E-10	2E-10	2.39E-10	1.75E-10	
Benzo(g)h)perylene	N/A	N/A	1.3E-01	1.7E-02	1.7E-02							
Benzo(k)fluoranthene	N/A	7.3E-02	1.3E-01	1.5E-02	1.5E-02	3.14E-09	2E-10	2.72E-10	2E-11	1.99E-10	1.45E-11	
Chrysene	3.00E-04	7.3E-03	1.3E-01	1.9E-02	1.9E-02	3.91E-09	3E-11	2.34E-08	2E-12	3.47E-09	1.81E-12	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	1.9E-02	2.1E-02	3.99E-09	3E-09	3.86E-10	3E-10	2.53E-10	1.84E-10	
Phenanthrene	N/A	N/A	1.3E-01	1.1E-02	1.0E-02							
Dieldrin	5.00E-05	1.6E+01	1E-01	1.4E-02	1.1E-02	2.30E-09	4E-08	1.09E-08	3E-09	2.04E-09	4.08E-05	
Endrin ketone	N/A	N/A	4E-02	3.1E-03	3.1E-03							
Aluminum	1.00E+00	N/A	1E-03	1.4E+04	1.4E+04	6.39E-05	6E-05	1.32E-04	1E-04	2.02E-05	2.02E-05	
Arsenic	3.00E-04	1.5E+00	3E-02	5.5E+00	5.3E+00	7.52E-07	4E-07	1.54E-06	3E-08	2.38E-07	7.94E-04	
Cobalt	3.00E-04	N/A	1E-03	1.2E+01	1.2E+01	5.49E-08	2E-04	1.13E-07	4E-04	1.74E-08	5.80E-05	
Iron	3.00E-01	N/A	1E-03	2.7E+04	2.7E+04	1.23E-04	4E-04	2.57E-04	9E-04	3.90E-05	1.30E-04	
Lead	N/A	N/A	1E-03	3.4E+01	3.1E+01							
Manganese	9.60E-04	N/A	1E-03	6.7E+02	6.5E+02	3.03E-06	3E-03	6.26E-06	7E-03	9.61E-07	1.00E-03	
Thallium	6.47E-04	N/A	1E-03	2.1E+00	2.1E+00	9.56E-09	1E-05	1.99E-08	3E-05	3.03E-09	4.68E-06	
<b>Total Hazard Quotient and Cancer Risk:</b>							<b>7E-03</b>		<b>1E-02</b>		<b>2E-03</b>	<b>3E-08</b>

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA = Information not available.

\* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1).  
 Absorption factor for VOC was assumed to be 0.01 and metals not presented in the EPA (2004) document, assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins  
 (<http://www.epa.gov/region4/waste/oss/healthbul.htm>)

Absorption factor for pesticides was assumed to be 0.037 in accordance with the average absorption factor of chlordane (0.03), DDT (0.04), and lindane (0.04) in accordance with USEPA Region 4 (2000).

Assumptions for Park Worker		Assumptions for Construction Worker		Assumptions for Recreational Child Visitor	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
CS =	EPC Surface Only	EPC =	EPC Surface and Subsurface	EPC =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	15 kg
SA =	3,300 cm <sup>2</sup>	SA =	3,300 cm <sup>2</sup>	SA =	2,800 cm <sup>2</sup>
AF =	0.2 mg/cm <sup>2</sup> -event	AF =	0.3 mg/cm <sup>2</sup> -event	AF =	0.2 mg/cm <sup>2</sup> -event
EV =	1 event/day	EV =	1 event/day	EV =	1 event/day
EF =	175 days/year	EF =	250 days/year	EF =	14 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (NC) =	9,125 days	AT (NC) =	365 days	AT (NC) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

TABLE 7  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46 SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{B \times W \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor

Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day) <sup>-1</sup>	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk	
						Absorbed Dose (mg/kg-day) (Ne)	Hazard Quotient	Absorbed Dose (mg/kg-day) (Ne)	Hazard Quotient		
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	1.7E-02	1.7E-02	4.05E-09	3E-09	6.63E-09	4.84E-09	8E-09	
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	1.3E-02	1.2E-02	3.06E-09	2E-08	5.01E-09	3.66E-08	6E-08	
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	1.8E-02	1.8E-02	4.38E-09	3E-09	7.17E-09	5.24E-09	8E-09	
Benzo(g,h)perylene	N/A	N/A	1.3E-01	1.7E-02	1.7E-02	3.65E-09	3E-10	5.97E-09	4.30E-10	7E-10	
Benzo(k)fluoranthene	N/A	7.3E-02	1.3E-01	1.3E-02	1.3E-02	4.54E-09	3E-11	7.43E-09	5.42E-11	9E-11	
Chrysene	3.00E-04	7.3E-03	1.3E-01	1.9E-02	1.9E-02	4.63E-09	3E-09	7.58E-09	5.53E-09	9E-09	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	1.9E-02	2.1E-02	4.63E-09	3E-09	7.58E-09	5.53E-09	9E-09	
Phenanthrene	N/A	N/A	1.3E-01	1.1E-02	1.0E-02	2.67E-09	4E-08	4.37E-09	1.02E-03	1E-07	
Dieldrin	5.00E-05	1.6E+01	1E-01	1.4E-02	1.1E-02	2.67E-09	2E-04	4.37E-09	1.02E-03	1E-07	
Endrin ketone	N/A	N/A	1E-02	3.1E-03	3.1E-03	7.72E-05	8E-05	5.06E-04	5.06E-04	1E-06	
Aluminum	1.00E+00	N/A	4E-03	1.4E-04	1.4E-04	9.10E-07	3E-03	5.96E-06	1.99E-02	7.66E-07	
Arsenic	3.00E-04	1.5E+00	3E-02	5.5E+00	5.3E+00	3.12E-07	5E-07	9.75E-04	3.25E-03	1E-06	
Cobalt	3.00E-04	N/A	1E-03	1.2E+01	2E-04	6.64E-08	2E-04	4.35E-07	1.45E-03	1E-06	
Iron	3.00E-01	N/A	1E-03	2.7E+04	2.7E+04	1.49E-04	5E-04	9.75E-04	3.25E-03	1E-06	
Lead	N/A	N/A	1E-03	3.4E+01	3.1E+01	3.67E-06	4E-03	2.40E-05	2.50E-02	1E-06	
Manganese	9.60E-04	N/A	1E-03	6.7E+02	6.3E+02	1.16E-08	2E-05	7.57E-08	1.17E-04	1E-06	
Thallium	6.47E-04	N/A	1E-03	2.1E+00	2.1E+00	1.16E-08	2E-05	7.57E-08	1.17E-04	1E-06	
<b>Total Hazard Quotient and Cancer Risk:</b>											
						<b>8E-03</b>	<b>5E-07</b>		<b>5E-02</b>	<b>9E-07</b>	<b>1E-06</b>

Assumptions for Resident (Adult)		Assumptions for Resident (Child)	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC =	EPC Surface Only	EPC =	EPC Surface Only
BW =	70 kg	BW =	15 kg
SA =	5,700 cm <sup>2</sup>	SA =	2,800 cm <sup>2</sup>
AF =	0.07 mg/cm <sup>2</sup> -event	AF =	0.2 mg/cm <sup>2</sup> -event
EV =	1 event/day	EV =	1 event/day
EF =	350 days/year	EF =	350 days/year
ED =	24 years	ED =	6 years
AT (Ne) =	8,760 days	AT (Ne) =	2,190 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

\* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I)

Absorption factor for VOC was assumed to be 0.01 and metals not presented in the EPA (2004) document, assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins

(<http://www.epa.gov/region4/waste/os/healthbul.htm>)

Absorption factor for pesticides was assumed to be 0.037 in accordance with the average absorption factor of chlordane (0.03), DDT (0.04), and lindane (0.04) in accordance with USEPA Region 4 (2000).



TABLE 8  
CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER  
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-46  
SENECA ARMY DEPOT ACTIVITY

Equation for Dermal (mg/kg-day) = $\frac{DA \times SA \times EF \times ED \times EV}{BW \times AT}$	Equation for Absorbed Dose per Event (DA): For inorganic DA = $K_p \times EPC \times I_{event} \times C$ For organic: $H_{event} < I^*$ , then: $DA_{event} = 2 \times FA \times K_p \times EPC \times C \times (6 \times I_{event} \times I_{event}) / p^{1/2}$ if $I_{event} > I^*$ , then: $DA_{event} = FA \times K_p \times EPC \times C \times [I_{event} / (1 + B) + 2 \times I_{event} \times (1 + 3 \times B + 3 \times B^2) / (1 + B)^2]$
Variables (Assumptions for Each Receptor are Listed at the Bottom): DA = Absorbed Dose per Event, mg/cm <sup>2</sup> -event SA = Surface Area Contact EF = Exposure Frequency EV = Event Frequency	$K_p$ = Permeability Coefficient, cm/hr EPC = EPC in Groundwater, mg/L C = Conversion Factor, 10 <sup>3</sup> L/cm <sup>3</sup> B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless) FA = Fraction absorbed water (dimensionless) B = $K_p (MW)^{1/2} / 2.6$ I <sub>event</sub> is Lag Time per event (hr/event) = 0.105 x 10 <sup>6</sup> (SSAW) I* is time to reach steady-state (hr) I <sub>event</sub> = duration of event, hr/event

Equation for Hazard Quotient = Chronic Daily Intake (NC)  
Reference Dose  
Equation for Cancer Risk = Chronic Daily Intake (Car)  
x Slope Factor

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day) <sup>-1</sup>	Permeability Coefficient (cm/hr)	I <sub>event</sub> (hr/event)	Fraction Absorbed Water	B	I* (hour)	EPC Ground Water (mg/L)	Absorbed Dose/Event (mg/cm <sup>2</sup> -event)	Park Worker			Construction Worker			Recreational Child Visitor		
										Intake (mg/kg-day) (NE)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (NE)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (NE)	Hazard Quotient (Car)	Cancer Risk
Arsenic	3.E-04	1.5E+00	1.00E-03	8.9.E-01	1.00E+00	5.0.E-03	2.1.E+00	4.E-03	7.4.E-09	7E-08	1E-09	2E-04	4E-05	2E-09				
Thallium	6.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	4.E-03	2.5.E-09	2E-08	1E-09	4E-05	4E-05	2E-09				
<b>Total Hazard Quotient and Cancer Risk:</b>																		
										Assumptions for Construction Worker								
										BW = 70 kg SA = 2,490 cm <sup>2</sup> EV = 1 event/day EF = 100 days/year ED = 1 years I <sub>event</sub> = 0.5 hr/event AT (NE) = 365 days AT (Car) = 25,550 days								

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
NA= Information not available.  
Kp value from Exhibit B1 or B-2 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For chemicals that did not have a Kp value listed in Exhibit B-1 or B-2, Kp was calculated using:  
 $Kp = 10^{-2} \times 0.66 (\log \text{Kow}) + 0.0056 (MW)$

TABLE 8  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

<p>Equation for Dermal (mg/kg-day) = <math>\frac{DA \times SA \times EF \times ED \times EV}{BW \times AT}</math></p> <p>Variables (Assumptions for Each Receptor are Listed at the Bottom):</p> <p>DA = Absorbed Dose per Event, mg/cm<sup>2</sup>-event                  SA = Surface Area Contact                  EF = Exposure Frequency                  EV = Event Frequency</p>	<p>Equation for Absorbed Dose per Event (DA):</p> <p><math>K_p</math> = Permeability Coefficient, cm/hr                  EPC = EPC in Groundwater, mg/L                  C = Conversion Factor, 10<sup>3</sup> L/cm<sup>3</sup></p> <p>For inorganic DA = <math>K_p \times EPC \times t_{vent} \times C</math>                  For organics If <math>t_{vent} &lt; t^*</math>, then: <math>DA_{vent} = 2 \times FA \times K_p \times EPC \times C \times (6 \times t_{vent} \times t_{vent} / p)^{1/2}</math>                  if <math>t_{vent} &gt; t^*</math>, then: <math>DA_{vent} = FA \times K_p \times EPC \times C \times [ (t_{vent} / 1 + B) + 2 \times t_{vent} \times (1 + 3B + 3B^2) / (1 + B)^2 ]</math></p> <p>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)  <math>FA = \text{Fraction absorbed water (dimensionless)}</math>                  If <math>B &lt; 0.6</math>, then <math>t^* = 2.4 \times t_{vent}</math>                  If <math>B &gt; 0.6</math>, then <math>t^* = 6 \times t_{vent} \times (b - \text{SQRT}(b^2 - c^2))</math>  <math>b = ((2(1-B))^2 / p) - c</math>  <math>c = (1 - 3B - 3B^2) / 3(1+B)</math></p> <p><math>B = K_p (MW)^{1/2} / 2.6</math>  <math>t_{vent}</math> is Lag Time per event (hr/event) = <math>0.105 \times 10^{0.00056W}</math>  <math>t^*</math> is time to reach steady-state (hr)  <math>t_{vent}</math> = duration of event, hr/event</p>
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Equation for Hazard Quotient = Chronic Daily Intake (NDI) Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Permeability Coefficient $K_p$ (cm/hr)	$t_{vent}$ (hr/event)	Fraction Absorbed Water	B	$t^*$ (hour)	EPC Ground Water (mg/L)	Absorbed Dose/Event (mg/cm <sup>2</sup> -event)	Resident Adult		Resident Child		Resident	
										Intake (mg/kg-day) (NE)	Hazard Quotient (Car)	Intake (mg/kg-day) (Car)	Hazard Quotient	Cancer Risk	Cancer Risk
Arsenic	3.E-04	1.5E+00	1.00E-03	8.9.E-01	1.00E+00	5.0.E-03	2.1.E+00	4.E-03	1.0.E-08	3.E-06	9E-07	4E-06	1E-02	6E-07	2E-06
Thallium	6.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	4.E-03	3.6.E-09	9E-07	1E-03	2E-06	2E-03	6E-07	0E+00
<b>Total Hazard Quotient and Cancer Risk:</b>										1E-02	1E-02	2E-02	6E-07	2E-06	
<b>Assumptions for Resident Adult</b>										<b>Assumptions for Resident Child</b>					
BW = 70 kg										BW = 15 kg					
SA = 18,000 cm <sup>2</sup>										SA = 6,600 cm <sup>2</sup>					
EV = 1 event/day										EV = 1 event/day					
EF = 350 days/year										EF = 350 days/year					
ED = 24 years										ED = 6 years					
$t_{vent}$ = 0.58 hr/event										$t_{vent}$ = 1 hr/event					
AT (NE) = 8,760 days										AT (NE) = 2,190 days					
AT (Car) = 25,550 days										AT (Car) = 25,550 days					

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA= Information not available.  
 Kp value from Exhibit B1 or B-2 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For chemicals that did not have a Kp value listed in Exhibit B-1 or B-2, Kp was calculated using:  
 $K_p = 10^{(-2.80 - 0.66(\log Kow) - 0.0056(MW))}$

TABLE 9  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF GROUNDWATER (WHILE SHOWERING)  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times L_{cont} \times EV \times EF \times ED}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Air (mg/m<sup>3</sup>)  
 L<sub>event</sub> = Event Duration  
 IR = Inhalation Rate  
 EF = Exposure Frequency

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RID (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	EPC* Air Adult (mg/m <sup>3</sup> )	EPC* Air Child (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Resident Total Lifetime Cancer Risk
					Hazard Quotient	Contribution to Lifetime Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	
Arsenic	N/A	4.30E-03	1.89E-02	1.89E-02					
Thallium	N/A	N/A	NA	NA					
<b>Total Hazard Quotient and Cancer Risk:</b>									
					Assumptions for Future Resident (Adult)				
					Assumptions for Future Resident (Child)				
					BW =	70 kg	BW =	15 kg	
					IR =	1.0 m <sup>3</sup> /hr	IR =	1.0 m <sup>3</sup> /hr	
					L <sub>event</sub> =	0.58 hr/event	L <sub>event</sub> =	1.0 hr/event	
					EV =	1 event/day	EV =	1 event/day	
					EF =	350 days/year	EF =	350 days/year	
					ED =	24 years	ED =	6 years	
					AT (Nc) =	8,760 days	AT (Nc) =	2,190 days	
					AT (Car) =	25,550 days	AT (Car) =	25,550 days	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

\* EPC air is the concentration of chemical available for inhalation after accounting for partitioning between the air and water in the shower.



TABLE 10  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46 SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = EPC in Air, mg/m<sup>3</sup>  
 IR = Inhalation Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	Air EPC from Surface Soil (mg/m <sup>3</sup> )	Air EPC from Total Soils (mg/m <sup>3</sup> )	Park Worker			Construction Worker			Recreational Child Visitor		
					Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk
Benzo(a)anthracene	N/A	N/A	7.1E-10	7.1E-10	1.06E-11	7.64E-13	8.59E-13	3E-12	8.59E-13	15 kg	3E-12		
Benzo(a)pyrene	N/A	3.85E+00	5.4E-10	5.3E-10	1.51E-11	1.10E-12	1.23E-12	4E-13	1.23E-12	15 kg	5E-13		
Benzo(b)fluoranthene	N/A	3.85E-01	7.7E-10	7.6E-10						8.7 m <sup>3</sup> /day			
Benzo(ghi)perylene	N/A	N/A	7.3E-10	7.3E-10						14 days/year			
Benzo(k)fluoranthene	N/A	3.85E-01	6.4E-10	6.5E-10	1.26E-11	9.44E-13	1.02E-12	4E-13	1.02E-12	5 years	4E-13		
Chrysene	N/A	3.85E-02	8.0E-10	8.0E-10	1.57E-11	1.16E-12	1.27E-12	4E-14	1.27E-12	5 years	5E-14		
Indeno(1,2,3-cd)pyrene	N/A	3.85E-01	8.2E-10	9.2E-10	1.60E-11	1.34E-12	1.30E-12	5E-13	1.30E-12	1.825 days	5E-13		
Phenanthrene	N/A	N/A	4.7E-10	4.5E-10						25,550 days			
Dieldrin	N/A	1.61E+01	6.1E-10	4.9E-10	1.20E-11	7.07E-13	9.73E-13	1E-11	9.73E-13		2E-11		
Endrin ketone	N/A	N/A	1.3E-10	1.3E-10									
Aluminum	1.43E-03	N/A	6.1E-04	5.9E-04	3.33E-05	5.98E-05	1.35E-05	5E-09	3.33E-10	9E-03	6E-09		
Arsenic	N/A	1.51E+01	2.4E-07	2.3E-07	4.67E-09	7.32E-10	8.31E-10	2E-08	7.32E-10	7E-03	3E-08		
Cobalt	1.71E-06	3.15E+01	5.2E-07	5.0E-07	2.86E-08	1.02E-08	2E-02	3E-07	1.16E-08				
Iron	N/A	N/A	1.2E-03	1.1E-03									
Lead	N/A	N/A	1.5E-06	1.3E-06	1.58E-06	2.83E-06	6.42E-07	2E-01	6.42E-07	4E-02			
Manganese	1.43E-05	N/A	2.9E-05	2.8E-05									
Thallium	N/A	N/A	9.1E-08	8.9E-08									
<b>Total Hazard Quotient and Cancer Risk:</b>								<b>2E-01</b>	<b>3E-01</b>	<b>6E-02</b>	<b>3E-08</b>		
					Assumptions for Park Worker			Assumptions for Construction Worker			Assumptions for Recreational Child Visitor		
					CA = EPC Surface Only	CA = EPC Surface and Sub-Surface	CA = EPC Surface Only				CA = EPC Surface Only		
					BW = 70 kg	BW = 70 kg	BW = 15 kg				BW = 15 kg		
					IR = 8 m <sup>3</sup> /day	IR = 10.4 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day				IR = 8.7 m <sup>3</sup> /day		
					EF = 175 days/year	EF = 250 days/year	EF = 14 days/year				EF = 14 days/year		
					ED = 25 years	ED = 1 year	ED = 5 years				ED = 5 years		
					AT (Nc) = 9,125 days	AT (Nc) = 365 days	AT (Nc) = 1,825 days				AT (Nc) = 1,825 days		
					AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days				AT (Car) = 25,550 days		

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA= Information not available.

TABLE 10  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	Air EPC (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Resident Total Lifetime Cancer Risk							
				Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Contribution to Lifetime Cancer Risk	Intake (mg/kg-day) (Nc)		Hazard Quotient (Car)	Contribution to Lifetime Cancer Risk					
											Assumptions for Resident Adult		Assumptions for Resident Child		
Benzo(a)anthracene	N/A	N/A	7.1E-10	5.08E-11	7.27E-11	2.58E-11	3.69E-11	1E-10	1E-11	3E-10					
Benzo(a)pyrene	N/A	3.85E+00	5.4E-10	7.27E-11	7.27E-11	3.07E-11	3.82E-11	1E-11	1E-12	4E-11					
Benzo(b)fluoranthene	N/A	3.85E-01	7.7E-10	6.05E-11	7.52E-11	3.07E-11	3.82E-11	1E-11	1E-12	4E-11					
Benzo(ghi)perylene	N/A	N/A	7.3E-10	7.68E-11	7.68E-11	3.90E-11	3.90E-11	2E-11	2E-11	4E-11					
Chrysene	N/A	3.85E-02	6.4E-10	5.75E-11	5.75E-11	1.14E-08	2.49E-08	2E-07	8E-07	5E-07					
Indeno(1,2,3-cd)pyrene	N/A	3.85E-01	8.2E-10	1.43E-07	4.91E-08	2.91E-07	2.91E-07	2E-01	2E-01	2E-06					
Phenanthrene	N/A	N/A	4.7E-10	7.91E-06	7.91E-06	1.60E-05	1.60E-05	1E+00	1E+00	1E-09					
Dieldrin	N/A	1.61E+01	6.1E-10	1.66E-04	2.24E-08	3.38E-04	3.38E-04	2E-01	2E-01	5E-07					
Endrin ketone	N/A	N/A	1.3E-10	1.43E-07	4.91E-08	2.91E-07	2.91E-07	2E-01	2E-01	2E-06					
Aluminum	1.43E-03	N/A	6.1E-04	7.91E-06	7.91E-06	1.60E-05	1.60E-05	1E+00	1E+00	3E-06					
Arsenic	N/A	1.51E+01	2.4E-07	1.43E-07	4.91E-08	2.91E-07	2.91E-07	2E-01	2E-01	3E-06					
Cobalt	1.71E-06	3.15E+01	5.2E-07	1.43E-07	4.91E-08	2.91E-07	2.91E-07	2E-01	2E-01	3E-06					
Iron	N/A	N/A	1.2E-03	7.91E-06	7.91E-06	1.60E-05	1.60E-05	1E+00	1E+00	3E-06					
Lead	N/A	N/A	1.5E-06	7.91E-06	7.91E-06	1.60E-05	1.60E-05	1E+00	1E+00	3E-06					
Manganese	1.43E-05	N/A	2.9E-05	7.91E-06	7.91E-06	1.60E-05	1.60E-05	1E+00	1E+00	3E-06					
Thallium	N/A	N/A	9.1E-08	7.91E-06	7.91E-06	1.60E-05	1.60E-05	1E+00	1E+00	3E-06					
<b>Total Hazard Quotient and Cancer Risk:</b>									<b>2E-06</b>		<b>2E-06</b>		<b>3E-06</b>		
				Assumptions for Resident Adult				Assumptions for Resident Child							
				CA = EPC Surface Only	CA = EPC Surface Only	BW = 70 kg		BW = 15 kg		IR = 20 m <sup>3</sup> /day		IR = 8.7 m <sup>3</sup> /day		EF = 350 days/year	
				IR = 20 m <sup>3</sup> /day	IR = 20 m <sup>3</sup> /day	EF = 350 days/year		EF = 350 days/year		ED = 24 years		ED = 6 years		AT (Nc) = 2,190 days	
				EF = 350 days/year	EF = 350 days/year	AT (Nc) = 8,760 days		AT (Nc) = 8,760 days		AT (Car) = 25,550 days		AT (Car) = 25,550 days		AT (Car) = 25,550 days	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A = Information not available.

TABLE 11  
 CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS SEAD-46  
 REASONABLE MAXIMUM EXPOSURE (RME)  
 SENECA ARMY DEPOT ACTIVITY

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent	Cancer Risk	Percent
<u>PARK WORKER</u>	Inhalation of Dust in Ambient Air	2E-01	35%	4E-07	2%
	Ingestion of Soil	1E-01	32%	2E-06	12%
	Intake of Groundwater	1E-01	31%	1E-05	83%
	Dermal Contact to Soil	7E-03	2%	5E-07	3%
	Dermal Contact to Groundwater	NA		NA	
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>1E-01</b>	<b>100%</b>	<b>2E-05</b>	<b>100%</b>
<u>CONSTRUCTION WORKER</u>	Inhalation of Dust in Ambient Air	3E-01	24%	3E-08	2%
	Ingestion of Soil	6E-01	57%	4E-07	31%
	Intake of Groundwater	2.E-01	17%	8E-07	64%
	Dermal Contact to Soil	1E-02	1%	4E-08	3%
	Dermal Contact to Groundwater	3E-04	0%	2E-09	0%
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>1E+00</b>	<b>100%</b>	<b>1E-06</b>	<b>100%</b>
<u>RECREATIONAL CHILD VISITOR</u>	Inhalation of Dust in Ambient Air	6E-02	26%	3E-08	2%
	Ingestion of Soil	1E-01	42%	3E-07	16%
	Intake of Groundwater	7E-02	31%	2E-06	81%
	Dermal Contact to Soil	2E-03	1%	3E-08	1%
	Dermal Contact to Groundwater	NA		NA	
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>2E-01</b>	<b>100%</b>	<b>2E-06</b>	<b>100%</b>
<u>RESIDENT (ADULT)</u>	Inhalation of Dust in Ambient Air	8E-01	48%	2E-06	3%
	Inhalation of Groundwater	NA		NA	
	Ingestion of Soil	3E-01	17%	4E-06	6%
	Intake of Groundwater	5E-01	34%	6E-05	88%
	Dermal Contact to Soil	8E-03	0%	5E-07	1%
	Dermal Contact to Groundwater	1E-02	1%	1E-06	2%
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>2E+00</b>	<b>100%</b>	<b>6E-05</b>	<b>100%</b>
<u>RESIDENT (CHILD)</u>	Inhalation of Dust in Ambient Air	2E+00	26%	1E-06	2%
	Inhalation of Groundwater	NA		NA	
	Ingestion of Soil	2E+00	42%	1E-05	16%
	Intake of Groundwater	2E+00	31%	5E-05	81%
	Dermal Contact to Soil	5E-02	1%	9E-07	1%
	Dermal Contact to Groundwater	2E-02	0%	6E-07	1%
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>6E+00</b>	<b>100%</b>	<b>6E-05</b>	<b>100%</b>
<u>RESIDENT (TOTAL)</u>	Inhalation of Dust in Ambient Air			3E-06	2%
	Inhalation of Groundwater			0E+00	0%
	Ingestion of Soil			1E-05	11%
	Intake Groundwater			1E-04	84%
	Dermal Contact to Soil			1E-06	1%
	Dermal Contact to Groundwater			2E-06	2%
	<b>TOTAL RECEPTOR CANCER RISK</b>			<b>1E-04</b>	<b>100%</b>

NA - Not Applicable





TABLE 12  
SEAD-57 RESIDENT ADULT LEAD BLOOD CALCULATION  
SENECA ARMY DEPOT ACTIVITY

**Calculations of Blood Lead Concentrations (PbBs)**

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 6/21/09

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	31.0	31.0
$R_{\text{fetal/maternal}}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
$GSD_i$	Geometric standard deviation PbB	--	1.8	2.1
$PbB_0$	Baseline PbB	ug/dL	1.0	1.5
$IR_S$	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
$IR_{S,D}$	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
$W_S$	Weighting factor; fraction of $IR_{S,D}$ ingested as outdoor soil	--	--	--
$K_{SD}$	Mass fraction of soil in dust	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365
$PbB_{\text{adult}}$	PbB of adult worker, geometric mean	ug/dL	1.0	1.5
$PbB_{\text{fetal}, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.5	4.7
$PbB_t$	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	10.0	10.0
$P(PbB_{\text{fetal}} > PbB_t)$	Probability that fetal PbB > $PbB_t$ , assuming lognormal distribution	%	0.0%	0.4%

LEAD MODEL FOR WINDOWS Version 1.1

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Model Version: 1.1 Build9

User Name:

Date:

Site Name:

Operable Unit:

Run Mode: Research  
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\*\*\*\*\* Air \*\*\*\*\*

Indoor Air Pb Concentration: 30.000 percent of outdoor.

Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m <sup>3</sup> /day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m <sup>3</sup> )
.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(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

\*\*\*\*\* Drinking Water \*\*\*\*\*

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
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 µg Pb/L

\*\*\*\*\* Soil & Dust \*\*\*\*\*

Multiple Source Analysis Used

Average multiple source concentration: 33.730 µg/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 ( $\mu\text{g Pb/g}$ )	House Dust ( $\mu\text{g Pb/g}$ )
.5-1	33.900	33.730
1-2	33.900	33.730
2-3	33.900	33.730
3-4	33.900	33.730
4-5	33.900	33.730
5-6	33.900	33.730
6-7	33.900	33.730

\*\*\*\*\* Alternate Intake \*\*\*\*\*

Age	Alternate ( $\mu\text{g Pb/day}$ )
.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: 1.000  $\mu\text{g Pb/dL}$

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**CALCULATED BLOOD LEAD AND LEAD UPTAKES:**

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Year	Air ( $\mu\text{g/day}$ )	Diet ( $\mu\text{g/day}$ )	Alternate ( $\mu\text{g/day}$ )	Water ( $\mu\text{g/day}$ )
.5-1	0.021	1.101	0.000	0.390
1-2	0.034	0.953	0.000	0.972
2-3	0.062	1.039	0.000	1.014
3-4	0.067	0.999	0.000	1.038
4-5	0.067	0.959	0.000	1.082
5-6	0.093	1.010	0.000	1.143
6-7	0.093	1.095	0.000	1.164

Year	Soil+Dust ( $\mu\text{g/day}$ )	Total ( $\mu\text{g/day}$ )	Blood ( $\mu\text{g/dL}$ )
.5-1	0.840	2.351	1.3
1-2	1.331	3.290	1.4
2-3	1.335	3.450	1.3
3-4	1.340	3.443	1.2
4-5	0.998	3.105	1.1
5-6	0.899	3.146	1.0
6-7	0.850	3.202	0.9



**Attachment B**

**SEAD-57 – Explosive Ordinance Detonation Area**





















TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-57 SD57-6 Diebsoil 573020	SEAD-57 SD57-31 Diebsoil 573021	SEAD-57 SD57-32 Diebsoil 573022	SEAD-57 SD57-28 Diebsoil 573024	SEAD-57 SD57-30 Diebsoil 573026	SEAD-57 SD57-10 Diebsoil 573030	SEAD-57 SD57-9 Diebsoil 573033	SEAD-57 SD57-19 Diebsoil 573035	SEAD-57 SD57-20 Diebsoil 573034
Endosulfan I	UG/KG	5.2	1%	2400	0	1	119	0	0	0	0	0	0	0	0	0
Endosulfan II	UG/KG	3.1	1%	2400	0	1	119	0	0	0	0	0	0	0	0	0
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	119	0	0	0	0	0	0	0	0	0
Endrin	UG/KG	0	0%	14	0	0	119	0	0	0	0	0	0	0	0	0
Endrin aldehyde	UG/KG	3.8	1%	0	0	0	119	0	0	0	0	0	0	0	0	0
Endrin ketone	UG/KG	4	1%	0	0	0	119	0	0	0	0	0	0	0	0	0
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	119	0	0	0	0	0	0	0	0	0
Gamma-Chlordane	UG/KG	0	0%	100	0	0	119	0	0	0	0	0	0	0	0	0
Hepachlor	UG/KG	1.6	1%	42	0	1	119	0	0	0	0	0	0	0	0	0
Hepachlor epoxide	UG/KG	2	1%	0	0	1	119	0	0	0	0	0	0	0	0	0
Methoxychlor	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0
Toxaphene	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0
<b>Herbicides</b>																
2,4,5-T	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0	0
2,4,5-TP/Silvex	UG/KG	0	0%	3800	0	0	18	0	0	0	0	0	0	0	0	0
2,4-D	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0	0
2,4-DB	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0	0
Dalapon	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0	0
Dicamba	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0	0
Dichloroprop	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0	0
Dinoseb	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0	0
MCPA	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0	0
MCPP	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0	0
<b>Metals and Cyanide</b>																
Aluminum	MG/KG	22900	100%	0	0	119	119	14500 J	16000 J	13400 J	14300 J	14700 J	14700 J	9990 J	17800 J	16300 J
Antimony	MG/KG	6.5	49%	0	0	58	119	0.49 UJ	0.56 J	0.56 J	0.56 J	0.56 J	0.56 J	0.52 J	1.1 J	0.75 J
Arsenic	MG/KG	17.8	92%	13	1	110	119	2.2 J	3.5 J	4.7 J	4.7 J	4.1 J	4.1 J	3.3 J	5.6 J	4.7 J
Barium	MG/KG	237	100%	350	0	119	119	105	92.3	74.5	74.5	85.7	85.7	88.5	169	149
Beryllium	MG/KG	1.8	100%	7.2	0	119	119	0.99 J	0.75 J	0.75 J	0.75 J	0.82 J	0.82 J	0.9 J	1.1 J	0.96 J
Cadmium	MG/KG	28.6	22%	2.5	6	26	119	0.16 J	0.05 U	0.04 U	0.04 U	0.04 U	0.04 U	0.09 J	0.16 J	0.17 J
Calcium	MG/KG	213000	100%	0	0	119	119	3130	3440	1880	1880	2050	2050	3200	3670	3620
Chromium	MG/KG	32.1	100%	30	2	119	119	20 J	17.2 J	17.2 J	18.8 J	19.7 J	18.8 J	14.2 J	25.2 J	24.4 J
Cobalt	MG/KG	29.7	100%	0	0	119	119	13.4 J	9.8 J	7.2 J	7.6 J	8.8 J	8.8 J	6.2 J	12	10.7 J
Copper	MG/KG	2930	92%	50	2	109	119	44.4	17.8	15.3	14.8	20.1	17.5	16.6	29.6	26.7
Cyanide	MG/KG	0	0%	27	0	0	119	0.73 U	0.72 U	0.68 U	0.68 U	0.65 U	0.65 U	0.61 U	0.61 U	0.68 U
Iron	MG/KG	39800	100%	0	0	119	119	37200	30100 J	30100 J	30100 J	33700 J	34800 J	32200 J	32200 J	29900 J
Lead	MG/KG	1860	100%	63	2	119	119	28.7 J	25.3 J	24.1 J	17.4 J	21.6 J	21.6 J	8.3 J	28.6 J	22.2 J
Magnesium	MG/KG	27600	100%	0	0	119	119	4310	3140	3140	3360	3650	3650	3210	5530	5180
Manganese	MG/KG	2580	100%	1600	5	119	119	292 J	310 J	310 J	346 J	426 J	426 J	409 J	601 J	601 J
Mercury	MG/KG	0.15	75%	0.18	0	89	119	0.12 J	0.12 J	0.07 U	0.07 U	0.06 U	0.06 U	0.06 U	0.07 U	0.06 U
Nickel	MG/KG	54.1	100%	30	37	119	119	28.8	18.3	16.2	17.2	21.6	21.6	19.5	36.7	41.8
Potassium	MG/KG	3250	100%	0	0	119	119	1520 J	1280 J	1280 J	1030 J	1150 J	1150 J	901 J	1740	1520
Selenium	MG/KG	7.7	63%	3.9	0	75	119	0.9 U	0.68 U	0.62 U	0.54 U	0.59 U	0.59 U	0.59 U	1.3	0.84 J
Silver	MG/KG	2	38%	2	0	45	119	0.36 J	0.3 J	0.37 J	0.28 J	0.28 J	0.28 J	0.31 UJ	0.28 UJ	0.31 UJ
Sodium	MG/KG	270	34%	0	0	41	119	104 J	64.3 J	72 J	61.3 J	68.8 U	68.8 U	71.3 J	62.3 U	68.8 U
Thallium	MG/KG	6	82%	0	0	98	119	1.4 J	1.3 J	1.8 J	1.1 J	1.2 J	1.2 J	1.3 J	2.6	2.6
Titanium	MG/KG	104	99%	0	0	118	119	27	29.3	28.1	30.1	27.5	27.5	20	32.7	27.4
Vanadium	MG/KG	1250	93%	109	11	111	119	69.7	50.9	47.2	59	59	64.2	91.2	96.1	96.1
<b>Other Analytes</b>																
Cation exchange capacity	MEQ/100G	31.4	100%	0	0	32	32	26.8	24.4	15.5	13.5	11.5	10.8	11.4	11.8	18
Nitrate/Nitrite-Nitrogen	MG/KG	4.4	98%	0	0	99	101	0.24	0.11	0.44	0.07	0.33	0.15	0.04	0.14	0.22
Percent Solids	% WW	94	100%	0	0	101	101	65.4	69.7	69.7	72	72.2	72.6	80.9	64	71.2
Soil pH (at4 units)	pH units	7.83	100%	0	0	33	33	6.76	6.23	6.86	6.25	6.5	7	6.72	7.35	6.99
Total Organic Carbon	MG/KG	70500	100%	0	0	32	32	41500	35900	28000	15000	19200	22400	16400	9580	31000

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/webdec/regs/subpart375\\_6.html](http://www.dec.state.ny.us/webdec/regs/subpart375_6.html)  
 (2) Sample duplicate pairs were treated as discreet samples.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.









TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-57 SB57-4		SEAD-57 SB57-5		SEAD-57 SB57-6		SEAD-57 SB57-7	
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
								574004	574005	574002	574022	574019	574021	574017	574018
								P1 S1 RI	P1 S1 RI	P1 S1 RI	P1 S1 RI	P1 S1 RI	P1 S1 RI	P1 S1 RI	P1 S1 RI
								SA	SA	SA	SA	SA	SA	SA	SA
								12/03/99	12/03/99	12/07/99	12/05/99	12/05/99	12/05/99	12/05/99	12/03/99
<b>Volatile Organic Compounds</b>															
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
1,1,2-Trichloroethane	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
1,2-Dichloroethane	UG/KG	0	0%	270	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
1,2-Dichloroethane	UG/KG	0	0%	330	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
1,2-Dichloroethane (total)	UG/KG	0	0%	20	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
1,2-Dichloroethane (total)	UG/KG	0	0%	190	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Acetone	UG/KG	700	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Benzene	UG/KG	1	74%	50	87	94	127	210 U	24 U	17 U	14 J	14 J	15 J	16 J	11 U
Bromochloromethane	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Bromomethane	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Carbon disulfide	UG/KG	22	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Chlorodibromomethane	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Chloroethane	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Chloroform	UG/KG	7	1%	370	0	1	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Cis-1,3-Dichloropropene	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Ethyl benzene	UG/KG	0	0%	1000	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Methyl bromide	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Methyl butyl ketone	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Methyl chloride	UG/KG	64	0%	120	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Methyl ethyl ketone	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Methyl isobutyl ketone	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Methylene chloride	UG/KG	1	2%	50	0	2	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Styrene	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Tetrachloroethene	UG/KG	6	6%	1300	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Toluene	UG/KG	33	65%	700	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Total Xylenes	UG/KG	2	2%	260	0	1	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Trans-1,3-Dichloropropene	UG/KG	0	0%	0	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Trichloroethene	UG/KG	0	0%	470	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
Vinyl chloride	UG/KG	0	0%	20	0	0	127	10 U	9 U	12 U	8 U	8 U	8 U	10 U	9 U
<b>Semivolatile Organic Compounds</b>															
1,2,4-Trichlorobenzene	UG/KG	0	0%	1100	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
1,2-Dichlorobenzene	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
1,3-Dichlorobenzene	UG/KG	0	0%	1800	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
1,4-Dichlorobenzene	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2,4-Dimethylphenol	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2,4-Dinitrophenol	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2,4-Dinitrophenol	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2,4-Dinitrophenol	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2-Chlorophthalate	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2-Chlorophthalate	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2-Methylphthalate	UG/KG	0	0%	330	0	3	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2-Methylphthalate	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2-Nitrophenol	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
2-Nitrophenol	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
3,3-Dichlorobenzidine	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
3-Nitroanisole	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
4-Bromophenyl phenyl ether	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
4-Chloro-3-methylphenol	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
4-Chloroanisole	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
4-Chlorophenyl phenyl ether	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
4-Methylphenol	UG/KG	13	3%	330	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
4-Nitroanisole	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
4-Nitrophenol	UG/KG	0	0%	0	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
Acephenanthrene	UG/KG	0	0%	20000	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U
Acephenanthrene	UG/KG	0	0%	100000	0	0	119	82 U	76 U	86 U	75 U	74 U	74 U	74 U	85 U







**TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY**

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-57				
								P1/S1/R1	P1/S1/R1	P1/S1/R1	P1/S1/R1	
Anthrane	UG/KG	8.2	3%	100000	0	3	119	SS57-7 SS57-10	SS57-11 SS57-12	SS57-13 SS57-14	SS57-15 SS57-16	SS57-17 SS57-17
Benzo(a)anthracene	UG/KG	62	21%	1000	0	25	119	0	94 U	90 U	86 U	88 U
Benzo(a)pyrene	UG/KG	76	17%	1000	0	20	119	420 U	94 U	90 U	86 U	89 U
Benzo(b)fluoranthene	UG/KG	67	24%	1000	0	29	119	420 U	94 U	90 U	86 U	89 U
Benzo(k)fluoranthene	UG/KG	54	13%	100000	0	15	119	420 U	5.4 J	90 U	6.8 J	87 U
Bis(2-Chloroethoxy)methane	UG/KG	50	24%	800	0	29	119	420 U	94 U	90 U	86 U	89 U
Bis(2-Chloroethyl)ether	UG/KG	0	0%	0	0	0	119	420 U	94 U	90 U	86 U	89 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%	0	0	0	101	420 U	94 U	90 U	86 U	89 U
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	15%	0	0	18	119	420 U	94 U	90 U	86 U	89 U
Bisphenol-A	UG/KG	0	0%	0	0	0	119	420 U	94 U	90 U	86 U	89 U
Carbazole	UG/KG	0	0%	0	0	0	119	420 U	94 U	90 U	86 U	89 U
Chrysene	UG/KG	110	33%	1000	0	39	119	420 U	94 U	90 U	86 U	89 U
Di-n-butylphthalate	UG/KG	390	34%	0	0	40	119	420 U	94 U	90 U	86 U	89 U
Di-n-octylphthalate	UG/KG	2.6	1%	0	0	1	119	420 U	94 U	90 U	86 U	89 U
Dibenz(a,h)anthracene	UG/KG	24	6%	330	0	7	119	420 U	94 U	90 U	86 U	89 U
Dibenzofuran	UG/KG	0	0%	7000	0	0	119	420 U	94 U	90 U	86 U	89 U
Diethyl phthalate	UG/KG	8.8	2%	0	0	2	119	420 U	94 U	90 U	86 U	89 U
Dimethylphthalate	UG/KG	0	0%	0	0	0	119	420 U	94 U	90 U	86 U	89 U
Fluoranthene	UG/KG	150	50%	100000	0	60	119	420 U	94 U	90 U	86 U	89 U
Fluorene	UG/KG	120	2%	30000	0	2	119	420 U	94 U	90 U	86 U	89 U
Hexachlorobenzene	UG/KG	0	0%	0	0	0	119	420 U	94 U	90 U	86 U	89 U
Hexachlorobutadiene	UG/KG	0	0%	330	0	0	119	420 U	94 U	90 U	86 U	89 U
Hexachlorocyclopentadiene	UG/KG	0	0%	0	0	0	119	420 U	94 U	90 U	86 U	89 U
Hexachlorocyclohexane	UG/KG	0	0%	0	0	0	119	420 U	94 U	90 U	86 U	89 U
Indeno(1,2,3-cd)pyrene	UG/KG	37	13%	500	0	15	119	420 U	94 U	90 U	86 U	89 U
Isophthene	UG/KG	0	0%	0	0	0	119	420 U	94 U	90 U	86 U	89 U
N-Nitrosodiphenylamine	UG/KG	75	2%	0	0	2	119	420 U	94 U	90 U	86 U	89 U
N-Nitrosodipropylamine	UG/KG	0	0%	0	0	0	119	420 U	94 U	90 U	86 U	89 U
Naphthalene	UG/KG	180	1%	12000	0	1	119	420 U	94 U	90 U	86 U	89 U
Nitrobenzene	UG/KG	0	0%	800	0	0	119	420 U	94 U	90 U	86 U	89 U
Pentachlorophenol	UG/KG	230	37%	100000	0	44	119	420 U	94 U	90 U	86 U	89 U
Phenanthrene	UG/KG	51	13%	330	0	16	119	420 U	94 U	90 U	86 U	89 U
Pyrene	UG/KG	250	52%	100000	3	62	119	420 U	94 U	90 U	86 U	89 U
Explosives												
1,3,5-Trinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	120 U	120 U	120 U	120 U
2,4-Dinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	120 U	120 U	120 U	120 U
2,6-Dinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	120 U	120 U	120 U	120 U
2,4,6-Trinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	120 U	120 U	120 U	120 U
2,4-Dinitrotoluene	UG/KG	0	0%	0	0	0	119	130 U	120 U	120 U	120 U	120 U
2-Nitrotoluene	UG/KG	0	0%	0	0	0	101	130 U	120 U	120 U	120 U	120 U
3-Nitrotoluene	UG/KG	0	0%	0	0	0	119	130 U	120 U	120 U	120 U	120 U
4-Nitrotoluene	UG/KG	0	0%	0	0	0	101	130 U	120 U	120 U	120 U	120 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%	0	0	0	101	130 U	120 U	120 U	120 U	120 U
DMX	UG/KG	0	0%	0	0	0	119	130 U	120 U	120 U	120 U	120 U
RDX	UG/KG	0	0%	0	0	0	119	130 U	120 U	120 U	120 U	120 U
Tetryl	UG/KG	0	0%	0	0	0	119	130 U	120 U	120 U	120 U	120 U
Pesticides and PCBs												
4,4'-DDD	UG/KG	54	7%	3.3	5	8	119	4.3 U	4.6 U	4.3 U	4.2 U	4.4 U
4,4'-DDE	UG/KG	32	8%	3.3	7	9	119	4.3 U	4.6 U	4.3 U	4.2 U	4.4 U
4,4'-DDT	UG/KG	21	5%	3.3	5	6	119	4.3 U	4.6 U	4.3 U	4.2 U	4.4 U
Aldrin	UG/KG	1.4	2%	30	0	0	119	2.2 U	2.4 U	2.2 U	2.2 U	2.3 U
Alpha-BHC	UG/KG	16	6%	94	0	7	119	2.2 U	2.4 U	2.2 U	2.2 U	2.3 U
Alpha-Chloralate	UG/KG	0	0%	100	0	0	119	4.3 U	4.6 U	4.3 U	4.2 U	4.4 U
Anelcher-1016	UG/KG	0	0%	100	0	0	119	86 U	94 U	88 U	86 U	90 U
Anelcher-1221	UG/KG	0	0%	100	0	0	119	45 U	43 U	45 U	42 U	44 U
Anelcher-1232	UG/KG	0	0%	100	0	0	119	45 U	43 U	45 U	42 U	44 U
Anelcher-1242	UG/KG	0	0%	100	0	0	119	45 U	43 U	45 U	42 U	44 U
Anelcher-1248	UG/KG	0	0%	100	0	0	119	45 U	43 U	45 U	42 U	44 U
Anelcher-1254	UG/KG	27	2%	100	0	2	119	45 U	43 U	45 U	42 U	44 U
Anelcher-1260	UG/KG	4.5	1%	36	0	1	119	2.4 U	2.4 U	2.4 U	2.4 U	2.3 U
Beta-BHC	UG/KG	0	0%	40	0	0	119	2.4 U	2.4 U	2.4 U	2.4 U	2.3 U
Delta-BHC	UG/KG	0	0%	40	0	0	119	2.4 U	2.4 U	2.4 U	2.4 U	2.3 U
Dieldrin	UG/KG	27	6%	5	5	7	119	4.3 U	4.6 U	4.3 U	4.2 U	4.4 U





TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-57 SS57-18 SOIL 574031	SEAD-57 SS57-19 SOIL 574033	SEAD-57 SS57-20 SOIL 574033	SEAD-57 SS57-21 SOIL 574034	SEAD-57 SS57-22 SOIL 574035	SEAD-57 SS57-23 SOIL 574036	SEAD-57 SS57-24 SOIL 574038	SEAD-57 SS57-25 SOIL 574041
1,1,1-Trichloroethane	UGRG	0	0%	680	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
1,1,2,2-Tetrachloroethane	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
1,1,2-Trichloroethane	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
1,1-Dichloroethane	UGRG	0	0%	270	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
1,1-Dichloroethane	UGRG	0	0%	330	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
1,2-Dichloroethane	UGRG	0	0%	330	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
1,2-Dichloroethane (total)	UGRG	0	0%	190	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
1,2-Dichloropropane	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Axetone	UGRG	700	74%	50	87	94	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Benzene	UGRG	1	2%	60	0	2	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Bromodichloromethane	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Bromoforn	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Carbon disulfide	UGRG	22	11%	0	0	14	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Carbon tetrachloride	UGRG	0	0%	760	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Chlorobenzene	UGRG	0	0%	1100	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Chlorobromomethane	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Chloroethane	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Chloroform	UGRG	7	1%	370	0	1	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Cis-1,3-Dichloropropene	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Ethyl benzene	UGRG	0	0%	1000	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Methyl bromide	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Methyl butyl ketone	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Methyl chloride	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Methyl ethyl ketone	UGRG	0	62%	0	0	79	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Methyl isobutyl ketone	UGRG	64	0%	120	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Methylene chloride	UGRG	1	2%	50	0	2	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Styrene	UGRG	6	6%	1300	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Toluene	UGRG	33	65%	700	0	82	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Total Xylenes	UGRG	2	2%	260	0	3	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Trans-1,3-Dichloropropene	UGRG	0	0%	0	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Trihaloethene	UGRG	0	0%	470	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
Vinyl chloride	UGRG	0	0%	20	0	0	127	12 U	11 U	11 U	13 U	11 U	13 U	16 U	13 U
<b>Semi-volatile Organic Compounds</b>															
1,2,4-Trichlorobenzene	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
1,2-Dichlorobenzene	UGRG	0	0%	1100	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
1,3-Dichlorobenzene	UGRG	0	0%	2400	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
1,4-Dichlorobenzene	UGRG	0	0%	1800	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2,4-dimethyl (1-Chloroprene)	UGRG	0	0%	0	0	0	18	200 U	200 U	200 U	210 U	200 U	210 U	240 U	220 U
2,4,6-Trichlorophenol	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2,4-Dichlorophenol	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2,4-Dimethylphenol	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2,4-Dinitrophenol	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2,4,6-Trinitrophenol	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2-Chloronaphthalene	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2-Methylnaphthalene	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2-Methylnaphthalene	UGRG	70	3%	380	0	3	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2-Methylphenol	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
2-Nitroaniline	UGRG	0	0%	0	0	0	119	210 U	200 U	200 U	210 U	200 U	210 U	240 U	220 U
2-Nitrophenol	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
3,3'-Dichlorobenzidine	UGRG	0	0%	0	0	0	119	87 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
3-Nitroaniline	UGRG	0	0%	0	0	0	119	210 U	200 U	200 U	210 U	200 U	210 U	240 U	220 U
4,6-Dinitro-2-methylphenol	UGRG	0	0%	0	0	0	119	210 U	200 U	200 U	210 U	200 U	210 U	240 U	220 U
4-Bromophenyl phenyl ether	UGRG	0	0%	0	0	0	119	210 U	200 U	200 U	210 U	200 U	210 U	240 U	220 U
4-Chloro-3-methylphenol	UGRG	0	0%	0	0	0	119	84 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
4-Chloroaniline	UGRG	0	0%	0	0	0	119	84 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
4-Chlorophenyl phenyl ether	UGRG	0	0%	0	0	0	119	84 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
4-Methylphenol	UGRG	13	3%	330	0	3	119	84 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
4-Nitroaniline	UGRG	0	0%	0	0	0	119	210 U	200 U	200 U	210 U	200 U	210 U	240 U	220 U
4-Nitrophenol	UGRG	0	0%	0	0	0	119	200 U	200 U	200 U	210 U	200 U	210 U	240 U	220 U
Acenaphthene	UGRG	0	0%	20000	0	0	119	84 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U
Acenaphthylene	UGRG	0	0%	100000	0	0	119	84 U	84 U	85 U	86 U	85 U	88 U	98 U	90 U



**TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY**

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57	SEAD-57		
								SSS7-18 SOIL	SSS7-19 SOIL	SSS7-20 SOIL	SSS7-21 SOIL	SSS7-22 SOIL	SSS7-23 SOIL	SSS7-24 SOIL	SSS7-25 SOIL	SSS7-26 SOIL	SSS7-27 SOIL	574031 SOIL
Endosulfan I	UG/KG	5.2	1%	2400	0	1	119											
Endosulfan II	UG/KG	3.1	1%	2400	0	1	119											
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	119											
Endrin	UG/KG	0	0%	14	0	0	119											
Endrin aldehyde	UG/KG	3.8	1%	0	0	1	119											
Endrin ketone	UG/KG	4	1%	0	0	1	119											
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	119											
Gamma-Chlordane	UG/KG	0	0%	100	0	0	119											
Heptachlor	UG/KG	1.6	1%	42	0	1	119											
Heptachlor epoxide	UG/KG	2	1%	0	0	1	119											
Methoxychlor	UG/KG	0	0%	0	0	0	119											
Toxaphene	UG/KG	0	0%	0	0	0	119											
<b>Herbicides</b>																		
2,4,5-T	UG/KG	0	0%		0	0	18											
2,4,5-TP/Silvex	UG/KG	0	0%	3800	0	0	18											
2,4-D	UG/KG	0	0%		0	0	18											
2,4-DB	UG/KG	0	0%		0	0	18											
Dalapon	UG/KG	0	0%		0	0	18											
Dicamba	UG/KG	0	0%		0	0	18											
Dichloroprop	UG/KG	0	0%		0	0	18											
Dinoseb	UG/KG	0	0%		0	0	18											
MCPA	UG/KG	0	0%		0	0	18											
MCPP	UG/KG	0	0%		0	0	18											
<b>Metals and Cyanide</b>																		
Aluminum	MG/KG	22900	100%	0	0	119	119											
Antimony	MG/KG	6.5	49%		0	58	119											
Arsenic	MG/KG	17.8	92%	13	1	110	119											
Barium	MG/KG	237	100%	350	0	119	119											
Beryllium	MG/KG	1.8	100%	7.2	0	119	119											
Cadmium	MG/KG	28.6	22%	2.5	6	26	119											
Calcium	MG/KG	213000	100%	0	0	119	119											
Chromium	MG/KG	32.1	100%	30	2	119	119											
Cobalt	MG/KG	29.7	100%	50	0	119	119											
Copper	MG/KG	2930	92%	0	2	109	119											
Cyanide	MG/KG	0	0%	27	0	0	119											
Iron	MG/KG	39800	100%	0	0	119	119											
Lead	MG/KG	1860	100%	63	2	119	119											
Magnesium	MG/KG	27600	100%	0	0	119	119											
Manganese	MG/KG	2580	100%	1600	5	119	119											
Mercury	MG/KG	0.15	75%	0.18	0	89	119											
Nickel	MG/KG	54.1	100%	30	37	119	119											
Potassium	MG/KG	3250	100%	0	0	119	119											
Selenium	MG/KG	2.7	63%	3.9	0	75	119											
Silver	MG/KG	1.7	38%	2	0	45	119											
Sodium	MG/KG	270	34%	0	0	41	119											
Thallium	MG/KG	6.7	82%	0	0	98	119											
Vanadium	MG/KG	104	99%	0	0	118	119											
Zinc	MG/KG	1250	93%	109	11	111	119											
<b>Other Analytes</b>																		
Anion exchange capacity	MEQ/100G	31.4	100%	0	0	32	32											
Nitrate-Nitrogen	MG/KG	4	98%	0	0	99	101											
Peroxy Sulfide	% W/W	9	100%	0	0	101	101											
Soil pH (est. units)	pH units	7.83	100%	0	0	33	33											
Total Organic Carbon	%	70500	100%	0	0	32	32											

Notes:  
(1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/webfiles/subpart375\\_6.html](http://www.dec.state.ny.us/webfiles/subpart375_6.html)  
(2) Sample/duplicate pairs were treated as discrete samples.  
(3) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
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 analytical result was rejected during data validation.





TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-57 SSS7-27 SOIL	SEAD-57 SSS7-28 SOIL	SEAD-57 SSS7-29 SOIL	SEAD-57 SSS7-30 SOIL	SEAD-57 SSS7-31 SOIL	SEAD-57 SSS7-32 SOIL	SEAD-57 SSS7-34 SOIL	
Endosulfan I	UG/KG	3.2	1%	2400	0	1	119	0	0	0	0	0	0	0	0
Endosulfan II	UG/KG	3.1	1%	2400	0	1	119	0	0	0	0	0	0	0	0
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	119	0	0	0	0	0	0	0	0
Endrin	UG/KG	0	0%	14	0	0	119	0	0	0	0	0	0	0	0
Endrin aldehyde	UG/KG	3.8	1%	0	0	0	119	0	0	0	0	0	0	0	0
Endrin ketone	UG/KG	4	1%	0	0	0	119	0	0	0	0	0	0	0	0
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	119	0	0	0	0	0	0	0	0
Gamma-Chlordane	UG/KG	0	0%	100	0	0	119	0	0	0	0	0	0	0	0
Heptachlor	UG/KG	1.6	1%	42	0	1	119	0	0	0	0	0	0	0	0
Heptachlor epoxide	UG/KG	2	1%	42	0	1	119	0	0	0	0	0	0	0	0
Methoxychlor	UG/KG	2	0%	0	0	0	119	0	0	0	0	0	0	0	0
Toxaphene	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0
Hebicides															
2,4,5-T	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0
2,4,5-T/PSIhex	UG/KG	0	0%	3800	0	0	18	0	0	0	0	0	0	0	0
2,4-D	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0
2,4-DB	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0
Dalapon	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0
Dicamba	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0
Diclorofoprop	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0
Dinoseb	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0
MCPA	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0
MCPP	UG/KG	0	0%	0	0	0	18	0	0	0	0	0	0	0	0
Metals and Cyanide															
Aluminum	MG/KG	22900	100%	0	0	0	119	15900	12600	14100	11900	13700	10200	14700	14900
Antimony	MG/KG	6.3	49%	0	0	58	119	0.8 J	0.54 UR	0.8 J	0.92 UR	0.56 UR	0.5 UR	0.59 UR	0.59 UR
Arsenic	MG/KG	17.8	92%	13	1	110	119	3.1	3.5	4	5	3.9	1.6 J	3.7	3.9
Barium	MG/KG	237	100%	350	0	119	119	81.7	65.3	123	103	136	64.7	129	136
Beryllium	MG/KG	1.8	100%	7.2	0	119	119	0.98 J	0.8 J	1.1	0.81	0.68 J	0.7 J	0.99 J	1.2 J
Cadmium	MG/KG	28.6	22%	2.5	6	26	119	0.05 U	0.05 U	0.04 U	0.06 U	0.05 U	0.05 U	0.05 U	0.05 U
Calcium	MG/KG	213000	100%	0	0	119	119	1350	3690	3300	1590	3130	2070	3270	3760
Chromium	MG/KG	32.1	100%	30	2	119	119	22.7	17.6 J	19 J	16.4	16.8 J	12 J	18.3 J	20.3 J
Cobalt	MG/KG	29.7	100%	50	0	119	119	12.4	9.2 J	10.6 J	8 J	11.4 J	6 J	5.4 J	11.1 J
Copper	MG/KG	2950	92%	27	2	109	119	13.9	17.1	17.7	24.8	14.9	10.1	16.8	19.2
Cyanide	MG/KG	0	0%	0	0	0	119	0.64 U	0.63 U	0.62 U	0.67 U	0.66 U	0.62 U	0.67 U	0.66 U
Iron	MG/KG	39800	100%	0	0	0	119	27900	22600 J	26200 J	20500 J	20300 J	15100 J	24700 J	25300 J
Lead	MG/KG	1860	100%	63	0	119	119	18 J	21.5	18.6	21.9	13.8	12.4	16.8	18.3
Magnesium	MG/KG	27600	100%	0	0	119	119	3950 J	3340	3260	3180	3040	2230	3160	3970
Manganese	MG/KG	2580	100%	1600	5	119	119	757	346 J	786 J	376 J	246 J	180 J	585 J	772 J
Mercury	MG/KG	0.15	75%	0.18	0	89	119	0.08 J	0.08 J	0.09 J	0.1 J	0.1 J	0.11 J	0.08 J	0.13
Nickel	MG/KG	54.1	100%	30	37	119	119	24.7	22.7 J	19.9 J	29.2	17.3 J	12 J	18.4 J	24.2 J
Potassium	MG/KG	3250	100%	0	0	119	119	1450	1390	1340	1370	1140 J	774 J	1290	1420
Selenium	MG/KG	2.7	63%	3.9	0	75	119	0.61 U	0.83 J	1.5 J	0.45 U	0.57 U	0.57 U	0.74 J	0.67 U
Silver	MG/KG	1.7	38%	2	0	45	119	0.32 U	0.32 U	0.28 U	0.33 U	0.33 U	0.3 U	0.32 U	0.35 U
Sodium	MG/KG	270	34%	0	0	41	119	70.9 U	71.1 U	61.4 U	64 U	39.2 J	65.9 U	70.7 U	77.6 U
Thallium	MG/KG	6.7	82%	0	0	98	119	2.9	1.8 J	3.6	1.64 U	0.6 J	0.73 U	1.4 J	3 J
Vanadium	MG/KG	104	99%	0	0	118	119	27.4	21.8	27.6	23.5	22	18.7	26.3	
Zinc	MG/KG	1250	93%	109	11	111	119	66.4	66.7 J	58.5 J	60.1	50.1 J	42.9 J	60.8 J	
Other Analyses															
Cation exchange capacity	MEQ/100G	31.4	100%	0	0	32	32								
Nitrate/Nitrite Nitrogen	MG/KG	4.4	98%	0	0	99	101	0.05	0.37 J	0.09 J	4.4 J	0.18 J	0.28 J	0.17 J	0.09 J
Percent Solids	% WW	94	100%	0	0	101	101	75.5	76	75.3	72.8	73.3	78.3	70.5	73.7
Soil pH (std. units)	pH units	7.83	100%	0	0	33	33								
Total Organic Carbon	MG/KG	70500	100%	0	0	32	32								

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)  
 (2) Sample duplicate pairs were treated as discrete samples.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
 U = compound was not detected  
 J = the reported value is an estimated concentration  
 UR = the compound was not detected; the associated reporting limit is approximate  
 R = the analytical result was rejected during data validation.

TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value 1	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed 2	SEAD-57						
								SS57-35	SS57-36	SS57-37	SS57-38	SS57-39		
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
1,1,2,2-Tetrachloroethane	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
1,1,2-Trichloroethane	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
1,1-Dichloroethane	UG/KG	0	0%	270	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
1,2-Dichloroethane	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
1,2-Dichloroethane (total)	UG/KG	0	0%	190	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
1,2-Dichloropropane	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Acetone	UG/KG	700	74%	50	87	94	127	310 U	160 U	250 U	180 U	93 U	13 U	
Benzene	UG/KG	1	2%	60	0	2	127	13 U	14 U	12 U	13 U	13 U	12 U	
Bromodichloromethane	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Bromofrom	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Carbon disulfide	UG/KG	22	11%	0	14	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Carbon tetrachloride	UG/KG	0	0%	760	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Chlorobenzene	UG/KG	1100	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Chlorobromomethane	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Chloroethane	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Chloroform	UG/KG	7	1%	370	0	1	127	13 U	14 U	12 U	13 U	13 U	12 U	
Cis-1,3-Dichloropropene	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Ethyl benzene	UG/KG	0	0%	1000	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Methyl bromide	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Methyl butyl ketone	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Methyl chloride	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Methyl ethyl ketone	UG/KG	64	62%	120	0	79	127	24 U	17 U	22 U	16 U	17 U	10 U	
Methyl isobutyl ketone	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Methyl methylene chloride	UG/KG	1	2%	50	0	2	127	13 U	14 U	12 U	13 U	13 U	12 U	
Styrene	UG/KG	6	6%	1300	0	7	127	13 U	14 U	12 U	13 U	13 U	12 U	
Tetachloroethane	UG/KG	33	65%	700	0	82	127	23 U	11 U	7 U	5 U	11 U	6 U	
Toluene	UG/KG	2	2%	260	0	3	127	13 U	14 U	12 U	13 U	13 U	12 U	
Total Xylenes	UG/KG	0	0%	470	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Trans-1,3-Dichloropropene	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Trihaloethane	UG/KG	0	0%	20	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Vinyl chloride	UG/KG	0	0%	0	0	0	127	13 U	14 U	12 U	13 U	13 U	12 U	
Semivolatile Organic Compounds														
1,2,4-Trichlorobenzene	UG/KG	0	0%	1100	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
1,2-Dichlorobenzene	UG/KG	0	0%	2400	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
1,3-Dichlorobenzene	UG/KG	0	0%	1800	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
1,4-Dichlorobenzene	UG/KG	0	0%	0	0	0	18	220 U	200 U	220 U	220 U	220 U	220 U	
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2,4,5-Trichlorophenol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2,4,6-Trichlorophenol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2,4-Dichlorophenol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2,4-Dinitrophenol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2,4-Dinitrophenol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2,4,6-Trinitrophenol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2-Chloroethanol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2-Chlorophenol	UG/KG	750	3%	330	0	3	119	93 U	84 U	89 U	91 U	91 U	91 U	
2-Methylphenol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2-Nitrophenol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
2-Nitrophenol	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
3,3'-Dichlorobenzidine	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
3-Nitroaniline	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
4,6-Dinitro-2-methylphenol	UG/KG	0	0%	0	0	0	119	220 U	220 U	220 U	220 U	220 U	220 U	
4-Bromophenyl phenyl ether	UG/KG	0	0%	0	0	0	119	220 U	220 U	220 U	220 U	220 U	220 U	
4-Chloro-3-ethylphenyl ether	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
4-Chloroaniline	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
4-Chlorophenyl phenyl ether	UG/KG	0	0%	0	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
4-Methylphenol	UG/KG	13	3%	330	0	3	119	93 U	84 U	89 U	91 U	91 U	91 U	
4-Nitroaniline	UG/KG	0	0%	0	0	0	119	220 U	220 U	220 U	220 U	220 U	220 U	
4-Nitrophenol	UG/KG	0	0%	0	0	0	119	220 U	220 U	220 U	220 U	220 U	220 U	
Azoxybenzene	UG/KG	0	0%	20000	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
Acenaphthene	UG/KG	0	0%	100000	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	
Acenaphthylene	UG/KG	0	0%	100000	0	0	119	93 U	84 U	89 U	91 U	91 U	91 U	





TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-57												
								SS57-35	SS57-36	SS57-37	SS57-38	SS57-39	SS57-40	SS57-41	SS57-42	SS57-43	SS57-44	SS57-45		
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
								574048	574051	574052	574053	574055	574056	574057	574057	574057	574057	574059	574059	
								PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	PISI RI	
								SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
								12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Aluminum	UG/KG	22900	100%	0	0	119	119	16500	11800	15100	16100	11800	11800	11800	11800	11800	11800	11800	11800	11800
Antimony	MG/KG	6.5	49%	0	0	58	119	0.61 J	0.59 UR	0.61 UR	0.51 J	0.53 UR	0.53 UR	0.53 UR	0.49 U	0.49 U	0.51 U	0.51 U	0.51 U	
Arsenic	MG/KG	17.8	92%	13	0	110	119	4.3	2.2 J	4.1	3.7	2.5 J	3.2	5.1	4.8	4.8	2.8	2.8	2.8	
Barium	MG/KG	237	100%	350	0	119	119	108	83.5	202	141	91.9	106	200	115	115	132	132	132	
Beryllium	MG/KG	1.8	100%	7.2	0	119	119	0.93 J	0.7 J	1.5	1.1	0.79 J	0.84 J	1.4	0.88 J	0.88 J	0.79 J	0.79 J	0.79 J	
Cadmium	MG/KG	28.6	22%	2.5	6	26	119	0.05 U	0.05 U	0.06 U	0.04 U	0.05 U	0.05 U	0.05 U	0.06 J	0.06 J	0.06 J	0.06 J	0.06 J	
Calcium	MG/KG	215000	100%	0	0	119	119	5050	2910	2900	3660	3430	2950	3450	2950	2950	3230	3230	3230	
Chromium	MG/KG	32.1	100%	30	2	119	119	16.3 J	16	20.1	20.4	18.2 J	15.4 J	16.2 J	15.2 J	15.2 J	16.7 J	16.7 J	16.7 J	
Cobalt	MG/KG	29.7	100%	0	0	119	119	12.1 J	15	17.1	8.2 J	8.5 J	7.2 J	15.8	9.1	9.1	6.2 J	6.2 J	6.2 J	
Copper	MG/KG	2930	92%	27	2	109	119	16.7	14.1	18.7	20.8	17.7	15.1	15.8	14.6	14.6	16.4	16.4	16.4	
Cyanide	MG/KG	0	0%	0	0	119	119	0.61 U	0.68 U	0.66 U	0.71 U	0.66 U	0.61 U	0.65 U	0.63 U	0.63 U	0.62 U	0.62 U	0.62 U	
Iron	MG/KG	39000	100%	63	0	119	119	23000 J	23000 J	23000 J	24600 J	22800 J	19000 J	25000 J	19600 J	18800 J	18800 J	18800 J	18800 J	
Lead	MG/KG	1860	100%	0	0	119	119	20.1	18	21.7	18	22.1	12.8	17.6	13.3 J	13.3 J	25.5 J	25.5 J	25.5 J	
Magnesium	MG/KG	27000	100%	0	0	119	119	3500	3780	3340	3310	3150	2970	3420	2910	3040	3040	3040	3040	
Manganese	MG/KG	2580	100%	1600	5	119	119	931 J	335 J	1540 J	406 J	359 J	568 J	224 J	728 J	728 J	728 J	728 J	728 J	
Nickel	MG/KG	54.1	75%	0.18	0	89	119	0.09 J	0.09 J	0.14 J	0.1 J	0.13	0.09 J	0.11 J	0.05 U	0.05 U	0.07 UJ	0.07 UJ	0.07 UJ	
Nitrate	MG/KG	54.1	100%	30	37	119	119	22.8 J	18.4 J	27.4 J	25.2 J	21.1	17.2 J	19.6 J	17.1	19.1	19.1	19.1	19.1	
Potassium	MG/KG	3250	100%	0	0	119	119	1400	1280 J	1830	1440	1370	1170 J	1190 J	1030 J	1110 J	1110 J	1110 J	1110 J	
Selenium	MG/KG	2.7	63%	3.9	0	75	119	0.88 J	0.74 J	1.8 J	1.1 J	0.7 J	1.3 J	2.7 J	0.78 J	0.58 U	0.58 U	0.58 U	0.58 U	
Silver	MG/KG	1.7	38%	2	0	45	119	0.35 UJ	0.35 UJ	0.36 UJ	0.26 UJ	0.34 UJ	0.31 UJ	0.32 UJ	0.5 J	0.45 J	0.45 J	0.45 J	0.45 J	
Sulfur	MG/KG	270	34%	0	0	41	119	71.3 U	68.2 U	80.2 U	58.6 U	75.3 U	69.4 U	70.2 U	99.1 J	90.7 J	90.7 J	90.7 J	90.7 J	
Talium	MG/KG	6.7	82%	0	0	98	119	3.9	2.1 J	5.4	2.5	2.2 J	2.2 J	6.6	4	4	1.6 J	1.6 J	1.6 J	
Vanadium	MG/KG	104	99%	0	0	118	119	24.3	23.2	30.6	26.2	22.1	25.8	22.2	21.9	21.9	21.9	21.9	21.9	
Zinc	MG/KG	1250	93%	109	11	111	119	71.4 J	53.1 J	79.1 J	68.5 J	69.1 J	50.1 J	51.7 J	49.9	49.9	57.8	57.8	57.8	
<b>Other Analytes</b>																				
Cation exchange capacity	MEQ/100G	31.4	100%	0	0	32	32													
Nitrate-Nitrogen	MG/KG	4.4	100%	0	0	99	101	0.78 J	0.72 J	0.46 J	0.41 J	0.45 J	0.1 J	0.1 J	0.04	0.04	0.42	0.42	0.42	
Percent Solids	% WV	94	100%	0	0	101	101	70.5	77.8	74	70	78.6	74.2	77.2	77.2	77.2	77.2	77.2	77.2	77.2
Soil pH (6d. units)	pH units	7.83	100%	0	0	33	33													
Total Organic Carbon	MG/KG	70500	100%	0	0	32	32													

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/webcrlr/objpart375\\_6.html](http://www.dec.state.ny.us/webcrlr/objpart375_6.html)  
 (2) Sample-duplicate pairs were treated as distinct samples.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
 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 analytical result was rejected during data validation.

TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value 1	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed 2	SEAD-57 SS57-45 SOIL 574038	SEAD-57 SS57-46 SOIL 574061	SEAD-57 SS57-47 SOIL 574062	SEAD-57 SS57-48 SOIL 574063	SEAD-57 SS57-49 SOIL 574064	SEAD-57 SS57-5 SOIL 574065	SEAD-57 SS57-51 SOIL 574066	SEAD-57 SS57-52 SOIL 574066	SEAD-57 SS57-53 SOIL 574066	
								0 0.2 12/21/99 P1 S1 RI SA	0 0.2 12/21/99 P1 S1 RI SA	0 0.2 12/21/99 P1 S1 RI SA	0 0.2 12/21/99 P1 S1 RI SA	0 0.2 12/21/99 P1 S1 RI SA	0 0.2 12/21/99 P1 S1 RI SA	0 0.2 12/21/99 P1 S1 RI SA	0 0.2 12/21/99 P1 S1 RI SA	0 0.2 12/21/99 P1 S1 RI SA	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
1,1,2-Trichloroethane	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
1,1,2,2-Tetrachloroethane	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
1,1-Dichloroethane	UG/KG	0	0%	270	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
1,2-Dichloroethane	UG/KG	0	0%	330	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
1,2-Dichloroethane (total)	UG/KG	0	0%	330	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
1,2-Dichloroethane (total)	UG/KG	0	0%	190	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
1,2-Dichloropropane	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Acetone	UG/KG	700	74%	0	87	94	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Benzene	UG/KG	1	2%	60	0	2	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Bromodichloromethane	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Bromoform	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Carbon disulfide	UG/KG	22	11%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Carbon tetrachloride	UG/KG	0	0%	760	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Chlorobenzene	UG/KG	0	0%	1100	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Chlorobromomethane	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Chloroethane	UG/KG	7	4%	370	0	1	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Chloroform	UG/KG	9	4%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
1,1,1,3-Tetrachloropropane	UG/KG	0	0%	1000	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Ethyl benzene	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Methyl benzene	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Methyl butyl ketone	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Methyl ethyl ketone	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Methyl ethyl ketone	UG/KG	64	62%	120	0	79	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Methyl isobutyl ketone	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Methylene chloride	UG/KG	1	2%	50	0	2	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Styrene	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Tetrahydrofuran	UG/KG	6	6%	1300	0	7	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Toluene	UG/KG	33	65%	700	0	82	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Total Xylenes	UG/KG	2	2%	260	0	3	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Trans-1,3-Dichloropropene	UG/KG	0	0%	0	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Trichloroethene	UG/KG	0	0%	470	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
Vinyl chloride	UG/KG	0	0%	20	0	0	127	12 U	13 U	11 U	12 U	13 U	13 U	15 U	16 U	15 U	
<b>Semivolatile Organic Compounds</b>																	
1,2,4-Trichlorobenzene	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0%	0	0	0	18	220 U	210 U	200 U	220 U	220 U	220 U	1100 U	250 U	230 U	240 U
2,4,5-Trichlorophenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2,4,6-Trichlorophenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2,4-Dichlorophenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2,4-Dimethylphenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2,4-Dinitrophenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2,4-Dinitrotoluene	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2,6-Dinitrotoluene	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2-Chloronaphthalene	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2-Chlorophenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2-Methylnaphthalene	UG/KG	750	3%	0	0	3	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2-Methylphenol	UG/KG	0	0%	330	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2-Nitroaniline	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
2-Nitrophenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
3,3'-Dichlorobenzidine	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
3-Nitroaniline	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
4-Bromophenyl phenyl ether	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
4-Chloro-3-methylphenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
4-Chloroaniline	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
4-Chlorophenyl phenyl ether	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
4-Methylphenol	UG/KG	13	3%	330	0	3	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
4-Nitroaniline	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
4-Nitrophenol	UG/KG	0	0%	0	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
Aceamaphenone	UG/KG	0	0%	20000	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U
Aceamaphylene	UG/KG	0	0%	100000	0	0	119	90 U	86 U	82 U	92 U	90 U	90 U	470 U	100 U	100 U	100 U





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SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-57 SSS7-6 SOIL	SEAD-57 SSS7-7 SOIL	SEAD-57 SSS7-8 SOIL	SEAD-57 SSS7-9 SOIL	SEAD-57 SSS7-10 SOIL	SEAD-57 SSS7-11 SOIL
								SSS7-6-1	SSS7-7-1	SSS7-8-1	SSS7-9-1	SSS7-10-1	SSS7-11-1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	UGKG	0	0%	680	0	0	127	13 U	11 U	12 U	11 U	13 U	11 U
1,1,2,2-Tetrachloroethane	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
1,1,2-Trichloroethane	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
1,1-Dichloroethane	UGKG	0	0%	270	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
1,1-Dichloroethene	UGKG	0	0%	330	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
1,2-Dichloroethane (total)	UGKG	0	0%	20	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
1,2-Dichloroethene (total)	UGKG	0	0%	190	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
1,2-Dichloropropane	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Acetone	UGKG	700	74%	50	87	94	127	14 U	11 U	12 U	11 U	13 U	11 U
Benzene	UGKG	1	2%	60	0	2	127	14 U	11 U	12 U	11 U	13 U	11 U
Bromochloromethane	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Bromoforn	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Carbon disulfide	UGKG	22	11%	0	0	14	127	14 U	11 U	12 U	11 U	13 U	11 U
Carbon tetrachloride	UGKG	0	0%	760	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Chlorobenzene	UGKG	0	0%	1100	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Chlorobromomethane	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Chloroethane	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Chloroform	UGKG	7	1%	370	0	1	127	14 U	11 U	12 U	11 U	13 U	11 U
Cis-1,3-Dichloropropene	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Ethyl benzene	UGKG	0	0%	1000	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Methyl bromide	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Methyl butyl ketone	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Methyl chloride	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Methyl ethyl ketone	UGKG	64	62%	120	0	79	127	14 U	11 U	12 U	11 U	13 U	11 U
Methyl isobutyl ketone	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Methylene chloride	UGKG	1	2%	50	0	2	127	14 U	11 U	12 U	11 U	13 U	11 U
Styrene	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Tetrachloroethene	UGKG	6	6%	1300	0	7	127	14 U	11 U	12 U	11 U	13 U	11 U
Toluene	UGKG	33	65%	700	0	82	127	14 U	11 U	12 U	11 U	13 U	11 U
Total Xylenes	UGKG	2	0%	260	0	3	127	14 U	11 U	12 U	11 U	13 U	11 U
Trans-1,3-Dichloropropene	UGKG	0	0%	0	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Trichloroethene	UGKG	0	0%	470	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
Vinyl chloride	UGKG	0	0%	20	0	0	127	14 U	11 U	12 U	11 U	13 U	11 U
<b>Semi-volatile Organic Compounds</b>													
1,2,4-Trichlorobenzene	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
1,2-Dichlorobenzene	UGKG	0	0%	1100	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
1,3-Dichlorobenzene	UGKG	0	0%	2400	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
1,4-Dichlorobenzene	UGKG	0	0%	1800	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2,2'-oxybis(1-Chloropropane)	UGKG	0	0%	0	0	0	18	420 U	360 UR	360 UR	350 U	360 U	410 U
2,4,5-Trichlorophenol	UGKG	0	0%	0	0	0	119	1000 U	880 UR	860 UR	880 U	940 U	990 U
2,4,6-Trichlorophenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2,4-Dinitrophenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2,4-Dinitrophenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2,4-Dinitrophenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2,4-Dinitrophenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2,4-Dinitrophenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2-Chlorophenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2-Methylphenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2-Methylphenol	UGKG	730	3%	330	0	3	119	420 U	360 UR	360 UR	350 U	360 U	410 U
2-Nitroaniline	UGKG	0	0%	0	0	0	119	1000 U	880 UR	860 UR	880 U	940 U	990 U
2-Nitrophenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
3,3'-Dichlorobenzidine	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
3-Nitroaniline	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
4,6-Dinitro-2-methylphenol	UGKG	0	0%	0	0	0	119	1000 U	880 UR	860 UR	880 U	940 U	990 U
4-Bromophenyl phenyl ether	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
4-Chloro-3-methylphenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
4-Chloroaniline	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
4-Chlorophenyl phenyl ether	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
4-Methylphenol	UGKG	13	3%	330	0	3	119	420 U	360 UR	360 UR	350 U	360 U	410 U
4-Nitroaniline	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
4-Nitrophenol	UGKG	0	0%	0	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
Acenaphthene	UGKG	0	0%	20000	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U
Acenaphthylene	UGKG	0	0%	100000	0	0	119	420 U	360 UR	360 UR	350 U	360 U	410 U

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Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>a</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>b</sup>	SEAD-57 S57-16 SOIL	SEAD-57 S57-16 SOIL	SEAD-57 S57-16 SOIL	SEAD-57 S57-16 SOIL	SEAD-57 S57-16 SOIL	SEAD-57 S57-16 SOIL	SEAD-57 S57-16 SOIL	SEAD-57 S57-16 SOIL	SEAD-57 S57-16 SOIL	SEAD-57 S57-16 SOIL
Atrithene	UG/KG	8.2	3%	100000	0	3	119	0	0	0	0	0	0	0	0	0	0
Benz(a)anthracene	UG/KG	62	21%	1000	0	25	119	360 U	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR
Benz(a)pyrene	UG/KG	76	17%	1000	0	20	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
Benz(b)fluoranthene	UG/KG	67	24%	1000	0	29	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
Benz(ghi)perylene	UG/KG	54	13%	100000	0	15	119	360 U	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR
Benz(k)fluoranthene	UG/KG	50	24%	800	0	29	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
Bis(2-Chloroethoxy)ether	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
Bis(2-Ethylhexyl)phthalate	UG/KG	3400	15%	0	0	18	119	360 U	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR
Butylbenzylphthalate	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
Carbazole	UG/KG	110	33%	1000	0	39	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
Chrysene	UG/KG	360	34%	1000	0	40	119	360 U	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR
Di-n-octylphthalate	UG/KG	24	1%	330	0	7	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
Dibenz(b)anthracene	UG/KG	2.6	6%	7000	0	1	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
Dibenz(gh)perylene	UG/KG	8.8	2%	0	0	2	119	360 U	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR
Dieldrin	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
Dimethylphthalate	UG/KG	150	50%	100000	0	60	119	360 U	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR
Fluorene	UG/KG	120	2%	30000	0	2	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
Hexachlorobenzene	UG/KG	0	0%	330	0	0	119	0	0	0	0	0	0	0	0	0	0
Hexachlorobutadiene	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
Hexachlorocyclopentadiene	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
Hexachloroethane	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
Indene(1,2,3-epi)pyrene	UG/KG	37	13%	500	0	15	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
Isophenanthrene	UG/KG	75	2%	0	0	2	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
N-Nitrosodiphenylamine	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
N-Nitrosodipropylamine	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
Naphthalene	UG/KG	180	1%	12000	0	1	119	360 U	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR
Nitrobenzene	UG/KG	0	0%	800	0	0	119	0	0	0	0	0	0	0	0	0	0
Penachlorophenol	UG/KG	0	0%	0	0	0	119	0	0	0	0	0	0	0	0	0	0
Phenanthrene	UG/KG	210	37%	100000	0	44	119	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
Phenol	UG/KG	51	13%	330	0	16	119	360 U	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR	360 UR
Pyrene	UG/KG	230	52%	100000	3	62	119	20 J	20 J	20 J	20 J	20 J	20 J	20 J	20 J	20 J	20 J
Explosives																	
1,3,5-Trinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
1,3-Dinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2,4,6-Trinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2,4-Dinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2,6-Dinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2-Nitrobenzene	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
3-Nitrobenzene	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
4-Nitrobenzene	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
4-amino-2,6-Dinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
HMX	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Nitrobenzene	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
RDX	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Tetryl	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Pesticides and PCBs																	
4,4'-DDD	UG/KG	54	7%	3.3	5	8	119	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ
4,4'-DDE	UG/KG	32	8%	3.3	7	9	119	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ
4,4'-DDT	UG/KG	23	5%	3.3	5	6	119	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ
Aldrin	UG/KG	0	0%	5	0	0	119	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ
Alpha-BHC	UG/KG	1.4	2%	20	0	2	119	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ
Alpha-Chlordane	UG/KG	16	6%	94	0	7	119	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ
Aroclor-1016	UG/KG	0	0%	100	0	0	119	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ
Aroclor-1221	UG/KG	0	0%	100	0	0	119	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ
Aroclor-1232	UG/KG	0	0%	100	0	0	119	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ
Aroclor-1242	UG/KG	0	0%	100	0	0	119	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ
Aroclor-1248	UG/KG	0	0%	100	0	0	119	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ
Aroclor-1254	UG/KG	0	0%	100	0	0	119	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ
Aroclor-1260	UG/KG	27	2%	100	0	2	119	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ
Beta-BHC	UG/KG	4.5	1%	36	0	1	119	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ
Delta-BHC	UG/KG	0	0%	40	0	0	119	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ
Dieldrin	UG/KG	27	6%	5	5	7	119	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ	3.6 UJ

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TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances Detected	Number of Times Analyzed <sup>2</sup>	Number of Samples	SEAD-57 TP57-2 SOIL	SEAD-57 TP57-3 SOIL	SEAD-57 TP57-4 SOIL	SEAD-57 TP57-5 SOIL	SEAD-57 TP57-6 SOIL	SEAD-57 TP57-7 SOIL	SEAD-57 TP57-8 SOIL	SEAD-57 TP57-9 SOIL
Benz(b)fluoranthene	UG/KG	67	24%	1000	0	29	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Benz(g)h)perylene	UG/KG	54	13%	100000	0	15	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Benz(k)fluoranthene	UG/KG	50	24%	800	0	29	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Bis(2-Chloroethyl)ether	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Bis(2-Chloroisopropyl)ether	UG/KG	3400	15%	0	0	0	101	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Bisphenol-A	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Carbazole	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Chrysene	UG/KG	110	33%	1000	0	39	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
D-n-butylphthalate	UG/KG	390	34%	0	0	40	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
D-n-octylphthalate	UG/KG	2.6	1%	0	0	1	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Dibenz(a,h)anthracene	UG/KG	24	6%	330	0	7	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Dibenzofuran	UG/KG	8.8	2%	7000	0	2	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Diethyl phthalate	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Dimethyl phthalate	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Fluoranthene	UG/KG	150	50%	100000	0	60	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Fluorene	UG/KG	120	2%	300000	0	2	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Hexachlorobenzene	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Hexachlorobutadiene	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Hexachlorocyclopentadiene	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Hexachloroethane	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Indeno(1,2,3-c)pyrene	UG/KG	37	13%	500	0	15	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Isoflorone	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
N-Nitrosodiphenylamine	UG/KG	75	2%	0	0	2	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
N-Nitrosodipropylamine	UG/KG	180	1%	12000	0	1	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Naphthalene	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Nitrobenzene	UG/KG	0	0%	0	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Pentachlorophenol	UG/KG	0	0%	800	0	0	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Phenanthrene	UG/KG	230	37%	100000	0	44	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Phenol	UG/KG	51	13%	330	0	16	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
Pyrene	UG/KG	230	52%	100000	3	62	119	2000 U	370 U	370 U	430 U	390 U	390 U	380 U	380 U
<b>Explosives</b>															
1,3,5-Trinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2,3-Dinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2,4,6-Trinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2,6-Dinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2,4-Dinitrobenzene	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
2-Nitrotoluene	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
3-Nitrotoluene	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
4-Nitrotoluene	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
4-amino-2,6-Dinitrobenzene	UG/KG	0	0%	0	0	0	119	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
HMX	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
RDX	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Tetryl	UG/KG	0	0%	0	0	0	101	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
<b>Pesticides and PCBs</b>															
4,4'-DDD	UG/KG	54	7%	33	5	8	119	4.1 U	5.5 U	8.9 U	4.3 U	4 U	4 U	4 U	3.8 U
4,4'-DDE	UG/KG	32	8%	33	7	9	119	4.1 U	5.5 U	8.9 U	4.3 U	4 U	4 U	4 U	3.8 U
4,4'-DDT	UG/KG	23	5%	33	6	8	119	4.1 U	5.5 U	8.9 U	4.3 U	4 U	4 U	4 U	3.8 U
Aldrin	UG/KG	0	0%	20	0	0	119	2.1 U	1.9 U	1.9 U	2.2 U	2 U	2 U	2 U	2 U
Alpha-BHC	UG/KG	1.4	2%	94	0	2	119	2.1 U	1.9 U	1.9 U	2.2 U	2 U	2 U	2 U	2 U
Chlordane	UG/KG	16	6%	94	0	7	119	2.1 U	1.9 U	1.9 U	2.2 U	2 U	2 U	2 U	2 U
Acroclor-1016	UG/KG	0	0%	100	0	0	119	41 U	37 U	37 U	43 U	40 U	40 U	38 U	38 U
Acroclor-1221	UG/KG	0	0%	100	0	0	119	82 U	76 U	76 U	88 U	80 U	80 U	77 U	78 U
Acroclor-1232	UG/KG	0	0%	100	0	0	119	41 U	37 U	37 U	43 U	40 U	40 U	38 U	38 U
Acroclor-1242	UG/KG	0	0%	100	0	0	119	41 U	37 U	37 U	43 U	40 U	40 U	38 U	38 U
Acroclor-1248	UG/KG	0	0%	100	0	0	119	41 U	37 U	37 U	43 U	40 U	40 U	38 U	38 U
Acroclor-1254	UG/KG	0	0%	100	0	0	119	41 U	37 U	37 U	43 U	40 U	40 U	38 U	38 U
Acroclor-1260	UG/KG	27	2%	100	0	2	119	41 U	37 U	37 U	43 U	40 U	40 U	38 U	38 U
Beta-BHC	UG/KG	4.5	1%	36	0	1	119	2.1 U	1.9 U	1.9 U	2.2 U	2 U	2 U	2 U	2 U
Delta-BHC	UG/KG	0	0%	40	0	0	119	2.1 U	1.9 U	1.9 U	2.2 U	2 U	2 U	2 U	2 U
Dieldrin	UG/KG	27	6%	5	5	7	119	4.1 U	3.7 U	3.7 U	4.3 U	4 U	4 U	4 U	3.8 U
Endosulfan I	UG/KG	5.2	1%	2400	0	1	119	2.1 U	1.9 U	1.9 U	2.2 U	2 U	2 U	2 U	2 U
Endosulfan II	UG/KG	3.1	1%	2400	0	1	119	4.1 U	3.7 U	3.7 U	4.3 U	4 U	4 U	4 U	3.8 U
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	119	4.1 U	3.7 U	3.7 U	4.3 U	4 U	4 U	4 U	3.8 U
Endrin	UG/KG	0	0%	14	0	0	119	4.1 U	3.7 U	3.7 U	4.3 U	4 U	4 U	4 U	3.8 U

TABLE 1  
SEAD-57 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	Criteria Value	Number of Exceedences	Number of Times Detected	Number of Samples Analyzed	SEAD-57								
								TP57-2	TP57-3	TP57-4	TP57-6	TP57-7	TP57-8	TP57-9	TP57-9	
								SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL
								SA	SA	SA	SA	SA	SA	SA	SA	SA
								PISTRI	PISTRI	PISTRI	PISTRI	PISTRI	PISTRI	PISTRI	PISTRI	PISTRI
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Endrin aldehyde	UG/KG	3.8	1%	0	0	1	119	4.1 U	3.7 U	4.3 U	4.0 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U
Endrin ketone	UG/KG	4	1%	0	0	1	119	3.7 U	4.3 U	4.0 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U
Gamma-BHC/Indane	UG/KG	0	0%	100	0	0	119	2.1 U	1.9 U	2.2 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Gamma-Chlordane	UG/KG	0	0%	100	0	0	119	2.1 U	1.9 U	2.2 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Heptachlor	UG/KG	1.6	1%	42	0	1	119	2.1 U	1.9 U	2.2 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Heptachlor epoxide	UG/KG	2	1%	118	0	1	119	2.1 U	1.9 U	2.2 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Methoxychlor	UG/KG	0	0%	0	0	0	119	2.1 U	1.9 U	2.2 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Toxaphene	UG/KG	0	0%	0	0	0	119	2.1 U	1.9 U	2.2 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
<b>Herbicides</b>																
2,4,5-T	UG/KG	0	0%	0	0	0	18	6.2 U	5.7 UR	6.6 U	6.0 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
2,4,5-T/TP57-Silvex	UG/KG	0	0%	3800	0	0	18	6.2 U	5.7 UR	6.6 U	6.0 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
2,4-D	UG/KG	0	0%	0	0	0	18	6.2 U	5.7 UR	6.6 U	6.0 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
2,4-DB	UG/KG	0	0%	0	0	0	18	6.2 U	5.7 UR	6.6 U	6.0 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
Dalapon	UG/KG	0	0%	0	0	0	18	150 U	140 UR	160 U	150 U	140 U	140 U	140 U	140 U	140 U
Dicamba	UG/KG	0	0%	0	0	0	18	5.8 U	5.7 UR	6.6 U	6.0 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
Dichloroprop	UG/KG	0	0%	0	0	0	18	6.2 U	5.7 UR	6.6 U	6.0 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
Diuron	UG/KG	0	0%	0	0	0	18	3.1 U	2.9 UR	3.3 U	3.0 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
MCPA	UG/KG	0	0%	0	0	0	18	6200 U	5700 UR	6600 U	6000 U	5800 U	5800 U	5800 U	5800 U	5800 U
MCPP	UG/KG	0	0%	0	0	0	18	6200 U	5700 UR	6600 U	6000 U	5800 U	5800 U	5800 U	5800 U	5800 U
<b>Metals and Cyanide</b>																
Aluminum	MG/KG	22800	100%	0	0	0	119	17300	16900	22800	18300	15700	10300	10300	10300	10300
Arsenic	MG/KG	6.5	49%	0	0	58	119	4.5 U	8.7 U	5.8 J	4.9 U	6.5 J	3.5 U	3.5 U	3.5 U	3.5 U
Barium	MG/KG	17.8	92%	13	1	110	119	9.5	4.2	7.5	8.5	4.8	8.8	8.8	8.8	8.8
Beryllium	MG/KG	237	100%	360	0	119	119	82.7	90.1	174	144	113	70.8	70.8	70.8	70.8
Bismuth	MG/KG	1.8	100%	7.2	0	119	119	0.81 J	0.51 J	0.91	1 J	0.77 J	0.49 J	0.49 J	0.49 J	0.49 J
Calcium	MG/KG	26.6	22%	2.5	6	26	119	0.44 UR	0.55 U	0.54 U	0.53 UR	0.36 UR	0.36 UR	0.36 UR	0.36 UR	0.36 UR
Chromium	MG/KG	213000	100%	0	0	119	119	19200	15300	22400	18700	67000	84000	84000	84000	84000
Cobalt	MG/KG	32.1	100%	30	0	119	119	29.9	20.2	28.9	24.2	25	16.5	16.5	16.5	16.5
Copper	MG/KG	29.7	100%	0	0	119	119	13.7	10.4	9.4 J	12.8	12.2	8	8	8	8
Cyanide	MG/KG	2930	92%	27	0	109	119	32.2	39.2	26.8 J	19.7 J	25.4 J	22.6 J	22.6 J	22.6 J	22.6 J
Iron	MG/KG	0	0%	0	0	119	119	0.68 U	0.48 U	0.74 U	0.67 U	0.63 U	0.62 U	0.62 U	0.62 U	0.62 U
Lead	MG/KG	39900	100%	0	0	119	119	35700	24300	30500	29300	27600	19900	19900	19900	19900
Magnesium	MG/KG	1860	100%	63	0	119	119	8330	4920	7890	6640	10000	27600	27600	27600	27600
Manganese	MG/KG	27600	100%	0	0	119	119	463 J	350	472	247 J	818 J	500 J	323 J	323 J	323 J
Mercury	MG/KG	0.15	75%	0.18	0	89	119	0.06 J	0.05 J	0.04 J	0.05 J	0.03 J	0.02 J	0.02 J	0.02 J	0.02 J
Nickel	MG/KG	54.1	100%	30	0	119	119	31.6	31.6	31.6	31.8	31.8	29.8	29.8	29.8	29.8
Potassium	MG/KG	3250	100%	0	0	119	119	2080	935	3250	2190	1910	1350	1350	1350	1350
Selenium	MG/KG	2.7	63%	3.9	0	119	119	1.1 J	0.52 J	0.39 J	1.2 J	0.96 J	1.1 J	1.1 J	1.1 J	1.1 J
Silver	MG/KG	1.7	38%	2	0	45	119	0.87 U	1.1 U	1.1 U	0.96 U	0.72 U	0.67 U	0.67 U	0.67 U	0.67 U
Sodium	MG/KG	270	34%	0	0	41	119	99 J	70.7 J	97.9 J	102 J	82.7 J	136 J	128 J	128 J	128 J
Thallium	MG/KG	6.7	98%	0	0	98	119	0.27 U	0.16 U	0.16 U	0.95 J	0.96 J	0.88 J	0.91 J	0.91 J	0.91 J
Vanadium	MG/KG	104	99%	0	0	118	119	31.4	28.3	104	39	32.9	25.4	17.9	17.9	17.9
Zinc	MG/KG	1250	93%	109	11	111	119	93.8	120	85.6 J	63.8 J	82.7 J	68.5 J	68.5 J	68.5 J	68.5 J
<b>Other Analyzes</b>																
Calcium exchange capacity	MEQ/100G	31.4	100%	0	0	32	32									
Nitrate/Nitrite Nitrogen	MG/KG	4.4	99%	0	0	99	101									
Percent Solids	% WW	94	100%	0	0	101	101									
Soil pH (std. units)	pH units	7.83	100%	0	0	33	33									
Total Organic Carbon	MG/KG	70500	100%	0	0	32	32									

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives.  
[http://www.dcc.state.ny.us/website/reg/s/subpart175\\_6.htm](http://www.dcc.state.ny.us/website/reg/s/subpart175_6.htm)  
 (2) Sample-duplicate pairs were treated as discreet samples.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
 U = compound was not detected  
 J = the reported value is an estimated concentration  
 UR = the compound was not detected; the associated reporting limit is approximate  
 R = the analytical result was rejected during data validation.

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-1 GW		SEAD-57 MW57-1 GW		SEAD-57 MW57-1 GW	
								SI	SA	SI	SA	SI	SA
<b>Volatile Organic Compounds</b>													
1,1,1,2-Tetrachloroethane	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	19	10 U	0	0	0	0	0
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	11	10 U	0	0	0	0	0
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	19	10 U	0	0	0	0	0
1,1-Dichloroethane	UG/L	0	0%	5	0	0	19	10 U	0	0	0	0	0
1,1-Dichloroethene	UG/L	0	0%	5	0	0	19	0	0	0	0	0	0
1,1-Dichloropropene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
1,2,3-Trichlorobenzene	UG/L	0	0%	0.04	0	0	16	0	0	0	0	0	0
1,2,3-Trichloropropane	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
1,2,4-Trimethylbenzene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	16	0	0	0	0	0	0
1,2-Dibromomethane	UG/L	0	0%	0.0006	0	0	16	0	0	0	0	0	0
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0	0	0	0	0	0
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	19	10 U	0	0	0	0	0
1,2-Dichloroethene (total)	UG/L	0	0%	5	0	0	3	10 U	0	0	0	0	0
1,2-Dichloropropane	UG/L	0	0%	1	0	0	19	10 U	0	0	0	0	0
1,3,5-Trimethylbenzene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0	0	0	0	0	0
1,3-Dichloropropane	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0	0	0	0	0	0
2,2-Dichloropropane	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
2-Chlorobenzene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
2-Nitropropane	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Acetone	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Acrylonitrile	UG/L	0	0%	5	0	0	19	10 U	0	0	0	0	0
Allyl chloride	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Benzene	UG/L	0	0%	1	0	0	19	10 U	0	0	0	0	0
Bromobenzene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Bromochloromethane	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Bromodichloromethane	UG/L	0	0%	80	0	0	19	10 U	0	0	0	0	0
Bromoform	UG/L	0	0%	80	0	0	19	10 U	0	0	0	0	0
Butyl chloride	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Carbon disulfide	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Carbon tetrachloride	UG/L	0	0%	5	0	0	19	10 U	0	0	0	0	0
Chloroacetonitrile	UG/L	0	0%	5	0	0	19	10 U	0	0	0	0	0
Chlorobenzene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Chlorodibromomethane	UG/L	0	0%	80	0	0	19	10 U	0	0	0	0	0
Chloroethane	UG/L	0	0%	5	0	0	19	10 U	0	0	0	0	0
Chloroform	UG/L	0	0%	7	0	0	19	10 U	0	0	0	0	0
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	19	10 U	0	0	0	0	0
Dichlorodifluoromethane	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Dichloromethyl methyl ketone	UG/L	0	0%	5	0	0	11	0	0	0	0	0	0
Ethyl benzene	UG/L	0	0%	5	0	0	19	10 U	0	0	0	0	0
Ethyl ether	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Ethyl methacrylate	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	16	0	0	0	0	0	0
Hexachloroethane	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Isopropylbenzene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Meta-Para Xylene	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Methacrylonitrile	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Methyl 2-propenoate	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Methyl Tertiary Ether	UG/L	0	0%	5	0	0	16	0	0	0	0	0	0
Methyl bromide	UG/L	0	0%	5	0	0	19	10 U	0	0	0	0	0

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-1 GW		SEAD-57 MW57-1 GW		SEAD-57 MW57-1 GW	
								ESI	SA	ESI	SA	ESI	SA
Methyl butyl ketone	UG/L	0	0%		0	0	19	0	0	0	0	0	0
Methyl chloride	UG/L	0	0%	5	0	0	19	10 U	10 U	0.5 U	0.5 U	2.5 U	2.5 U
Methyl ethyl ketone	UG/L	0	0%		0	0	19	10 U	10 U	5 U	5 U	5 U	5 U
Methyl iodide	UG/L	0	0%	5	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
Methyl isobutyl ketone	UG/L	0	0%		0	0	19	10 U	10 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl methacrylate	UG/L	0	0%	50	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
Methylene bromide	UG/L	0	0%	5	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	UG/L	0	0%	5	0	0	19	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	UG/L	0	0%		0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	16			25 UJ	25 UJ	25 UJ	25 UJ
Ortho Xylene	UG/L	0	0%	5	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
Pentachloroethane	UG/L	0	0%	5	0	0	8			0.5 UJ	0.5 UJ	2 UR	2 UR
Propionitrile	UG/L	0	0%		0	0	16			25 U	25 U	25 U	25 U
Propylbenzene	UG/L	0	0%	5	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
Styrene	UG/L	0	0%	5	0	0	19			0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	UG/L	0	0%	5	0	0	19	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran	UG/L	0	0%		0	0	16			2.5 U	2.5 U	2.5 U	2.5 U
Toluene	UG/L	0	0%	5	0	0	19	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U
Total Xylenes	UG/L	0	0%	5	0	0	19	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	19	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%		0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	UG/L	0	0%	5	0	0	19	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	UG/L	0	0%		0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0%	5	0	0	19	10 U	10 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0%	2	0	0	19			0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0%	5	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0%	5	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0%	5	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0%	5	0	0	16			0.5 U	0.5 U	0.5 U	0.5 U
<b>Semivolatile Organic Compounds</b>													
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
2,2'-oxybis(1-Chloropropane)	UG/L	0	0%		0	0	3						
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	18	25 U	25 U	2.5 U	2.5 U	2.8 U	2.8 U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	18	10 U	10 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	18	10 U	10 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	UG/L	0	0%		0	0	18	10 U	10 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	UG/L	0	0%		0	0	17	25 U	25 U	2.5 UJ	2.5 UJ	2.8 U	2.8 U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
2-Chloroaniline	UG/L	0	0%		0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
2-Chlorophenol	UG/L	0	0%		0	0	18	10 U	10 U	1 U	1 U	1 U	1 U
2-Methylphenol	UG/L	0	0%		0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
2-Methylthiophenol	UG/L	0	0%		0	0	18	10 U	10 U	1 U	1 U	1 U	1 U
2-Nitroaniline	UG/L	0	0%	5	0	0	19	25 U	25 U	2.5 U	2.5 U	2.8 U	2.8 U
2-Nitrophenol	UG/L	0	0%	1	0	0	18	10 U	10 U	1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	11	10 U	10 U	1 UJ	1 UJ	1.1 UR	1.1 UR
3-Nitroaniline	UG/L	0	0%	5	0	0	19	25 U	25 U	2.5 U	2.5 U	2.8 UJ	2.8 UJ
4,6-Dimro-2-methylphenol	UG/L	0	0%	1	0	0	18	25 U	25 U	2.5 U	2.5 U	2.8 U	2.8 U
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	18	10 U	10 U	1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0%	5	0	0	19	10 U	10 U	1 U	1 U	1 U	1 U
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	19	10 U	10 U	1 U	1 U	1 U	1 U

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-1 GW		SEAD-57 MW57-1 GW		SEAD-57 MW57-1 GW	
								Value (Q)	SA	Value (Q)	SA	Value (Q)	SA
4-Methylphenol	UG/L	0	0%		0	0	18	10 U	1 U	10 U	1 U	1 U	
4-Nitroaniline	UG/L	0	0%	5	0	0	19	25 U	2.5 U	2.8 U	2.8 U	2.8 U	
4-Nitrophenol	UG/L	0	0%	1	0	0	17	25 U	2.5 U	2.8 U	2.8 U	2.8 U	
Acenaphthene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Acenaphthylene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Anthracene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Benzo(a)anthracene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Benzo(a)pyrene	UG/L	0	0%	0	0	0	19	10 U	1 U	1 U	1 U	1 U	
Benzo(b)fluoranthene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Benzo(ghi)perylene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Benzo(k)fluoranthene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	1 U	1 U	
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	19	10 U	1 U	1 U	1 U	1 U	
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	16	10 U	1 U	1 U	1 U	1 U	
Bis(2-Ethylhexyl)phthalate	UG/L	20	5%	5	1	1	19	10 U	1 U	1 U	1 U	1 U	
Butylbenzylphthalate	UG/L	0.077	5%		0	1	19	10 U	1 U	1 U	1 U	1 U	
Carbazole	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Chrysene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Di-n-butylphthalate	UG/L	0	0%	50	0	0	19	10 U	1 U	1 U	1 U	1 U	
Di-n-octylphthalate	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Dibenzofuran	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Diethyl phthalate	UG/L	1.9	3%		0	1	19	10 U	1 U	1 U	1 U	1 U	
Dimethylphthalate	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Fluoranthene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Fluorene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	19	10 U	1 U	1 U	1 U	1 U	
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	19	10 U	1 U	1 U	1 U	1 U	
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	1 U	1 U	
Hexachloroethane	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	1 U	1 U	
Indenol 1,2,3-cd)pyrene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Isophorone	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
N-Nitrosodiphenylamine	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
N-Nitrosodipropylamine	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Naphthalene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	1 U	
Nitrobenzene	UG/L	0	0%	0.4	0	0	19	10 U	1 U	1 U	1 U	1 U	
Perchlorophenol	UG/L	0	0%	1	0	0	18	25 U	2.5 U	2.8 U	2.8 U		
Phenanthrene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U		
Phenol	UG/L	0	0%	1	0	0	18	10 U	1 U	1 U	1 U		
Pyrene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U		
<b>Explosives</b>													
1,3,5-Trinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		
1,3-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		
2,4,6-Trinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		
2,4-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		
2,6-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		
2-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.13 U	0.25 U	0.25 U	0.25 U		
2-amino-4,6-Dinitrotoluene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		
3-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.13 U	0.25 U	0.25 U	0.25 U		
4-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.13 U	0.25 U	0.25 U	0.25 U		
4-amino-2,6-Dinitrotoluene	UG/L	0	0%		0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		
HMX	UG/L	0	0%		0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		
Nitrobenzene	UG/L	0	0%	0.4	0	0	16	0.13 U	0.25 U	0.25 U	0.25 U		
RDX	UG/L	0	0%		0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		
Tetryl	UG/L	0	0%		0	0	20	0.13 U	0.25 U	0.25 U	0.25 U		

**Pesticides and PCBs**

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57		SEAD-57		SEAD-57	
								SI	SA	SI	SA	SI	SA
4,4'-DDD	UG/L	0	0%	0.3	0	0	0	0	0	0	0	0	0
4,4'-DDE	UG/L	0	0%	0.2	0	0	19	0.11 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U
4,4'-DDT	UG/L	0	0%	0.2	0	0	19	0.11 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U
Aldrin	UG/L	0	0%	0	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Alpha-BHC	UG/L	0	0%	0.01	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Alpha-Chlordane	UG/L	0	0%	0	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Areclor-1016	UG/L	0	0%	0.09	0	0	19	1.1 U	0.1 U	0.1 U	0.12 U	0.12 U	0.12 U
Areclor-1221	UG/L	0	0%	0.09	0	0	19	2.2 U	0.21 U	0.21 U	0.23 U	0.23 U	0.23 U
Areclor-1232	UG/L	0	0%	0.09	0	0	19	1.1 U	0.1 U	0.1 U	0.12 U	0.12 U	0.12 U
Areclor-1242	UG/L	0	0%	0.09	0	0	19	1.1 U	0.1 U	0.1 U	0.12 U	0.12 U	0.12 U
Areclor-1248	UG/L	0	0%	0.09	0	0	19	1.1 U	0.1 U	0.1 U	0.12 U	0.12 U	0.12 U
Areclor-1254	UG/L	0	0%	0.09	0	0	19	1.1 U	0.1 U	0.1 U	0.12 U	0.12 U	0.12 U
Areclor-1260	UG/L	0	0%	0.09	0	0	19	1.1 U	0.1 U	0.1 U	0.12 U	0.12 U	0.12 U
Beta-BHC	UG/L	0	0%	0.04	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Delta-BHC	UG/L	0	0%	0.04	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Dieldrin	UG/L	0	0%	0.004	0	0	19	0.11 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U
Endosulfan I	UG/L	0	0%	0	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Endosulfan II	UG/L	0	0%	0	0	0	19	0.11 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U
Endosulfan sulfate	UG/L	0	0%	0	0	0	19	0.11 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U
Endrin	UG/L	0	0%	5	0	0	19	0.11 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U
Endrin aldehyde	UG/L	0	0%	5	0	0	19	0.11 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U
Endrin ketone	UG/L	0	0%	5	0	0	19	0.11 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U
Gamma-BHC/Lindane	UG/L	0	0%	0.05	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Gamma-Chlordane	UG/L	0	0%	0.04	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Heptachlor	UG/L	0	0%	0.03	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Heptachlor epoxide	UG/L	0	0%	0.03	0	0	19	0.054 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0052 U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	16	0.054 U	0.01 U	0.01 U	0.012 U	0.012 U	0.012 U
Methoxychlor	UG/L	0	0%	35	0	0	19	0.54 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U
Toxaphene	UG/L	0	0%	0.06	0	0	19	5.4 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U
<b>Herbicides</b>													
2,4,5-T	UG/L	0	0%	35	0	0	3	0.12 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
2,4,5'-TP/Silvex	UG/L	0	0%	0.26	0	0	3	0.12 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
2,4-D	UG/L	0	0%	50	0	0	3	1.2 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
2,4-DB	UG/L	0	0%	50	0	0	3	1.2 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Dalapon	UG/L	0	0%	50	0	0	3	2.7 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Dicamba	UG/L	0	0%	0.44	0	0	3	0.12 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U
Dichloroprop	UG/L	0	0%	1	0	0	3	1.2 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Dinoseb	UG/L	0	0%	1	0	0	3	0.58 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
MCPA	UG/L	0	0%	0.44	0	0	3	120 U	120 U	120 U	120 U	120 U	120 U
MCPP	UG/L	0	0%	0	0	0	3	120 U	120 U	120 U	120 U	120 U	120 U
<b>Metals</b>													
Aluminum	UG/L	6540	100%		0	21	21	4200	716 J	4200	686	136 J	136 J
Antimony	UG/L	44.7	14%	3	2	3	21	44.7 J	2.2 U	2.2 U	2.7 U	2.7 U	2.7 U
Arsenic	UG/L	4.1	10%	10	0	2	21	1.4 U	1.8 U	1.9 U	1.9 U	1.9 U	1.9 U
Barium	UG/L	129	100%	1000	0	21	21	36.5 J	15.7 J	19.4 J	19.4 J	16 J	16 J
Beryllium	UG/L	0.63	5%	4	0	1	21	0.4 U	0.1 U	0.2 U	0.2 U	0.3 U	0.3 U
Cadmium	UG/L	3.1	10%	5	0	2	21	2.1 U	0.3 U	0.3 U	0.25 J	0.3 U	0.3 U
Calcium	UG/L	297000	100%		0	21	21	82000 J	49400 J	67300	67300	70100 J	70100 J
Chromium	UG/L	14.5	62%	50	0	13	21	7.7 J	1.3 J	1.3 J	1.3 J	2.2 U	2.2 U
Cobalt	UG/L	14.8	5%	200	0	1	21	4.4 U	1.5 U	2 U	2 U	3 U	3 U
Copper	UG/L	19.5	48%	200	0	10	21	3.1 U	2.3 J	3.2 J	3.7 J	19.5 J	19.5 J
Cyanide	UG/L	0	0%		0	0	21	5 U	5 U	10 UJ	10 U	10 U	10 U
Iron	UG/L	9260	90%	300	12	19	21	446 J	392 J	392 J	392 J	84.5 J	84.5 J
Iron+Manganese	UG/L	9587	90%	500	6	19	21	397.1 J	451 J	397.1 J	410 J	107.7 J	107.7 J
Lead	UG/L	2.2	14%	15	0	3	21	2.1 J	0.9 U	1 U	1.3 U	2.3 U	2.3 U
Magnesium	UG/L	36900	100%		0	21	21	11400	6330 J	8140	8140	8410	8410

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57			SEAD-57			SEAD-57		
								MW57-1 GW	MW57-1 GW	MW57-1 GW	MW57-1 GW	MW57-1 GW	MW57-1 GW	MW57-1 GW	MW57-1 GW	MW57-1 GW
Manganese	UG/L	327	90%	300	1	19	21	245	0	0	5	5	11	23.2	23.2	
Mercury	UG/L	0	0%	0.7	0	0	21	0.04 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	
Nickel	UG/L	18.8	29%	100	0	6	21	8.2 J	2 J	1.7 U	1.7 U	1.9 J	4.81 J	2.9 U	2.9 U	
Potassium	UG/L	4600	100%		0	21	21	3860 J	567 J	629 J	629 J	481 J	551 J	551 J	551 J	
Selenium	UG/L	2.4	100%	10	0	2	21	0.69 U	1.8 U	2.4 U	2.4 U	2.5 U	4 U	4 U	4 U	
Silver	UG/L	3.1	14%	50	0	3	21	4.2 U	0.9 U	1.9 U	1.9 U	1.3 U	1.9 U	1.9 U	1.9 U	
Sodium	UG/L	26100	100%	20000	2	21	21	4080 J	5730 J	7750 J	7750 J	7000 J	7570 J	7570 J		
Thallium	UG/L	6.7	19%	2	4	4	21	1.2 U	1.9 U	1.9 U	1.9 U	3.9 U	3.9 U	3.9 U		
Vanadium	UG/L	9.2	24%		0	5	21	7.6 J	1.6 U	1.3 U	1.3 U	2.9 U	2.9 U	2.9 U		
Zinc	UG/L	85.1	95%		0	20	21	57.4	4.5 J	7.1 J	7.1 J	1.8 U	2.8 J	2.8 J		
<b>Other Analytes</b>																
COD	MG/L	16	40%		0	6	15									
Nitrate/Nitrite Nitrogen	MG/L	0.49	94%	10000	0	15	16									
Total Dissolved Solids	MG/L	1030	100%		0	15	15									
Total Hardness-CaCO3	MG/L	790	100%		0	15	15									

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)  
 (2) Shading indicates a concentration above the groundwater standard.

U = compound was not detected  
 J = the reported value is an estimated concentration  
 R = the analytical result was rejected during data validation.

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57		SEAD-57		SEAD-57		SEAD-57	
								MW57-2 GW MW57-2 8 6.1 2/3/1994	SA ESI SA DU ESI SA	MW57-2 GW 572006 8 8 4/27/2000	DU DU DU DU DU DU	MW57-2 GW 572000 8 8 4/27/2000	SA SA SA SA SA SA	MW57-3 GW MW57-3 4.1 6.1 2/3/1994	GW DU ESI SA ESI SA
<b>Parameter</b>															
<b>Volatile Organic Compounds</b>															
1,1,1,2-Tetrachloroethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	1	0	0	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,1,2-Trichloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2,3-Trichloropropane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2,3-Trichloropropane	UG/L	0	0%	0.04	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2,4-Trimethylbenzene	UG/L	0	0%	0.04	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.0006	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2-Dibromethane	UG/L	0	0%	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2-Dichlorobenzene	UG/L	0	0%	0.6	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2-Dichloroethane	UG/L	0	0%	5	0	0	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2-Dichloroethene (total)	UG/L	0	0%	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,2-Dichloropropane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,3,5-Trimethylbenzene	UG/L	0	0%	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,3-Dichlorobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,3-Dichloropropane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
2,2-Dichloropropane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
2-Chlorotoluene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
2-Nitropropane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Acetone	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Acrylonitrile	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Allyl chloride	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Benzene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Bromobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Bromochloromethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Bromodichloromethane	UG/L	0	0%	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Bromoform	UG/L	0	0%	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Butyl chloride	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Carbon disulfide	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Chloroacetonitrile	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Chlorobenzene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Chloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Chloroform	UG/L	0	0%	7	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Cis-1,2-Dichloroethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Dichlorodifluoromethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Dichloromethyl methyl ketone	UG/L	0	0%	5	0	0	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Ethyl ether	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Ethyl methacrylate	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Hexachloroethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Isopropylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Meta/Para Xylene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Methacrylonitrile	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Methyl 2-propenoate	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Methyl Tertiary Ether	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U
Methyl bromide	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 U



TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57				
								MW57-2	MW57-3	MW57-4	MW57-5	
Methyl butyl ketone	UG/L	0	0%		0	0	19	10 U	2.5 U	2.5 U	10 U	
Methyl chloride	UG/L	0	0%	5	0	0	19	10 U	0.5 U	0.5 U	10 U	
Methyl ethyl ketone	UG/L	0	0%		0	0	19	10 U	5 U	5 U	10 U	
Methyl iodide	UG/L	0	0%	5	0	0	16	10 U	0.5 U	0.5 U	10 U	
Methyl isobutyl ketone	UG/L	0	0%		0	0	19	10 U	2.5 U	2.5 U	10 U	
Methyl methacrylate	UG/L	0	0%	50	0	0	16	10 U	0.5 U	0.5 U	10 U	
Methylene bromide	UG/L	0	0%	5	0	0	16	10 U	0.5 U	0.5 U	10 U	
Methylene chloride	UG/L	0	0%	5	0	0	19	10 U	0.5 U	0.5 U	10 U	
Naphthalene	UG/L	0	0%		0	0	16	10 U	0.5 U	0.5 U	10 U	
Nitrobenzene	UG/L	0	0%	0.4	0	0	16	25 U	0.5 U	0.5 U	10 U	
Ortho Xylene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
Pentachloroethane	UG/L	0	0%	5	0	0	8	0.5 U	0.5 U	0.5 U	2 UR	
Propionitrile	UG/L	0	0%	5	0	0	16	25 U	25 U	25 U	2 UR	
Propylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
Styrene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	10 U	
Tetrachloroethene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	10 U	
Tetrahydrofuran	UG/L	0	0%		0	0	16	2.5 U	2.5 U	2.5 U	10 U	
Toluene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	10 U	
Total Xylenes	UG/L	0	0%	5	0	0	19	10 U	0.5 U	0.5 U	10 U	
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
Trans-1,3-Dichloropropene	UG/L	0	0%		0	0	16	0.5 U	0.5 U	0.5 U	10 U	
Trans-1,4-Dichloro-2-butene	UG/L	0	0%	0.4	0	0	19	0.5 U	0.5 U	0.5 U	10 U	
Trichloroethene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
Trichlorofluoromethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
Vinyl chloride	UG/L	0	0%	2	0	0	19	0.5 U	0.5 U	0.5 U	10 U	
n-Butylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
p-Chlorotoluene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
p-Isopropyltoluene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
sec-Butylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
tert-Butylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	10 U	
<b>Semivolatile Organic Compounds</b>												
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	10 U	
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	19	10 U	1 U	1 U	10 U	
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	19	10 U	1 U	1 U	10 U	
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	19	10 U	1 U	1 U	10 U	
2,2'-oxybis(1-Chlorophenol)	UG/L	0	0%		0	0	3	10 U	1 U	1 U	10 U	
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	18	25 U	2.5 U	2.5 U	2.8 UR	
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	18	10 U	1 U	1 U	10 U	
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	18	10 U	1 U	1 U	10 U	
2,4-Dinitrophenol	UG/L	0	0%		0	0	18	10 U	1 U	1 U	10 U	
2,4-Dinitrotoluene	UG/L	0	0%		0	0	17	25 U	2.5 U	2.5 U	1.1 UR	
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	10 U	
2-Chloronaphthalene	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	10 U	
2-Chlorophenol	UG/L	0	0%		0	0	18	10 U	1 U	1 U	10 U	
2-Methylnaphthalene	UG/L	0	0%		0	0	18	10 U	1 U	1 U	10 U	
2-Methylphenol	UG/L	0	0%		0	0	18	10 U	1 U	1 U	10 U	
2-Nitroaniline	UG/L	0	0%	5	0	0	18	10 U	1 U	1 U	10 U	
2-Nitrophenol	UG/L	0	0%	1	0	0	18	10 U	1 U	1 U	10 U	
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	11	10 U	1 U	1 U	10 U	
3-Nitroaniline	UG/L	0	0%	5	0	0	19	25 U	2.5 U	2.5 U	2.5 U	
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	18	25 U	2.5 U	2.5 U	2.5 U	
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	18	10 U	1 U	1 U	10 U	
4-Chloroaniline	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	10 U	
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	19	10 U	1 U	1 U	10 U	

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57							
								SEAD-57 MW57-2 GW	SEAD-57 MW57-2 GW	SEAD-57 MW57-2 GW	SEAD-57 MW57-3 GW				
								Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1
4-Methylphenol	UG/L	0	0%		0	0	18	10 U	1 U	1 U	1 U	10 U	1 U	10 U	1 U
4-Nitroaniline	UG/L	0	0%	5	0	0	19	25 U	2.6 UJ	2.5 UJ	2.5 UJ	25 U	2.5 UJ	25 U	25 U
4-Nitrophenol	UG/L	0	0%	1	0	0	17	10 U	2.6 UJ	2.5 UJ	2.5 UJ	10 U	1 U	10 U	10 U
Acenaphthene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Acenaphthylene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Anthracene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Benzo(a)anthracene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Benzo(a)pyrene	UG/L	0	0%	0	0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Benzo(b)fluoranthene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Benzo(k)fluoranthene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	16	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Bis(2-Ethylhexyl)phthalate	UG/L	20	5%	5	1	1	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Burybenzylphthalate	UG/L	0.077	5%		0	1	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Carbazole	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Chrysene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Di-n-butylphthalate	UG/L	0	0%	50	0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Di-n-octylphthalate	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Dibenzofuran	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Diethyl phthalate	UG/L	1.9	5%		0	1	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Dimethylphthalate	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Fluoranthene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Fluorene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Hexachloroethane	UG/L	0	0%	5	0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Isophthorone	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
N-Nitrosodiphenylamine	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
N-Nitrosodipropylamine	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Naphthalene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Penachlorophenol	UG/L	0	0%	1	0	0	18	25 U	2.6 UJ	2.5 UJ	2.5 UJ	25 U	2.5 UJ	25 U	25 U
Phenanthrene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Phenol	UG/L	0	0%	1	0	0	18	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
Pyrene	UG/L	0	0%		0	0	19	10 U	1 U	1 U	1 U	10 U	1 U	10 U	10 U
<b>Explosives</b>															
1,3,5-Trinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
1,3-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
2,4,6-Trinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
2,4-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
2,6-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
2-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
2-amino-4,6-Dinitrotoluene	UG/L	0	0%	5	0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
3-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
4-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
4-amino-2,6-Dinitrotoluene	UG/L	0	0%		0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
HMX	UG/L	0	0%		0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	16	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
RDX	UG/L	0	0%		0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
Tetryl	UG/L	0	0%		0	0	20	0.13 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	0.13 U
<b>Pesticides and PCBs</b>															

**TABLE 2**  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-2 GW		SEAD-57 MW57-2 GW		SEAD-57 MW57-2 GW		SEAD-57 MW57-3 GW		SEAD-57 MW57-3 GW	
								Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1
4,4'-DDD	UG/L	6540	100%	0.3	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
4,4'-DDE	UG/L	44.7	14%	0.2	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
4,4'-DDT	UG/L	0	0%	0.2	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Aldrin	UG/L	0	0%	0	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Alpha-BHC	UG/L	0	0%	0.01	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Alpha-Chlordane	UG/L	0	0%	0	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Arochlor-1016	UG/L	0	0%	0.09	0	0	19	0.21 U	0.2 U	0.21 U	0.2 U	0.21 U	0.2 U	0.21 U	0.2 U	0.21 U	0.2 U
Arochlor-1221	UG/L	0	0%	0.09	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Arochlor-1232	UG/L	0	0%	0.09	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Arochlor-1242	UG/L	0	0%	0.09	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Arochlor-1248	UG/L	0	0%	0.09	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Arochlor-1254	UG/L	0	0%	0.09	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Arochlor-1260	UG/L	0	0%	0.09	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Ben-BHC	UG/L	0	0%	0.04	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Delta-BHC	UG/L	0	0%	0.04	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Dieldrin	UG/L	0	0%	0.004	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Endosulfan I	UG/L	0	0%	0	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Endosulfan II	UG/L	0	0%	0	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Endosulfan sulfate	UG/L	0	0%	0	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Endrin	UG/L	0	0%	0	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Endrin aldehyde	UG/L	0	0%	0	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Endrin ketone	UG/L	0	0%	5	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Gamma-BHC Lindane	UG/L	0	0%	5	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Gamma-Chlordane	UG/L	0	0%	0.05	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Heptachlor	UG/L	0	0%	0.04	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Heptachlor epoxide	UG/L	0	0%	0.04	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Hexachlorobenzene	UG/L	0	0%	0.03	0	0	19	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Hexachlorocyclopentadiene	UG/L	0	0%	0.04	0	0	16	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U	0.054 U	0.0052 U
Methoxychlor	UG/L	0	0%	35	0	0	19	0.54 U	0.52 U	0.54 U	0.52 U	0.54 U	0.52 U	0.54 U	0.52 U	0.54 U	0.52 U
Toxaphene	UG/L	0	0%	0.06	0	0	19	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Herbicides																	
2,4,5-T	UG/L	0	0%	35	0	0	3	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
2,4,5-T/ Silvex	UG/L	0	0%	0.26	0	0	3	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
2,4-D	UG/L	0	0%	50	0	0	3	1.1 U	0.1 U	1.1 U	0.1 U	1.1 U	0.1 U	1.1 U	0.1 U	1.1 U	0.1 U
2,4-DB	UG/L	0	0%	0	0	0	3	1.1 U	0.1 U	1.1 U	0.1 U	1.1 U	0.1 U	1.1 U	0.1 U	1.1 U	0.1 U
Dalapon	UG/L	0	0%	50	0	0	3	2.5 U	0.25 U	2.5 U	0.25 U	2.5 U	0.25 U	2.5 U	0.25 U	2.5 U	0.25 U
Dicamba	UG/L	0	0%	0.44	0	0	3	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Diethylprop	UG/L	0	0%	0	0	0	3	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U	0.11 U	0.01 U
Dinoseb	UG/L	0	0%	1	0	0	3	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U
MCPA	UG/L	0	0%	0.44	0	0	3	110 U	110 U	110 U	110 U	110 U	110 U	110 U	110 U	110 U	110 U
MCPP	UG/L	0	0%	0	0	0	3	51.4 J	51.4 J	51.4 J	51.4 J	51.4 J	51.4 J	51.4 J	51.4 J	51.4 J	51.4 J
Metals																	
Aluminum	UG/L	6540	100%	6540	0	21	21	43.9 J	43.9 J	43.9 J	43.9 J	43.9 J	43.9 J	43.9 J	43.9 J	43.9 J	43.9 J
Antimony	UG/L	44.7	14%	3	2	21	21	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U
Arsenic	UG/L	4.1	10%	10	0	2	21	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
Barium	UG/L	129	100%	1000	0	21	21	20.3 J	20.3 J	20.3 J	20.3 J	20.3 J	20.3 J	20.3 J	20.3 J	20.3 J	20.3 J
Beryllium	UG/L	0.63	5%	4	0	1	21	0.63 J	0.63 J	0.63 J	0.63 J	0.63 J	0.63 J	0.63 J	0.63 J	0.63 J	0.63 J
Cadmium	UG/L	3.1	10%	5	0	2	21	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Calcium	UG/L	297000	100%	288000	0	21	21	233000	233000	233000	233000	233000	233000	233000	233000	233000	233000
Chromium	UG/L	14.5	62%	50	0	13	21	1.2 J	1.2 J	1.2 J	1.2 J	1.2 J	1.2 J	1.2 J	1.2 J	1.2 J	1.2 J
Cobalt	UG/L	14.8	5%	14.8 J	0	1	21	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Copper	UG/L	19.5	48%	200	0	10	21	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
Cyanide	UG/L	0	0%	0	0	0	21	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Iron	UG/L	9260	90%	300	12	19	21	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron+Manganese	UG/L	987	90%	500	6	19	21	138 J	138 J	138 J	138 J	138 J	138 J	138 J	138 J	138 J	138 J
Lead	UG/L	2.2	14%	15	0	3	21	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J
Magnesium	UG/L	36900	100%	36900	0	21	21	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
								28500	28500	28500	28500	28500	28500	28500	28500	28500	28500
								9260	9260	9260	9260	9260	9260	9260	9260	9260	9260
								987	987	987	987	987	987	987	987	987	987
								138 J	138 J	138 J	138 J	138 J	138 J	138 J	138 J	138 J	138 J
								213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J
								1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
								28500	28500	28500	28500	28500	28500	28500	28500	28500	28500
								9260	9260	9260	9260	9260	9260	9260	9260	9260	9260
								987	987	987	987	987	987	987	987	987	987
								138 J	138 J	138 J	138 J	138 J	138 J	138 J	138 J	138 J	138 J
								213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J	213.6 J
								1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
								28500	28500	28500	28500	28500	28500	28500	28500	28500	28500

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57		SEAD-57		SEAD-57		SEAD-57	
								SEAD-57 MW57-2 GW 4.1 8 6.1 2/3/1994	SEAD-57 MW57-2 GW 572006 8 1/23/2000	SEAD-57 MW57-2 GW 572000 8 4/27/2000	SEAD-57 MW57-2 GW 572101 8 4/27/2000	SEAD-57 MW57-2 GW 572000 8 1/23/2000	SEAD-57 MW57-2 GW 572101 8 4/27/2000	SEAD-57 MW57-2 GW 572000 8 1/23/2000	SEAD-57 MW57-2 GW 572101 8 4/27/2000
Manganese	UG/L	327	90%	300	1	19	21	Value (Q) 327	Value (Q) 71.6 J	Value (Q) 44.1 J	Value (Q) 1 U	Value (Q) 1 U	Value (Q) 1 U	Value (Q) 1 U	Value (Q) 122
Mercury	UG/L	0	0%	0.7	0	0	21	0.04 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.04 U	0.04 U
Nickel	UG/L	18.8	29%	100	0	6	21	18.8 J	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U
Potassium	UG/L	4600	100%	10	0	21	21	4600 J	1180 J	1180 J	1180 J	1180 J	1180 J	1180 J	1180 J
Selenium	UG/L	2.4	10%	10	0	2	21	2.2 J	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Silver	UG/L	3.1	14%	50	0	3	21	4.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Sodium	UG/L	26100	100%	20000	2	21	21	8920	11300	8500	8230	8230	8230	8230	8230
Thallium	UG/L	6.7	19%	2	4	4	21	1.2 U	3.6 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	1.2 U
Vanadium	UG/L	9.2	24%	2	0	5	21	9.2 J	2.8 U	2.8 U	2.9 U	2.9 U	2.9 U	2.9 U	4.5 J
Zinc	UG/L	85.1	95%	2	0	20	21	85.1	6.2 J	8 J	1.5 U	1.5 U	1.5 U	1.5 U	51.2
<b>Other Analytes</b>															
COD	MG/L	16	40%	10000	0	6	15		0.03	0.02	0.49	0.37	0.49	0.37	0.37
Nitrate/Nitrite Nitrogen	MG/L	0.49	94%	10000	0	15	16								
Total Dissolved Solids	MG/L	1030	100%	10000	0	15	15								
Total Hardness-CaCO3	MG/L	790	100%	10000	0	15	15								

Notes:  
(1) GA = NYSEDEC 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)  
(2) Shading indicates a concentration above the groundwater standard.

U = compound was not detected  
J = the reported value is an estimated concentration  
R = the analytical result was rejected during data validation.

**TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY**

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-3		SEAD-57 MW57-4		SEAD-57 MW57-5	
								RI PHASE I STEP 1	Value (Q)	RI PHASE I STEP 1	Value (Q)	RI PHASE I STEP 1	Value (Q)
<b>Volatil Organic Compounds</b>													
1,1,1,2-Tetrachloroethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UR	
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,1-Dichloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,1-Dichloroethene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,1-Dichloropropene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2,3-Trichlorobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2,3-Trichloropropene	UG/L	0	0%	0.04	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2,4-Trimethylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2-Dichloroethene (total)	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,2-Dichloropropane	UG/L	0	0%	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,3,5-Trimethylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,3-Dichloropropene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
2,2-Dichloropropene	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
2-Chlorobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
2-Nitropropane	UG/L	0	0%	25 UJ	0	0	16	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	
Acetone	UG/L	0	0%	5 U	0	0	19	5 U	5 U	5 U	5 U	5 U	
Acrylonitrile	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Allyl chloride	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Benzene	UG/L	0	0%	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Bromobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Bromochloromethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Bromodichloromethane	UG/L	0	0%	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Bromoform	UG/L	0	0%	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Butyl chloride	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Carbon disulfide	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Carbon tetrachloride	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Chloroacetone	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Chlorobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Chlorodibromomethane	UG/L	0	0%	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Chloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Chloroform	UG/L	0	0%	7	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Dichlorodifluoromethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Dichloromethyl methyl ketone	UG/L	0	0%	5	0	0	11	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	
Ethyl benzene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Ethyl ether	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Ethyl methacrylate	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Hexachloroethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Isopropylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Meta Para Xylene	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Methacrylonitrile	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Methyl 2-propanoate	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Methyl Terbutyl Ether	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Methyl bromide	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-3 GW		SEAD-57 MW57-4 GW		SEAD-57 MW57-5 GW		SEAD-57 MW57-5 GW	
								RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)
Methyl butyl ketone	UG/L	0	0%	5	0	0	19	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl chloride	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl ethyl ketone	UG/L	0	0%	5	0	0	19	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl iodide	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl isobutyl ketone	UG/L	0	0%	5	0	0	19	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl methacrylate	UG/L	0	0%	50	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene bromide	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	16	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ
Ortho-Xylene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Penta-chloroethane	UG/L	0	0%	5	0	0	8	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Propionitrile	UG/L	0	0%	5	0	0	16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Propylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetra-chloroethene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran	UG/L	0	0%	5	0	0	16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Toluene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total Xylenes	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0%	2	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
<b>Semivolatile Organic Compounds</b>															
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,2'-oxybis(1-Chloropropane)	UG/L	0	0%	5	0	0	3	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	UG/L	0	0%	5	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	UG/L	0	0%	5	0	0	17	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ
2,4-Dinitroethene	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,6-Dinitroethene	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	UG/L	0	0%	5	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylphenol	UG/L	0	0%	5	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroethene	UG/L	0	0%	5	0	0	19	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
2-Nitrophenol	UG/L	0	0%	5	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	11	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ
3-Nitroethene	UG/L	0	0%	5	0	0	19	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	18	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
4-Bromophenyl phenyl ether	UG/L	0	0%	1	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chlorophenyl phenyl ether	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-3 GW		SEAD-57 MW57-4 GW		SEAD-57 MW57-5 GW	
								RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)
4-Methylphenol	UG/L	0	0%		0	0	18	1 U	1.2 U	1 U	1.1 U	1.1 U	
4-Nitroaniline	UG/L	0	0%	5	0	0	19	2.6 UJ	2.9 UJ	2.6 UJ	2.6 UJ	2.7 UJ	
4-Nitrophenol	UG/L	0	0%	1	0	0	17	2.6 U	2.9 U	2.6 U	2.7 U	2.7 U	
Acenaphthene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Acenaphthylene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Anthracene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Benzo(a)anthracene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Benzo(a)pyrene	UG/L	0	0%	0	0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Benzo(b)fluoranthene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Benzo(g,h)perylene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Benzo(k)fluoranthene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Bis(2-Chloroethyl)ether	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Bis(2-Ethylhexyl)phthalate	UG/L	20	0%	5	1	1	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Butylbenzylphthalate	UG/L	0.077	5%	5	1	1	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Carbazole	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Chrysene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Di-n-butylphthalate	UG/L	0	0%	50	0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Di-n-octylphthalate	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Dimethyl phthalate	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Dibenzofuran	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Diethyl phthalate	UG/L	1.9	5%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Dimethylphthalate	UG/L	0	0%		0	0	19	1.9	1.2 U	1 U	1.1 U	1.1 U	
Fluoranthene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Fluorene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Hexachloroethane	UG/L	0	0%	5	0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Indenol 1,2,3-cdpyrene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Isophorone	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
N-Nitrosodiphenylamine	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
N-Nitrosodipropylamine	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Naphthalene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Nitrobenzene	UG/L	0	0%	0.4	0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Pentachlorophenol	UG/L	0	0%	1	0	0	18	2.6 U	2.9 U	2.6 U	2.7 U		
Picenaanthrene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
Phenol	UG/L	0	0%	1	0	0	18	1 U	1.2 U	1 U	1.1 U	1.1 U	
Pyrene	UG/L	0	0%		0	0	19	1 U	1.2 U	1 U	1.1 U	1.1 U	
<b>Explosives</b>													
1,3,5-Trinitrobenzene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
1,3-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2,4,6-Trinitrobenzene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2,4-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2,6-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2-Nitroethane	UG/L	0	0%	5	0	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
2-amino-4,6-Dinitroethane	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
3-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
4-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
4-amino-2,6-Dinitrotoluene	UG/L	0	0%		0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
HMX	UG/L	0	0%		0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
Nitrobenzene	UG/L	0	0%	0.4	0	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
RDX	UG/L	0	0%		0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
Tetryl	UG/L	0	0%		0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
<b>Pesticides and PCBs</b>													

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-3		SEAD-57 MW57-4		SEAD-57 MW57-5	
								RI PHASE 1 STEP 1	SA	RI PHASE 1 STEP 1	SA	RI PHASE 1 STEP 1	SA
4,4'-DDD	UG/L	0	0%	0.3	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDE	UG/L	0	0%	0.2	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDT	UG/L	0	0%	0.2	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	UG/L	0	0%	0	0	0	19	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Alpha-BHC	UG/L	0	0%	0.01	0	0	19	0.0053 U	0.0053 U	0.0053 U	0.0053 U	0.0053 U	0.0053 U
Alpha-Chlordane	UG/L	0	0%	0.01	0	0	19	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Alpha-Chloro-1016	UG/L	0	0%	0.09	0	0	19	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Aroclor-1221	UG/L	0	0%	0.09	0	0	19	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Aroclor-1232	UG/L	0	0%	0.09	0	0	19	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Aroclor-1242	UG/L	0	0%	0.09	0	0	19	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Aroclor-1248	UG/L	0	0%	0.09	0	0	19	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Aroclor-1254	UG/L	0	0%	0.09	0	0	19	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Aroclor-1260	UG/L	0	0%	0.09	0	0	19	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Beta-BHC	UG/L	0	0%	0.04	0	0	19	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Delta-BHC	UG/L	0	0%	0.04	0	0	19	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Dieldrin	UG/L	0	0%	0.004	0	0	19	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Endosulfan I	UG/L	0	0%	0	0	0	19	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Endosulfan II	UG/L	0	0%	0	0	0	19	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Endosulfan sulfate	UG/L	0	0%	0	0	0	19	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Endrin	UG/L	0	0%	0	0	0	19	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Endrin aldehyde	UG/L	0	0%	5	0	0	19	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Endrin ketone	UG/L	0	0%	5	0	0	19	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Gamma-BHC/Lindane	UG/L	0	0%	0.05	0	0	19	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Heptachlor	UG/L	0	0%	0.04	0	0	19	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Heptachlor epoxide	UG/L	0	0%	0.03	0	0	19	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	16	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
Methoxychlor	UG/L	0	0%	35	0	0	19	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
Toxaphene	UG/L	0	0%	0.06	0	0	19	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
<b>Herbicides</b>													
2,4,5-T	UG/L	0	0%	35	0	0	3	72.2 J	323	140 J	1950 J	324 J	
2,4,5-TP/Silvex	UG/L	0	0%	0.26	0	0	3	5.4 U	5.4 U	4.6 U	4.6 U	4.6 U	
2,4-D	UG/L	0	0%	50	0	0	3	2.4 U	2.4 U	2.5 U	2.5 U	2.5 U	
2,4-DB	UG/L	0	0%	0	0	0	3	58.6 J	43.6 J	62.2 J	62.2 J	99.9 J	
Dalapon	UG/L	0	0%	50	0	0	3	0.6 U	0.6 U	0.3 U	0.3 U	0.3 U	
Dicamba	UG/L	0	0%	0.44	0	0	3	0.8 U	0.8 U	0.3 U	0.3 U	0.3 U	
Dichloroprop	UG/L	0	0%	0	0	0	3	78900	89000	81000 J	72600 J		
Dinoseb	UG/L	0	0%	1	0	0	3	1.4 J	1.8 J	2.2 U	2.2 U		
MCPA	UG/L	0	0%	0.44	0	0	3	3.5 U	3.5 U	3 U	3 U		
MCPP	UG/L	0	0%	0	0	0	3	2.1 U	1.6 U	2.1 U	2.1 U		
<b>Metals</b>													
Aluminum	UG/L	6540	100%	0	0	21	21	72.2 J	323	140 J	1950 J	324 J	
Antimony	UG/L	44.7	14%	3	2	3	21	5.4 U	5.4 U	4.6 U	4.6 U		
Arsenic	UG/L	4.1	10%	10	2	2	21	2.4 U	2.4 U	2.5 U	2.5 U		
Barium	UG/L	129	100%	1000	0	21	21	58.6 J	43.6 J	62.2 J	62.2 J		
Beryllium	UG/L	0.63	5%	4	0	1	21	0.6 U	0.6 U	0.3 U	0.3 U		
Cadmium	UG/L	3.1	10%	5	0	2	21	0.8 U	0.8 U	0.3 U	0.3 U		
Calcium	UG/L	297000	100%	0	0	21	21	78900	89000	81000 J	72600 J		
Chromium	UG/L	14.5	62%	50	0	13	21	1.4 J	1.8 J	2.2 U	2.2 U		
Cobalt	UG/L	14.8	5%	200	0	1	21	3.5 U	3.5 U	3 U	3 U		
Copper	UG/L	19.5	48%	200	0	10	21	2.1 U	1.6 U	2.1 U	2.1 U		
Cyanide	UG/L	0	0%	0	0	0	21	10 U	10 U	10 U	10 U		
Iron	UG/L	9260	90%	300	12	19	21	29.5 J	408 J	87.4 J	412 J		
Iron-Manganese	UG/L	9587	90%	500	6	19	21	472.1 J	2091.4 J	89.9 J	455.8 J		
Lead	UG/L	2.2	14%	15	0	3	21	375.6 J	355 J	2091.4 J	2091.4 J		
Magnesium	UG/L	36900	100%	0	0	21	21	17400	28500	17100	19100		



TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-3		SEAD-57 MW57-4		SEAD-57 MW57-5	
								RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)
Manganese	UG/L	327	90%	300	1	19	21	20.6	2.5 J	61.4	61.4	43.8	
Mercury	UG/L	0	0%	0.7	0	0	21	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	
Nickel	UG/L	18.8	29%	100	0	6	21	4.2 U	2.9 U	6.2 J	2.9 U	2.9 U	
Potassium	UG/L	4600	100%	100	0	21	21	1030 J	1130 J	3770 J	3020 J	3020 J	
Selenium	UG/L	2.4	10%	10	0	2	21	2.2 U	4 U	2.5 U	4 U	4 U	
Silver	UG/L	3.1	14%	50	0	3	21	1.9 U	1.9 U	1.3 U	1.9 U	1.9 U	
Sodium	UG/L	26100	100%	20000	2	21	21	9620	5060	20100 J	20100 J	26100 J	
Thallium	UG/L	6.7	19%	2	4	4	21	3.9 U	3.9 U	3.2 U	3.9 U		
Vanadium	UG/L	9.2	24%	2	0	5	21	2.9 U	2.9 U	5.2 J	2.9 U		
Zinc	UG/L	85.1	95%	7.4 J	0	20	21	3.5 J	6.7 J	8.2 J	10.6 J		
<b>Other Analytes</b>													
COD	MG/L	16	40%		0	6	15						
Nitrate/Nitrite Nitrogen	MG/L	0.49	94%	10000	0	15	16	0.09	0.13	0.02	0.03	0.03	
Total Dissolved Solids	MG/L	1030	100%		0	15	15	416	291	372	372	334	
Total Hardness-CaCO3	MG/L	790	100%		0	15	15	380	320	315	315	280	

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)  
 (2) Shading indicates a concentration above the groundwater standard.

U = compound was not detected  
 J = the reported value is an estimated concentration  
 R = the analytical result was rejected during data validation.

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-6 GW		SEAD-57 MW57-7 GW		SEAD-57 MW57-7 GW	
								RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)	RI PHASE 1 STEP 1	Value (Q)
1,1,1,2-Tetrachloroethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	11	0.5 U	0.5 UR	0.5 U	0.5 U	0.5 U	0.5 UR
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	UG/L	0	0%	0.04	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	UG/L	0	0%	0.04	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	UG/L	0	0%	0.0006	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethene (total)	UG/L	0	0%	5	0	0	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	UG/L	0	0%	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitropropane	UG/L	0	0%	0	0	0	16	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
Acetone	UG/L	0	0%	0	0	0	19	5 U	5 U	5 U	5 U	5 U	5 U
Acrylonitrile	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Allyl chloride	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	UG/L	0	0%	1	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	UG/L	0	0%	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	UG/L	0	0%	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butyl chloride	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	UG/L	0	0%	0	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroacetonitrile	UG/L	0	0%	0	0	0	16	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	UG/L	0	0%	7	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichloromethyl methyl ketone	UG/L	0	0%	5	0	0	11	25 UR	25 UR	25 UR	25 UR	25 UR	25 UR
Ethyl benzene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl ether	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethyl methacrylate	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachloroethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Meta/Para Xylene	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methacrylonitrile	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl 2-propenoate	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Tertiary Ether	UG/L	0	0%	0	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl bromide	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-6 GW		SEAD-57 MW57-7 GW		SEAD-57 MW57-6 GW		SEAD-57 MW57-7 GW	
								1/24/2000	4/27/2000	1/24/2000	4/27/2000	1/24/2000	4/27/2000	1/24/2000	4/27/2000
Methyl butyl ketone	UG/L	0	0%		0	0	19	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl chloride	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl ethyl ketone	UG/L	0	0%		0	0	19	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl iodide	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl isobutyl ketone	UG/L	0	0%		0	0	19	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl methacrylate	UG/L	0	0%	50	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene bromide	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene chloride	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	UG/L	0	0%		0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ortho Xylene	UG/L	0	0%	5	0	0	16	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ
Pentachloroethane	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Propionitrile	UG/L	0	0%	5	0	0	8	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Propylbenzene	UG/L	0	0%	5	0	0	16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Styrene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrahydrofuran	UG/L	0	0%		0	0	16	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Toluene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total Xylenes	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,4-Dichloro-2-butene	UG/L	0	0%		0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	UG/L	0	0%	5	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	UG/L	0	0%		0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	UG/L	0	0%	2	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	UG/L	0	0%	5	0	0	16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
<b>Semi-volatile Organic Compounds</b>															
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,2'-oxybis(1-Chloropropane)	UG/L	0	0%		0	0	3								
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	18	2.5 U	2.6 U	2.5 U	2.6 U	2.5 U	2.6 U	2.5 U	2.6 U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	UG/L	0	0%		0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	UG/L	0	0%		0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	17	2.5 UJ	2.6 UJ	2.5 UJ	2.6 UJ	2.5 UJ	2.6 UJ	2.5 UJ	2.6 UJ
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chloronaphthalene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	UG/L	0	0%		0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylphenol	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroaniline	UG/L	0	0%	5	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitrophenol	UG/L	0	0%	1	0	0	18	2.5 U	2.6 U	2.5 U	2.6 U	2.5 U	2.6 U	2.5 U	2.6 U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	11	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
3-Nitroaniline	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	18	2.5 UJ	2.6 UJ	2.5 UJ	2.6 UJ	2.5 UJ	2.6 UJ	2.5 UJ	2.6 UJ
4-Bromophenyl phenyl ether	UG/L	0	0%	1	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-6 GW		SEAD-57 MW57-7 GW		SEAD-57 MW57-7 GW	
								RI PHASE 1 STEP 1	SA	RI PHASE 1 STEP 1	SA	RI PHASE 1 STEP 1	SA
4-Methylphenol	UG/L	0	0%		0	0	18	1 U	1 U	1 U	1 U	1 U	1 U
4-Nitroaniline	UG/L	0	0%	5	0	0	19	2.5 UJ	2.6 UJ	2.6 UJ	2.5 UJ	2.5 UJ	2.5 UJ
4-Nitrophenol	UG/L	0	0%	1	0	0	17	2.5 U	2.6 UJ	2.6 U	2.5 U	2.5 U	2.5 U
Acenaphthene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Acenaphthylene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Anthracene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)anthracene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(a)pyrene	UG/L	0	0%	0	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(b)fluoranthene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(g)hperylene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Benzo(k)fluoranthene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-Ethylhexyl)phthalate	UG/L	20	5%	5	1	1	19	1 U	1 U	1 U	1 U	1 U	1 U
Butylbenzylphthalate	UG/L	0.077	5%		0	1	19	1 U	0.077 J	1 U	1 U	1 U	1 U
Carbazole	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Chrysene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Di-n-butylphthalate	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Di-n-octylphthalate	UG/L	0	0%	50	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Dibenzofuran	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Diethyl phthalate	UG/L	1.9	5%		0	1	19	1 U	1 U	1 U	1 U	1 U	1 U
Dimethylphthalate	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Fluoranthene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Fluorene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Hexachlorocyclohexane	UG/L	0	0%	5	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Indene(1,2,3-cd)pyrene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Isophorone	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
N-Nitrosodiphenylamine	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
N-Nitrosodipropylamine	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Pentachlorophenol	UG/L	0	0%	1	0	0	18	2.5 U	2.6 U	2.6 U	2.5 U	2.5 U	2.5 U
Phenanthrene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
Phenol	UG/L	0	0%	1	0	0	18	1 U	1 U	1 U	1 U	1 U	1 U
Pyrene	UG/L	0	0%		0	0	19	1 U	1 U	1 U	1 U	1 U	1 U
<b>Explosives</b>													
1,3,5-Trinitrobenzene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,3-Dinitrobenzene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
2,4,6-Trinitrotoluene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
2-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
2-amino-4,6-Dinitrotoluene	UG/L	0	0%		0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
3-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
4-Nitrotoluene	UG/L	0	0%	5	0	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
4-amino-2,6-Dinitrotoluene	UG/L	0	0%		0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
HMX	UG/L	0	0%		0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Nitrobenzene	UG/L	0	0%	0.4	0	0	16	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
RDX	UG/L	0	0%		0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Tetryl	UG/L	0	0%		0	0	20	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U

Pesticides and PCBs

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-6 GW		SEAD-57 MW57-7 GW		SEAD-57 MW57-7 GW	
								RI PHASE 1 STEP 1	SA	RI PHASE 1 STEP 1	SA	RI PHASE 1 STEP 1	SA
4,4'-DDD	UG/L	0	0%	0.3	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDE	UG/L	0	0%	0.2	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4,4'-DDT	UG/L	0	0%	0.2	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	UG/L	0	0%	0	0	0	19	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Alpha-BHC	UG/L	0	0%	0.01	0	0	19	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Alpha-Chlordane	UG/L	0	0%	0.09	0	0	19	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1016	UG/L	0	0%	0.09	0	0	19	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor-1221	UG/L	0	0%	0.09	0	0	19	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1232	UG/L	0	0%	0.09	0	0	19	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/L	0	0%	0.09	0	0	19	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/L	0	0%	0.09	0	0	19	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/L	0	0%	0.09	0	0	19	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/L	0	0%	0.09	0	0	19	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beta-BHC	UG/L	0	0%	0.04	0	0	19	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Delta-BHC	UG/L	0	0%	0.04	0	0	19	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Dieldrin	UG/L	0	0%	0.004	0	0	19	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Endosulfan I	UG/L	0	0%	0	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan II	UG/L	0	0%	0	0	0	19	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Endosulfan sulfate	UG/L	0	0%	0	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin	UG/L	0	0%	0	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin aldehyde	UG/L	0	0%	5	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endrin ketone	UG/L	0	0%	5	0	0	19	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Gamma-BHC/Lindane	UG/L	0	0%	0.05	0	0	19	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Gamma-Chlordane	UG/L	0	0%	0	0	0	19	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Heptachlor	UG/L	0	0%	0.04	0	0	19	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Heptachlor epoxide	UG/L	0	0%	0.03	0	0	19	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	16	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Methoxychlor	UG/L	0	0%	35	0	0	19	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Toxaphene	UG/L	0	0%	0.06	0	0	19	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
<b>Herbicides</b>													
2,4,5-T	UG/L	0	0%	35	0	0	3						
2,4,5-TP/Silvex	UG/L	0	0%	0.26	0	0	3						
2,4-D	UG/L	0	0%	50	0	0	3						
2,4-DB	UG/L	0	0%	50	0	0	3						
Dalapon	UG/L	0	0%	50	0	0	3						
Dicamba	UG/L	0	0%	0.44	0	0	3						
Dichloroprop	UG/L	0	0%	1	0	0	3						
Dinoseb	UG/L	0	0%	0.44	0	0	3						
MCPA	UG/L	0	0%	0.44	0	0	3						
MCPP	UG/L	0	0%	0	0	0	3						
<b>Metals</b>													
Aluminum	UG/L	6540	100%		0	21	21	1500 J	504 J	250 J	149 J	115000 J	
Antimony	UG/L	44.7	14%	3	2	4	21	5.4 U	5.4 U	5.4 U	4.6 U	4.6 U	
Arsenic	UG/L	4.1	10%	10	2	2	21	2.4 U	2.9 J	2.4 U	4.1 J	4.1 J	
Barium	UG/L	129	100%	1000	0	21	21	46.7 J	46.5 J	46.5 J	90.4 J	90.4 J	
Beryllium	UG/L	0.63	5%	4	0	1	21	0.6 U	0.6 U	0.6 U	0.3 U	0.3 U	
Cadmium	UG/L	3.1	10%	5	0	2	21	0.8 U	0.8 U	0.8 U	0.3 U	0.3 U	
Calcium	UG/L	297000	100%		0	21	21	74800 J	78100 J	113000 J	115000 J	115000 J	
Chromium	UG/L	14.5	62%	50	0	13	21	3.5 J	2.3 J	1 U	2.2 U	2.2 U	
Cobalt	UG/L	14.8	5%	200	0	1	21	1.8 J	3.5 U	3.5 U	3 U	3 U	
Copper	UG/L	19.5	48%	200	0	10	21	1.8 J	2.2 J	2.2 J	2.1 U	2.1 U	
Cyanide	UG/L	0	0%	0	0	0	21	10 U	10 U	10 U	10 U	10 U	
Iron	UG/L	9260	90%	300	12	19	21	1190 J	545 J	10 U	162 J	162 J	
Iron-Manganese	UG/L	9587	90%	500	6	19	21	1227.2 J	581.2 J	307 J	173.5 J	173.5 J	
Lead	UG/L	2.2	14%	1.5	0	3	21	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	
Magnesium	UG/L	36900	100%		0	21	21	11600	11700	21800	21200	21200	

TABLE 2  
SEAD-57 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-57 MW57-6 GW		SEAD-57 MW57-7 GW		SEAD-57 MW57-7 GW	
								RI PHASE 1 STEP 1	RI PHASE 1 STEP 2	RI PHASE 1 STEP 1	RI PHASE 1 STEP 2	RI PHASE 1 STEP 1	RI PHASE 1 STEP 2
Manganese	UG/L	327	90%	300	1	19	21	37.2	36.2	37	37	11.5	J
Mercury	UG/L	0	0%	0.7	0	0	21	0.1	0.1	0.1	0.1	0.1	U
Nickel	UG/L	18.8	29%	100	0	6	21	4.2	2.9	4.2	4.2	2.9	U
Potassium	UG/L	4600	100%		0	21	21	1790	1800	1790	2330	1340	J
Selenium	UG/L	2.4	10%	10	0	2	21	2.2	4	2.2	2.2	4	U
Silver	UG/L	3.1	14%	50	0	3	21	1	3.1	1	1	2	J
Sodium	UG/L	26100	100%	20000	2	21	21	4590	3610	4770	4770	3940	J
Thallium	UG/L	6.7	19%	2	4	4	21	3.6	3.9	3.6	3.6	3.9	U
Vanadium	UG/L	9.2	24%		0	5	21	3	2.9	2.8	2.8	2.9	U
Zinc	UG/L	85.1	95%		0	20	21	6.7	2.9	3.8	3.8	2.9	J
<b>Other Analytes</b>													
COD	MG/L	16	40%		0	6	15	5	16	5	5	5	U
Nitrate/Nitrite Nitrogen	MG/L	0.49	94%	10000	0	15	16	0.06	0.03	0.13	0.13	0.1	
Total Dissolved Solids	MG/L	1030	100%		0	15	15	263	248	248	415	421	
Total Hardness-CaCO3	MG/L	790	100%		0	15	15	215	240	215	330	400	

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)
- (2) Shading indicates a concentration above the groundwater standard.

U = compound was not detected  
 J = the reported value is an estimated concentration  
 R = the analytical result was rejected during data validation.

TABLE 3A  
 OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-57 SOIL  
 SENECA ARMY DEPOT ACTIVITY

Scenario Time frame:	Current/Future
Medium:	Soil
Exposure Medium:	SEAD-57
Exposure Point:	

CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (mg/kg)	Q	Maximum Detected Concentration <sup>1</sup> (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (mg/kg)	Concentration Used for Screening <sup>2</sup> (mg/kg)	Background Value <sup>3</sup> (mg/kg)	Screening Value <sup>3</sup> (mg/kg)	Potential ARAR/TBC Source	ARAR/TBC Value <sup>4</sup> (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>5</sup>
<b>VOC</b>															
67-64-1	Acetone	0.002	J	0.7	J	SS57-6	95 / 133	0.008 - 0.028	0.7		6100	NYSDEC Subpart 375-6	0.05	NO	BSL
71-43-2	Benzene	0.001	J	0.033	J	SS57-5	2 / 125	0.0033 - 0.062	0.033		1.1	NYSDEC Subpart 375-6	0.1	NO	BSL
75-15-0	Carbon disulfide	0.0099	J	0.022	J	SS57-8	130 / 130	0 - 0	0.022		67	NYSDEC Subpart 375-6		NO	BSL
67-66-3	Chloroform	0.007	J	0.007	J	SS57-8	130 / 130	0 - 0	0.007		0.3			NO	BSL
78-93-3	Methyl ethyl ketone	0.006	J	0.064	J	SD57-6	100 / 130	0.02 - 0.07	0.064		2800	NYSDEC Subpart 375-6	0.18	NO	BSL
75-09-2	Methylene chloride	0.001	J	0.001	J	SD57-6	100 / 130	0.02 - 0.07	0.001		11	NYSDEC Subpart 375-6	0.18	NO	BSL
127-18-4	Tetrachloroethene	0.0037	J	0.006	J	SS57-2	52 / 130	0 - 2.2	0.006		507			NO	BSL
108-88-3	Toluene	0.033	J	0.033	J	SS57-51	98 / 130	0.16 - 2.2	0.033		500			NO	BSL
1330-20-7	Total Xylenes	0.001	J	0.002	J	SS57-51	98 / 130	0.16 - 2.2	0.002		60			NO	BSL
<b>SVOC</b>															
91-57-6	2-Methylnaphthalene	0.0037	J	0.75	J	TP57-2	3 / 124	0.07 - 0.78	0.75		31			NO	BSL
106-44-5	4-Methylphenol	0.0049	J	0.013	J	SD57-4	3 / 124	0.07 - 0.13	0.013		31	NYSDEC Subpart 375-6	0.33	NO	BSL
120-12-7	Atrazine	0.0051	J	0.0082	J	SS57-7	7 / 125	0.0017 - 0.0032	0.0082		1700	NYSDEC Subpart 375-6	0.094	NO	BSL
56-55-3	Benzofluoranthrene	0.0047	J	0.062	J	SS57-5	2 / 125	0.033 - 0.062	0.062		0.15	NYSDEC Subpart 375-6		NO	CSG
50-35-8	Benzo(b)fluoranthene	0.0046	J	0.076	J	SS57-5	2 / 125	0.033 - 0.062	0.076		0.15	NYSDEC Subpart 375-6		NO	CSG
205-99-2	Benzo(k)fluoranthene	0.0046	J	0.067	J	SS57-5	2 / 125	0.033 - 0.062	0.067		0.15	NYSDEC Subpart 375-6		NO	CSG
191-24-2	Benzo(ghi)perylene	0.0054	J	0.054	J	SS57-5	2 / 125	0.033 - 0.062	0.054		0.1	NYSDEC Subpart 375-6		NO	NSV
207-08-9	Benzo(k)fluoranthene	0.0054	J	0.05	J	SS57-5	2 / 125	0.033 - 0.062	0.05		1.5	NYSDEC Subpart 375-6		NO	NSV
117-81-7	Bis(2-Ethylhexyl)phthalate	0.0057	J	3.4	J	SD57-14	1 / 125	0.0017 - 0.0032	3.4		35	NYSDEC Subpart 375-6	0.036	NO	BSL
218-01-9	Chrysene	0.0044	J	0.11	J	SS57-3	130 / 130	0 - 0	0.11		15	NYSDEC Subpart 375-6		NO	BSL
84-74-2	Di-n-butylphthalate	0.0041	J	0.39	J	TP57-2	120 / 130	0 - 31.6	0.39		610	NYSDEC Subpart 375-6	50	NO	BSL
117-81-7	Di-n-octylphthalate	0.0026	J	0.026	J	TP57-2	120 / 130	0 - 31.6	0.026		35	NYSDEC Subpart 375-6	50	NO	BSL
53-70-3	Dibenz(a,h)anthracene	0.0042	J	0.024	J	TP57-2	120 / 130	0 - 31.6	0.024		4900	NYSDEC Subpart 375-6	50	YES	ASL
84-66-2	Dibenz(b,h)anthracene	0.0026	J	0.0088	J	TP57-2	120 / 130	0 - 31.6	0.0088		230	NYSDEC Subpart 375-6	50	NO	BSL
206-44-0	Fluoranthene	0.0041	J	0.15	J	TP57-2	120 / 130	0 - 31.6	0.15		230	NYSDEC Subpart 375-6	50	NO	BSL
86-73-7	Fluorene	0.0081	J	0.12	J	TP57-2	120 / 130	0 - 31.6	0.12		99	NYSDEC Subpart 375-6	50	NO	CSG
193-39-5	Indeno(1,2,3-cd)pyrene	0.006	J	0.037	J	TP57-2	120 / 130	0 - 31.6	0.037		0.15	NYSDEC Subpart 375-6	50	NO	CSG
86-30-6	N-Nitrosodiphenylamine	0.0092	J	0.18	J	SD57-6	100 / 130	0.02 - 0.07	0.18		3.9	NYSDEC Subpart 375-6	50	NO	BSL
91-20-3	Naphthalene	0.0029	J	0.23	J	S-57-Berm-EX-FL	130 / 130	0 - 0	0.23		3.9	NYSDEC Subpart 375-6	50	NO	BSL
85-01-8	Phenanthrene	0.0039	J	0.051	J	S-57-Berm-EX-FL	130 / 130	0 - 0	0.051		170	NYSDEC Subpart 375-6	50	NO	NSV
108-95-2	Phenol	0.0039	J	0.051	J	S-57-Berm-EX-FL	130 / 130	0 - 0	0.051		170	NYSDEC Subpart 375-6	50	NO	NSV
129-00-0	Picene	0.004	J	0.23	J	TP57-6	130 / 130	0 - 0	0.23		39			NO	BSL
<b>Pesticides/PCBS</b>															
7429-90-5	Aluminum	0.0017	J	0.054	J	SS57-24	8 / 125	0.0033 - 0.0062	0.054		2	NYSDEC Subpart 375-6	0.0033	NO	BSL
72-55-9	4,4'-DDE	0.0029	J	0.032	J	SS57-8	9 / 125	0.0033 - 0.0062	0.032		1.4	NYSDEC Subpart 375-6	0.0033	NO	BSL
50-29-3	4,4'-DDT	0.0025	J	0.023	J	TP57-4	6 / 125	0.0033 - 0.0062	0.023		1.7	NYSDEC Subpart 375-6	0.0033	NO	BSL
319-84-6	Alpha-BHC	0.0014	J	0.014	J	Alpha-Chloro	2 / 125	0.0017 - 0.0032	0.014		0.077	NYSDEC Subpart 375-6	0.02	NO	BSL
12789-03-6	Alpha-Chloroene	0.0012	J	0.016	J	SS57-7	7 / 125	0.0017 - 0.0032	0.016		1.6	NYSDEC Subpart 375-6	0.094	NO	BSL
11096-82-5	Arachlor-1260	0.0027	J	0.027	J	SS57-7	7 / 125	0.0017 - 0.0032	0.027		0.22	NYSDEC Subpart 375-6	0.036	NO	BSL
319-85-7	Beta-BHC	0.0045	J	0.045	J	SD57-14	1 / 125	0.0017 - 0.0032	0.045		0.03	NYSDEC Subpart 375-6	50	NO	BSL
60-57-1	Dieldrin	0.0027	J	0.027	J	TP57-2	120 / 130	0 - 31.6	0.027		37	NYSDEC Subpart 375-6	50	NO	BSL
115-29-7	Endosulfan I	0.0052	J	0.052	J	TP57-2	120 / 130	0 - 31.6	0.052		37	NYSDEC Subpart 375-6	50	NO	NSV
891-86-1	Endosulfan II	0.0031	J	0.031	J	TP57-2	120 / 130	0 - 31.6	0.031		37	NYSDEC Subpart 375-6	50	NO	NSV
7421-93-4	Endrin aldehyde	0.0038	J	0.038	J	TP57-2	120 / 130	0 - 31.6	0.038		37	NYSDEC Subpart 375-6	50	NO	NSV
53494-70-5	Endrin ketone	0.004	J	0.04	J	TP57-2	120 / 130	0 - 31.6	0.04		0.11	NYSDEC Subpart 375-6	50	NO	NSV
76-44-8	Heptachlor	0.0016	J	0.016	J	TP57-2	120 / 130	0 - 31.6	0.016		0.11	NYSDEC Subpart 375-6	50	NO	BSL
66240-71-9	Heptachlor epoxide	0.002	J	0.002	J	TP57-2	120 / 130	0 - 31.6	0.002		0.11	NYSDEC Subpart 375-6	50	NO	NSV
<b>Metals</b>															
7429-90-5	Aluminum	3940	J	22900	J	SS57-7	7 / 125	0.0017 - 0.0032	22900	20,500	700	NYSDEC Subpart 375-6	0.094	YES	ASL
7440-36-0	Antimony	0.36	J	6.5	J	SS57-7	7 / 125	0.0017 - 0.0032	6.5	21	31	NYSDEC Subpart 375-6	0.094	YES	ASL
7440-38-2	Arsenic	1.6	J	17.8	J	SS57-5	2 / 125	0.033 - 0.062	17.8	2.5	150	NYSDEC Subpart 375-6	0.1	YES	ASL
7440-39-3	Barium	25.5	J	237	J	SS57-5	2 / 125	0.033 - 0.062	237	159	1500	NYSDEC Subpart 375-6	0.1	NO	BSL
7440-41-7	Beryllium	0.091	J	1.8	J	SS57-5	2 / 125	0.033 - 0.062	1.8	3	16	NYSDEC Subpart 375-6	0.1	NO	BSL
7440-43-9	Cadmium	0.091	J	28.6	J	SD57-14	1 / 125	0.0017 - 0.0032	28.6	29.6	7	NYSDEC Subpart 375-6	0.036	YES	ASL
111-11-1	Calcium	835	J	213000	J	SS57-3	130 / 130	0 - 0	213000	294,000	280	NYSDEC Subpart 375-6	50	NO	NUT
7440-47-3	Chromium	7.4	J	32.1	J	SS57-3	130 / 130	0 - 0	32.1	32.7	380	NYSDEC Subpart 375-6	50	NO	BSL
7440-48-4	Cobalt	3.6	J	29.7	J	SD57-10	130 / 130	0 - 0	29.7	29.7	2.3	NYSDEC Subpart 375-6	50	YES	ASL
7440-50-8	Copper	7.6	J	2930	J	TP57-2	120 / 130	0 - 31.6	2930	62.3	3.0	NYSDEC Subpart 375-6	50	YES	ASL
7439-89-6	Iron	7540	J	39800	J	SS57-3	130 / 130	0 - 0	39800	38,600	5500	NYSDEC Subpart 375-6	50	YES	ASL
7439-92-1	Lead	3.6	J	1860	J	TP57-2	130 / 130	0 - 0	1860	346	40	NYSDEC Subpart 375-6	63	YES	ASL
7439-95-4	Magnesium	1420	J	27600	J	TP57-9	130 / 130	0 - 0	27600	29,100	180	NYSDEC Subpart 375-6	1600	YES	NUT
7439-96-5	Manganese	99.3	J	2580	J	SD57-13	130 / 130	0 - 0	2580	380	180	NYSDEC Subpart 375-6	50	YES	ASL
7439-97-6	Mercury	0.02	J	0.15	J	SD57-6	100 / 130	0.02 - 0.07	0.15	0.13	0.43	NYSDEC Subpart 375-6	0.18	NO	BSL
7440-02-0	Nickel	6.5	J	59.2	J	S-57-Berm-EX-FL	130 / 130	0 - 0	59.2	62.3	150	NYSDEC Subpart 375-6	30	NO	BSL
7440-09-7	Potassium	351	J	3250	J	TP57-6	130 / 130	0 - 0	3250	3160	39	NYSDEC Subpart 375-6	50	NO	NUT
7782-49-2	Selenium	0.31	J	2.7	J	SS57-43	84 / 130	0.18 - 0.9	2.7	1.7	3.9	NYSDEC Subpart 375-6	3	NO	BSL
7440-22-4	Silver	0.22	J	1.7	J	SS57-1	51 / 130	0.099 - 1.5	1.7	0.87	39	NYSDEC Subpart 375-6	2	NO	BSL

TABLE 3A  
 OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-57 SOIL  
 SENECA ARMY DEPOT ACTIVITY

Scenario Time Frame: Current/Future  
 Medium: Soil  
 Exposure Medium: Soil  
 Exposure Point: SEAD-57

CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (mg/kg)	Q	Maximum Detected Concentration <sup>1</sup> (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (mg/kg)	Concentration Used for Screening <sup>2</sup> (mg/kg)	Background Value <sup>3</sup> (mg/kg)	Screening Value <sup>4</sup> (mg/kg)	Potential ARAR/TBC Source	ARAR/TBC Value <sup>5</sup> (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>6</sup>
17341-25-2	Sodium	39.2	J	270	J	SS57-2	52 / 130	0 - 230	270	269	0.51	NUT		YES	NUT
7440-28-0	Thallium	0.24	J	6.7	J	SS57-51	98 / 130	0.16 - 2.2	6.7	1.2	0.51	ASL		YES	ASL
7440-66-2	Vanadium	11.2	J	104	J	TP57-1	129 / 130	0 - 26	104	32.7	55	NYSDEC Subpart 375-6	109	YES	ASL
7440-66-6	Zinc	41.2	J	1250	J	TP57-2	122 / 122	0 - 0	1250	126	2300	NYSDEC Subpart 375-6		NO	BSL
14797-55-8	Nitrate/Nitrite Nitrogen	0.01	J	6.32	J	S-57-Bern-EX-PL	130 / 130	0 - 0	6.32		13000	NYSDEC Subpart 375-6	30	NO	BSL

Notes:  
 1. Field duplicate pairs were presented as a discrete samples. Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.  
 2. The maximum detected concentration was used for screening.  
 3. Background value is the maximum Seneca background concentration.  
 4. EPA Regional Screening Levels for residential soil. On-line resources available at <http://www.epa.gov/region9/superfund/rsl/index.html>. Last updated April 2009.  
 5. Region 9 PRGs were derived based on Direct contact exposure (ingestion and dermal contact) and a target Cancer Risk of 1E-6 or a Target Hazard Quotient of 0.1.  
 Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium) from Marilyn Wright (2001) Dietary Reference Intakes.  
 PRG for total chromium (1:6 ratio Cr:VI:Cr:III) was used as screening value for chromium.  
 PRG for nickel (soluble salts) was used as screening value for nickel.  
 6. Potential ARAR/TBC values are from NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives. [http://www.dec.state.ny.us/web/dec/dec/subpart375\\_6.html](http://www.dec.state.ny.us/web/dec/dec/subpart375_6.html)  
 Above Screening Levels (ASL)  
 Chemicals in the Same Group were retained as COPC (CSG)  
 Essential Nutrient (NUT)  
 Below Screening Level (BSL)  
 Deletion Reason:  
 Selection Reason:  
 COPC = Chemical of Potential Concern  
 ARAR/TBC = Applicable or Relevant and Appropriate Requirement To Be Considered  
 O = Qualifier  
 J = Estimated Value



**TABLE 3B  
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-57 GROUNDWATER  
SENECA ARMY DEPOT ACTIVITY**

Scenario Time frame: Current/Future  
Medium: Groundwater  
Exposure Medium: Groundwater  
Exposure Point: Tap Water

CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (ug/L)	Q	Maximum Detected Concentration <sup>1</sup> (ug/L)	Q	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (ug/L)	Concentration Used for Screening <sup>2</sup> (ug/L)	Background Value <sup>3</sup> (ug/L)	Screening Value <sup>4</sup> (ug/L)	Potential ARAR/TBC Value (ug/L)	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>5</sup>
<b>SVOC</b>															
117-81-7	Bis(2-Ethylhexyl)phthalate	20	J	20	J	MW57-3	1/19	1 - 10	20		4.80	5	GA	YES	ASL
85-68-7	Butylbenzylphthalate	0.077	J	0.077	J	MW57-4	1/19	1 - 10	0.077		35			NO	BSL
84-66-2	Diethyl phthalate	1.9	J	1.9	J	MW57-4	1/19	1 - 10	1.9		29,000			NO	BSL
<b>Metals</b>															
7429-90-5	Aluminum	18.4	J	6540	J	MW57-2	21/21	0 - 0	6540	2,730	37,000			NO	BSL
7440-36-0	Antimony	3	J	44.7	J	MW57-1	3/21	2.2 - 21.6	44.7	8	15	3	GA	YES	ASL
7440-38-2	Arsenic	2.9	J	4.1	J	MW57-7	2/21	1.4 - 2.5	4.1	2	0.05	10	MCL	YES	ASL
7440-39-3	Barium	15.7	J	129	J	MW57-5	21/21	0 - 0	129	78.2	7,300	1,000	GA	NO	BSL
7440-41-7	Beryllium	0.63	J	0.63	J	MW57-2	2/21	0.1 - 0.6	0.63	0.21	73	4	MCL	NO	BSL
7440-43-9	Cadmium	0.25	J	3.1	J	MW57-2	2/21	0.2 - 2.1	3.1	0.5		5	GA	NO	NSV
7440-70-2	Calcium	49400	J	297000	J	MW57-2	21/21	0 - 0	297000	116,000				YES	NUT
7440-47-3	Chromium	1	J	14.5	J	MW57-2	13/21	0.9 - 2.2	14.5	4.7	11	50	GA	NO	NSV
7440-48-4	Cobalt	14.8	J	14.8	J	MW57-2	1/21	1.3 - 4.4	14.8	3.7				YES	ASL
7440-50-8	Copper	1.8	J	19.5	J	MW57-1	10/21	1.6 - 3.1	19.5	3.3	1,500	200	GA	NO	BSL
7439-89-6	Iron	29.5	J	9260	J	MW57-2	19/21	24.9 - 24.9	9260	4,480	26,000	300	GA	NO	BSL
7439-92-1	Lead	1.1	J	2.2	J	MW57-2	3/21	0.9 - 2.3	2.2	3	0.00	15	MCL	NO	BSL
7439-95-4	Magnesium	6330	J	36900	J	MW57-2	21/21	0 - 0	36900	28,600				YES	NUT
7439-96-5	Manganese	1.1	J	327	J	MW57-2	19/21	1 - 1	327	224	880	100	GA	NO	BSL
7440-02-0	Nickel	1.9	J	18.8	J	MW57-2	6/21	1.7 - 4.2	18.8	7	730			NO	BSL
7440-09-7	Potassium	481	J	4600	J	MW57-2	21/21	0 - 0	4600	3,830				YES	NUT
7782-49-2	Selenium	2.2	J	2.4	J	MW57-4	2/21	0.69 - 4	2.4	2	180	10	GA	NO	BSL
7440-22-4	Silver	2	J	3.1	J	MW57-6	3/21	0.9 - 4.2	3.1	1	180	50	GA	NO	BSL
17341-25-2	Sodium	3610	J	26100	J	MW57-5	21/21	0 - 0	26100	14,600		20,000	GA	YES	NUT
7440-28-0	Thallium	3.2	J	6.7	J	MW57-4	4/21	1.2 - 3.9	6.7	2	2.40	2	MCL	YES	ASL
7440-62-2	Vanadium	3	J	9.2	J	MW57-2	5/21	1.5 - 2.9	9.2	5.2	260			NO	BSL
7440-66-6	Zinc	1.5	J	85.1	J	MW57-2	20/21	1.5 - 1.5	85.1	23.1	11,000			NO	BSL
14797-55-8	Nitrate/Nitrite Nitrogen	20	J	490	J	MW57-2	15/16	0.01 - 0.01	490	23.1	58,000	10,000	GA	NO	BSL

**Notes:**

- Analytical results are from the 1994 ESI, 1999 RI, and 2000 OE EE/CA sampling rounds. Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- The maximum detected concentration was used for screening.
- Background values are average concentrations of background sample results.
- EPA Regional Screening Levels for tap water. On-line resources available at <http://www.epa.gov/region09/superfund/prg/index.html>. Last updated April 2009. Target Cancer Risk = 1E-6; Target Hazard Quotient = 0.1. Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs. Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 2L/day water intake and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 2-5 yr children (1400 mg/day for potassium) from Marilyn Wright (2001) Dietary Reference Intakes. For sodium, an upper limit intake of 2,400 mg/day (<http://www.mealinformation.com/dailyval.html>) was used. PRG for chromium (VI) was used as screening value for chromium.

- Rationale codes  
Selection Reason:  
Deletion Reason:

Above Screening Levels (ASL)  
Essential Nutrient (NUT)  
Below Screening Level (BSL)  
COPC = Chemical of Potential Concern  
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered  
MCL = Federal Maximum Contaminant Level  
GA = New York State Class GA Groundwater Standard (TOGS 1.1.1, June 1998 with updates)  
NA = Not Applicable  
Q = Qualifier  
J = Estimated Value



TABLE 4A  
SEAD-57 SURFACE SOIL EXPOSURE POINT CONCENTRATION SUMMARY  
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-57

CAS #	Chemical of Potential Concern	Units	Arithmetic Mean (1)	EPA ProUCL Student-t 95th UCL Value (1, 2)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)		Medium EPC Rationale
								EPA ProUCL Recommended UCL Value	Medium EPC Statistic	
56-55-3	Benzo(a)anthracene	mg/kg	0.016	0.022	0.062	J	mg/kg	0.022	95% KM Student-t	Non-parametric
50-32-8	Benzo(a)pyrene	mg/kg	0.022	0.030	0.076	J	mg/kg	0.030	95% KM Student-t	Non-parametric
205-99-2	Benzo(b)fluoranthene	mg/kg	0.016	0.021	0.067	J	mg/kg	0.021	95% KM Student-t	Non-parametric
191-24-2	Benzo(ghi)perylene	mg/kg	0.019	0.025	0.054	J	mg/kg	0.025	95% KM Student-t	Non-parametric
207-08-9	Benzo(k)fluoranthene	mg/kg	0.015	0.018	0.050	J	mg/kg	0.018	95% KM Student-t	Non-parametric
218-01-9	Chrysene	mg/kg	0.019	0.023	0.110	J	mg/kg	0.023	95% KM Student-t	Non-parametric
53-70-3	Dibenz(a,h)anthracene	mg/kg	0.013	0.017	0.024	J	mg/kg	0.017	95% KM Student-t	Non-parametric
193-39-5	Indeno(1,2,3-cd)pyrene	mg/kg	0.015	0.020	0.037	J	mg/kg	0.020	95% KM Student-t	Non-parametric
85-01-8	Phenanthrene	mg/kg	0.020	0.018	0.230	J	mg/kg	0.018	95% KM Student-t	Non-parametric
108-95-2	Phenol	mg/kg	0.011	0.011	0.051	J	mg/kg	0.011	95% KM Student-t	Non-parametric
891-86-1	Endosulfan II	mg/kg	0.003	(-3)	0.003	J	mg/kg	0.003	-	-
7421-93-4	Endrin aldehyde	mg/kg	0.004	(-3)	0.004	J	mg/kg	0.004	-	-
53494-70-5	Endrin ketone	mg/kg	0.004	(-3)	0.004	J	mg/kg	0.004	-	-
66240-71-9	Heptachlor epoxide	mg/kg	0.002	(-3)	0.002	J	mg/kg	0.002	-	-
7429-90-5	Aluminum	mg/kg	13995	14450	22,900	J	mg/kg	14,450	95% Student's-t UCL	Normal
7440-36-0	Antimony	mg/kg	1.126	0.817	6.50	J	mg/kg	0.8	95% KM (BCA) UCL	Non-parametric
7440-38-2	Arsenic	mg/kg	4.794	5.0	17.80	J	mg/kg	5.0	95% KM (BCA) UCL	Non-parametric
7440-43-9	Cadmium	mg/kg	2.613	2.3	28.60	J	mg/kg	2.3	95% KM (Chebyshev) UCL	Non-parametric
7440-48-4	Cobalt	mg/kg	11	10.8	29.70	J	mg/kg	10.78	95% Approximate Gamma	Gamma
7440-50-8	Copper	mg/kg	48	21.2	2,930	J	mg/kg	21.18	95% KM (BCA) UCL	Non-parametric
7439-89-6	Iron	mg/kg	24607	24889	39,800	J	mg/kg	24,889	95% Student's-t UCL	Normal
7439-92-1	Lead	mg/kg	36	23.2	1,860	J	mg/kg	23.2	95% Chebyshev (Mean, Sd) UCL	Non-parametric
7439-96-5	Manganese	mg/kg	578	679.1	2,580	J	mg/kg	679	95% H-UCL	Lognormal
7440-28-0	Thallium	mg/kg	2	2.6	6.70	J	mg/kg	2.57	95% KM (BCA) UCL	Non-parametric
7440-62-2	Vanadium	mg/kg	26	26.3	104	J	mg/kg	26.28	95% KM (BCA) UCL	Non-parametric

Notes:

- Field duplicates were not averaged and presented as discreet samples. Laboratory duplicates were not included in the assessment. Non-detects were included in the dataset and 95% UCL analysis was performed as 'With ND' in ProUCL.
- The EPCs were calculated using the ProUCL (Version 4.00.02) and the EPCs were selected in accordance with the ProUCL Version 4.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).  
Q - qualifier  
J = Estimated Value  
KM = Kaplan-Meier statistical method
- Insufficient number of detects in the dataset to perform 95th UCL analysis in ProUCL. This typical means there was a single detect in the dataset for this compound.

**TABLE 4A**  
**SEAD-57 SOIL SUBFACE EXPOSURE POINT CONCENTRATION SUMMARY**  
**SENECA ARMY DEPOT ACTIVITY**

Scenario Timeframe: Current/Future  
 Medium: Soil  
 Exposure Medium: Soil  
 Exposure Point: SEAD-57

CAS #	Chemical of Potential Concern	Units	Arithmetic Mean (1)	EPA ProUCL Student-t 95th UCL Value (1, 2)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)	
								EPA ProUCL Recommended UCL Value	Medium EPC Statistic
56-55-3	Benzo(a)anthracene	mg/kg	0.016	2.2E-02	0.062	J	mg/kg	95% KM Student-t	Non-parametric
50-32-8	Benzo(a)pyrene	mg/kg	0.022	2.9E-02	0.076	J	mg/kg	95% KM Student-t	Non-parametric
205-99-2	Benzo(b)fluoranthene	mg/kg	0.016	2.1E-02	0.067	J	mg/kg	95% KM Student-t	Non-parametric
191-24-2	Benzo(ghi)perylene	mg/kg	0.019	2.5E-02	0.054	J	mg/kg	95% KM Student-t	Non-parametric
207-08-9	Benzo(k)fluoranthene	mg/kg	0.015	1.8E-02	0.050	J	mg/kg	95% KM Student-t	Non-parametric
218-01-9	Chrysene	mg/kg	0.019	2.1E-02	0.110	J	mg/kg	95% KM Student-t	Non-parametric
53-70-3	Dibenz(a,h)anthracene	mg/kg	0.013	1.7E-02	0.024	J	mg/kg	95% KM Student-t	Non-parametric
193-39-5	Indeno(1,2,3-cd)pyrene	mg/kg	0.015	2.0E-02	0.037	J	mg/kg	95% KM Student-t	Non-parametric
85-01-8	Phenanthrene	mg/kg	0.020	2.0E-02	0.230	J	mg/kg	95% KM Student-t	Non-parametric
108-95-2	Phenol	mg/kg	0.011	1.6E-02	0.051	J	mg/kg	0.016	Non-parametric
891-86-1	Endosulfan II	mg/kg	- (3)	- (3)	0.003	J	mg/kg	0.003	-
7421-93-4	Endrin aldehyde	mg/kg	- (3)	- (3)	0.004	J	mg/kg	0.004	-
53494-70-5	Endrin ketone	mg/kg	- (3)	- (3)	0.004	J	mg/kg	0.004	-
66240-71-9	Heptachlor epoxide	mg/kg	- (3)	- (3)	0.002	J	mg/kg	0.002	-
7429-90-5	Aluminum	mg/kg	13995	1.4E+04	22,900	J	mg/kg	14,381	Normal
7440-36-0	Antimony	mg/kg	1.126	1.2E+00	6.50	J	mg/kg	1.2	95% Student's-t UCL
7440-38-2	Arsenic	mg/kg	4.794	5.1E+00	17.80	J	mg/kg	5.1	95% KM (BCA) UCL
7440-43-9	Cadmium	mg/kg	2.613	1.9E+00	28.60	J	mg/kg	1.9	95% KM (BCA) UCL
7440-48-4	Cobalt	mg/kg	11	1.1E+01	29.70	J	mg/kg	11.01	95% KM (Chebyshev) UCL
7440-50-8	Copper	mg/kg	48	9.5E+01	2,930	J	mg/kg	94.99	95% Approximate Gamma
7439-89-6	Iron	mg/kg	24607	2.5E+04	39,800	J	mg/kg	25,409	95% KM (BCA) UCL
7439-92-1	Lead	mg/kg	36	1.0E+02	1,860	J	mg/kg	103.2	95% Student's-t UCL
7439-96-5	Manganese	mg/kg	578	6.2E+02	2,580	J	mg/kg	625	95% Chebyshev (Mean, Sd) UCL
7440-28-0	Thallium	mg/kg	2	2.3E+00	6.70	J	mg/kg	2.31	95% H-UCL
7440-62-2	Vanadium	mg/kg	26	2.7E+01	104	J	mg/kg	27.13	95% KM (BCA) UCL

**Notes:**

- Field duplicates were not averaged and presented as discreet samples. Laboratory duplicates were not included in the assessment. Non-detects were included in the dataset and 95% UCL analysis was performed as 'With ND' in ProUCL.
- The EPCs were calculated using the ProUCL (Version 4.00.02) and the EPCs were selected in accordance with the ProUCL Version 4.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).  
 Q - qualifier  
 J = Estimated Value  
 KM = Kaplan-Meier statistical method
- Insufficient number of detects in the dataset to perform 95th UCL analysis in ProUCL. This typical means there was a single detect in the dataset for this compound.

**TABLE 4B**  
**SEAD-57 GROUNDWATER EXPOSURE POINT CONCENTRATION SUMMARY**  
**SENECA ARMY DEPOT ACTIVITY**

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Aquifer--Tap Water

CAS #	Chemical of Potential Concern	Units	Arithmetic Mean	Maximum Detected Concentration (mg/L)	Q	Reasonable Maximum Exposure (2)		Medium EPC Rationale
						Medium EPC Value (mg/L)	Medium EPC Statistic	
117-81-7	Bis(2-Ethylhexyl)phthalate	mg/L	2.0E-02	2.0E-02		2.0E-02	MDC	See note
7440-36-0	Antimony	mg/L	4.5E-02	4.5E-02	J	1.9E-02	97.5% KM (Chebyshev) UCL	Gamma
7440-38-2	Arsenic	mg/L	3.5E-03	4.1E-03	J	3.1E-03	95% KM Student-t <sup>3</sup>	Non-parametric
7440-48-4	Cobalt	mg/L	1.5E-02	1.5E-02	J	1.5E-02	MDC	See note
7440-28-0	Thallium	mg/L	5.3E-03	6.7E-03	J	4.1E-03	95% KM Student-t <sup>3</sup>	Non-parametric

**Notes:**

- Laboratory duplicates were not included in the assessment.  
 Concentrations for nondetects were assumed to be half the detection limits.
- The maximum detected concentration was used as EPC for the RME scenario.  
 As residential use of groundwater has been based on the assumption that a single private well can be placed anywhere in the contaminated plume, the MDC across several rounds of monitoring was used as the EPC for groundwater as a conservative step for both the RME scenario.  
 EPC = Exposure Point Concentration  
 MDC = Maximum Detected Concentration  
 RME = Reasonable Maximum Exposure  
 KM = Kaplan-Meier statistical method
- Insufficient number of detects in dataset to get meaningful results from ProUCL. Warning message from ProUCL regarding dataset: "This may not be adequate enough to compute meaningful and reliable test statistics and estimates."  
 "The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods."



TABLE 4C  
SEAD-57 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR  
PARK WORKERS, VISITORS, & RESIDENTS  
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-57

$$\text{Equation for Air EPC from Surface Soil (mg/m}^3\text{)} = \text{CSsurf} \times \text{PM10} \times \text{CF}$$

Variables:

CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)

PM10 = Average Measured PM10 Concentration = 44 ug/m<sup>3</sup>

CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m <sup>3</sup> )
Benzo(a)anthracene	2.2E-02	9.9E-10
Benzo(a)pyrene	3.0E-02	5.2E-10
Benzo(b)fluoranthene	2.1E-02	3.6E-10
Benzo(ghi)perylene	2.5E-02	4.3E-10
Benzo(k)fluoranthene	1.8E-02	3.1E-10
Chrysene	2.3E-02	4.0E-10
Dibenz(a,h)anthracene	1.7E-02	2.9E-10
Indeno(1,2,3-cd)pyrene	2.0E-02	3.3E-10
Phenanthrene	1.8E-02	3.0E-10
Phenol	1.1E-02	1.9E-10
Endosulfan II	3.1E-03	5.3E-11
Endrin aldehyde	3.8E-03	6.5E-11
Endrin ketone	4.0E-03	6.8E-11
Heptachlor epoxide	2.0E-03	3.4E-11
Aluminum	1.4E+04	2.5E-04
Antimony	8.2E-01	1.4E-08
Arsenic	5.0E+00	8.5E-08
Cadmium	2.3E+00	3.8E-08
Cobalt	1.1E+01	1.8E-07
Copper	2.1E+01	3.6E-07
Iron	2.5E+04	4.2E-04
Lead	2.3E+01	3.9E-07
Manganese	6.8E+02	1.2E-05
Thallium	2.6E+00	4.4E-08
Vanadium	2.6E+01	4.5E-07

TABLE 4D  
SEAD-57 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS  
FOR CONSTRUCTION WORKER  
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-57

Equation for Air EPC from Total Soils (mg/m<sup>3</sup>) = CStot x PM10 x CF

Variables:  
 CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)  
 PM10 = PM10 Concentration Calculated for Construction Worker= 383 ug/m<sup>3</sup>  
 CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m <sup>3</sup> )
Benzo(a)anthracene	2.2E-02	9.6E-10
Benzo(a)pyrene	2.9E-02	1.3E-09
Benzo(b)fluoranthene	2.1E-02	9.3E-10
Benzo(ghi)perylene	2.5E-02	1.1E-09
Benzo(k)fluoranthene	1.8E-02	7.9E-10
Chrysene	2.1E-02	9.5E-10
Dibenz(a,h)anthracene	1.7E-02	7.6E-10
Indeno(1,2,3-cd)pyrene	2.0E-02	8.6E-10
Phenanthrene	2.0E-02	8.9E-10
Phenol	1.6E-02	7.2E-10
Endosulfan II	3.1E-03	1.4E-10
Endrin aldehyde	3.8E-03	1.7E-10
Endrin ketone	4.0E-03	1.8E-10
Heptachlor epoxide	2.0E-03	8.8E-11
Aluminum	1.4E+04	6.3E-04
Antimony	1.2E+00	5.3E-08
Arsenic	5.1E+00	2.2E-07
Cadmium	1.9E+00	8.4E-08
Cobalt	1.1E+01	4.9E-07
Copper	9.5E+01	4.2E-06
Iron	2.5E+04	1.1E-03
Lead	1.0E+02	4.6E-06
Manganese	6.2E+02	2.8E-05
Thallium	2.3E+00	1.0E-07
Vanadium	2.7E+01	1.2E-06



TABLE 4E  
 SEAD-57 CALCULATION OF AIR CONCENTRATION IN SHOWER FROM VOLATILIZATION OF GROUNDWATER (DAILY)  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe: Current/Future  
 Medium: Groundwater  
 Exposure Medium: Air  
 Exposure Point: SEAD-57

Analyte	Reasonable Maximum Exposure													
	Residential Adult Shower - T <sub>event</sub> (min)	Residential Adult EPC Air (mg/m <sup>3</sup> )	Residential Child Shower - T <sub>event</sub> (min)	Residential Child EPC Air (mg/m <sup>3</sup> )	Flow Rate of Shower - (L/min)	EPC Groundwater (mg/l)	Flow Rate of Shower - Fa (m <sup>3</sup> /min)	Volume of Bathroom - (m <sup>3</sup> )	Henry Laws Constant - H (m <sup>3</sup> -atm/mol)	Asymptotic Conc. - C <sub>inf</sub> (mg/m <sup>3</sup> )	Rate Constant - (1/min)	Efficiency Release - E (unitless)	Efficiency of Release for TCE - E-TCE	Henry Laws Constant - H (m <sup>3</sup> -atm/mol)
	35	1.02E-06	60	1.02E-06	19	2.00E-02	2.4	12	1.07E-07	1.12E-06	0.20	7.05E-06	0.6	0.0091
Antimony	35	1.36E-01	60	1.36E-01	19	1.87E-02	2.4	12	2.45E-02	1.48E-01	0.20	1.00E+00	0.6	0.0091
Arsenic	35	NA	60	NA	19	3.10E-03	2.4	12	NA					
Cobalt	35	NA	60	NA	19	1.48E-02	2.4	12	NA					
Thallium	35	NA	60	NA	19	4.06E-03	2.4	12	NA					

Variables: Assumptions:  
 CA = Chemical Concentration in Air (mg/m<sup>3</sup>) EPC - Groundwater Data - RME  
 Ts = Time of Shower (minutes) 35 and 60 minutes for adult and child, respectively  
 Fw = Flow Rate of Shower (L/min) 2.4 (Average Air Flow)  
 Fa = Flow Rate of Air in Shower (m<sup>3</sup>/min) 12 (Average Bathroom Volume)  
 Vb = Volume of Bathroom (m<sup>3</sup>)

Concentration in Air (mg/m<sup>3</sup>) =  $C_{inf}[1 + 1/(kTs)(\exp(-kTs)-1)]$   
 Asymptotic Air Conc. - C<sub>inf</sub> (mg/m<sup>3</sup>) =  $[(E)(Fw)(EPC_{gw})]/Fa$   
 Rate Constant - k (1/min) =  $Fa/Vb$   
 Efficiency of Release - E (unitless) =  $(E-tce)(H)/(H-tce)$

Note:  
 Henry's law constants not available for the inorganic COPC.



TABLE 5  
SEAD-57 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor					
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
					(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Benzo(a)anthracene	N/A	7.3E-01	1	2.2E-02	5.48E-09	4E-09	1.03E-09	8E-10	8.19E-10	6E-10	8E-10	8.19E-10	6E-10			
Benzo(a)pyrene	N/A	7.3E+00	1	3.0E-02	7.43E-09	5E-08	1.40E-09	1E-08	1.11E-09	8E-09	1E-08	1.11E-09	8E-09			
Benzo(b)fluoranthene	N/A	7.3E-01	1	2.1E-02	5.17E-09	4E-09	9.76E-10	7E-10	7.73E-10	6E-10	7E-10	7.73E-10	6E-10			
Benzo(k)fluoranthene	N/A	N/A	1	2.5E-02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Chrysene	3.00E-04	7.3E-02	1	1.8E-02	4.40E-09	3E-10	8.30E-10	6E-11	6.58E-10	5E-11	6E-11	6.58E-10	5E-11			
Dibenz(a,h)anthracene	N/A	7.3E+00	1	2.3E-02	5.74E-09	4E-11	1.08E-09	8E-12	8.57E-10	6E-12	8E-12	8.57E-10	6E-12			
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1	1.7E-02	4.21E-09	3E-08	7.94E-10	6E-09	6.29E-10	5E-09	6E-09	6.29E-10	5E-09			
Phenanthrene	N/A	7.3E-01	1	2.0E-02	4.79E-09	3E-09	9.03E-10	7E-10	7.15E-10	5E-10	7E-10	7.15E-10	5E-10			
Phenol	3.00E-01	3.0E-01	1	1.8E-02	7.72E-09	8E-10	2.76E-09	2E-10	4.12E-10	1E-10	2E-10	4.12E-10	1E-10			
Endosulfan II	6.00E-03	N/A	1	3.1E-03	2.12E-09	4E-07	1.00E-08	2E-06	1.59E-09	3E-07	2E-06	1.59E-09	3E-07			
Endrin aldehyde	N/A	N/A	1	3.8E-03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Endrin ketone	N/A	N/A	1	4.0E-03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Heptachlor epoxide	1.30E-05	9.1E+00	1	2.0E-03	1.37E-09	4E-09	4.89E-10	4E-09	6.46E-09	8E-10	4E-09	6.46E-09	8E-10			
Aluminum	1.00E+00	N/A	1	1.4E+04	9.90E-03	1E-04	4.67E-02	8E-10	4.67E-02	7E-03	8E-10	4.67E-02	7E-03			
Antimony	4.00E-04	N/A	1	8.2E-01	5.60E-07	1E-03	2.64E-06	7E-03	2.64E-06	7E-03	7E-03	2.64E-06	7E-03			
Arsenic	3.00E-04	1.5E+00	1	5.0E+00	3.42E-06	1E-02	1.22E-06	2E-06	1.61E-05	3E-07	2E-06	1.61E-05	3E-07			
Cadmium	5.00E-04	N/A	1	2.3E+00	1.55E-06	3E-03	7.29E-06	1E-02	1.15E-06	2E-03	1E-02	1.15E-06	2E-03			
Cobalt	3.00E-04	N/A	1	1.1E+01	7.38E-06	2E-02	3.48E-05	1E-01	3.48E-05	2E-02	1E-01	3.48E-05	2E-02			
Copper	4.00E-02	N/A	1	2.1E+01	1.45E-05	4E-04	6.84E-05	2E-03	6.84E-05	3E-04	2E-03	6.84E-05	3E-04			
Iron	3.00E-01	N/A	1	2.5E+04	1.70E-02	6E-02	8.04E-02	3E-01	8.04E-02	4E-02	3E-01	8.04E-02	4E-02			
Lead	N/A	N/A	1	2.3E+01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Manganese	2.40E-02	N/A	1	6.8E+01	4.65E-04	2E-02	2.19E-03	9E-02	2.19E-03	1E-02	9E-02	2.19E-03	1E-02			
Thallium	6.47E-04	N/A	1	2.6E+00	1.76E-06	3E-03	8.28E-06	1E-02	8.28E-06	1E-02	1E-02	8.28E-06	1E-02			
Vanadium	1.00E-03	N/A	1	2.6E+01	1.80E-05	2E-02	8.49E-05	8E-02	8.49E-05	1E-02	8E-02	8.49E-05	1E-02			
<b>Total Hazard Quotient and Cancer Risk:</b>						<b>1E-01</b>		<b>2E-06</b>		<b>7E-01</b>		<b>4E-07</b>		<b>1E-01</b>	<b>3E-07</b>	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA = Information not available.

TABLE 5  
SEAD-57 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk		
					Intake (mg/kg-day) (Nc)	Hazard Quotient	Cancer Risk	Intake (mg/kg-day) (Car)		Hazard Quotient	Cancer Risk
					(Nc)	(Car)	(Nc)	(Car)			
Benzo(a)anthracene	N/A	7.3E-01	1	2.2E-02	1.05E-08	8E-09	2.46E-08	2E-08	3E-08		
Benzo(a)pyrene	N/A	7.3E+00	1	3.0E-02	1.43E-08	1E-07	3.33E-08	2E-07	3E-07		
Benzo(b)fluoranthene	N/A	7.3E-01	1	2.1E-02	9.93E-09	7E-09	2.32E-08	2E-08	2E-08		
Benzo(k)fluoranthene	N/A	N/A	1	2.5E-02	8.45E-09	6E-10	1.97E-08	1E-09	2E-09		
Chrysene	3.00E-04	7.3E-02	1	1.8E-02	1.10E-08	8E-11	3.00E-07	2E-10	3E-10		
Dibenz(a,h)anthracene	N/A	7.3E+00	1	1.7E-02	8.09E-09	6E-08	1.89E-08	1E-07	2E-07		
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1	2.0E-02	9.19E-09	7E-09	2.14E-08	2E-08	2E-08		
Phenanthrene	N/A	N/A	1	1.8E-02	5.29E-09	2E-09	1.44E-07	4E-09	5E-09		
Phenol	3.00E-01	3.0E-01	1	3.1E-03	4.25E-09	7E-07	3.96E-08	7E-06			
Endosulfan II	6.00E-03	N/A	1	3.8E-03							
Endrin aldehyde	N/A	N/A	1	4.0E-03							
Endrin ketone	N/A	N/A	1	2.0E-03							
Heptachlor epoxide	1.30E-05	9.1E+00	1	1.4E+04	2.74E-09	9E-09	2.56E-08	2E-08	3E-08		
Aluminum	1.00E+00	N/A	1	8.2E-01	1.98E-02	2E-02	1.85E-01	2E-01			
Antimony	4.00E-04	N/A	1	8.2E-01	1.12E-06	3E-03	1.04E-05	3E-02			
Arsenic	3.00E-04	1.5E+00	1	2.3E+00	6.85E-06	2E-02	6.39E-05	2E-01			
Cadmium	5.00E-04	N/A	1	2.3E+00	3.09E-06	6E-03	2.89E-05	6E-02			
Cobalt	3.00E-04	N/A	1	1.1E+01	1.48E-05	5E-02	1.38E-04	5E-01			
Copper	4.00E-02	N/A	1	2.1E+01	2.90E-05	7E-04	2.71E-04	7E-03			
Iron	3.00E-01	N/A	1	2.5E+04	3.41E-02	1E-01	3.18E-01	1E+00			
Lead	N/A	N/A	1	2.3E+01							
Manganese	2.40E-02	N/A	1	6.8E+02	9.30E-04	4E-02	8.68E-03	4E-01			
Thallium	6.47E-04	N/A	1	2.6E+00	3.51E-06	5E-03	3.28E-05	5E-02			
Vanadium	1.00E-03	N/A	1	2.6E+01	3.60E-05	4E-02	3.36E-04	3E-01			
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>3E-01</b>	<b>4E-06</b>		<b>3E+00</b>	<b>9E-06</b>	<b>1E-05</b>	
					<b>Assumptions for Resident (Adult)</b>		<b>Assumptions for Resident (Child)</b>				
					CF = 1E-06 kg/mg	CF = 1E-06 kg/mg					
					EPC = EPC Surface Only	EPC = EPC Surface Only					
					BW = 70 kg	BW = 15 kg					
					IR = 100 mg/day	IR = 200 mg/day					
					FI = 1 unitless	FI = 1 unitless					
					EF = 350 days/year	EF = 350 days/year					
					ED = 24 years	ED = 6 years					
					AT (Nc) = 8,760 days	AT (Nc) = 2,190 days					
					AT (Car) = 25,550 days	AT (Car) = 25,550 days					

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 B = Bioavailability  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA= Information not available.

TABLE 6  
SEAD-57 CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Groundwater (mg/L)  
 IR = Intake Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RID (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	EPC Groundwater (mg/liter)	Park Worker		Construction Worker		Recreational Visitor							
				Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk			
Bis(2-Ethylhexyl)phthalate	2.E-02	1.4E-02	2.00E-02	1.4E-04	4.9E-05	7E-03	2.0E-04	2.8E-06	1E-02	4E-08	7.7E-05	5.5E-06	4E-03	8E-08	
Antimony	4.E-04	N/A	1.87E-02	1.3E-04	4.6E-05	3E-01	1.8E-04	2.6E-06	5E-01	7E-07	7.2E-05	5.1E-06	2E-01	1E-06	
Arsenic	3.E-04	1.5E+00	3.10E-03	2.1E-05	7.6E-06	7E-02	3.0E-05	4.3E-07	1E-01	7E-07	1.2E-05	8.5E-07	4E-02	1E-06	
Cobalt	3.E-04	N/A	1.48E-02	1.0E-04	3.6E-05	3E-01	1.4E-04	2.1E-06	5E-01	7E-07	5.7E-05	4.1E-06	2E-01	1E-06	
Thallium	6.E-04	N/A	4.06E-03	2.8E-05	9.9E-06	4E-02	4.0E-05	5.7E-07	6E-02	7E-07	1.6E-05	1.1E-06	2E-02	1E-06	
<b>Total Hazard Quotient and Cancer Risk:</b>						<b>8E-01</b>			<b>1E+00</b>		<b>7E-07</b>			<b>4E-01</b>	
				Assumptions for Park Worker		Assumptions for Construction Worker		Assumptions for Recreational child Visitor							
				BW = 70 kg	IR = 1 liters/day	EF = 175 days/year	ED = 25 years	AT (Nc) = 9,125 days	AT (Car) = 25,550 days	BW = 15 kg	IR = 1.5 liters/day	EF = 14 days/year	ED = 5 years	AT (Nc) = 1,825 days	AT (Car) = 25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A= Information not available.

TABLE 6  
SEAD-57 CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Groundwater (mg/L)  
 IR = Intake Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (NC)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RID (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	EPC Groundwater (mg/liter)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk
				Intake (mg/kg-day) (NC)	Hazard Quotient (Car)	Intake (mg/kg-day) (NC)	Hazard Quotient (Car)	
Bis(2-Ethylhexyl)phthalate	2.E-02	1.4E-02	2.00E-02	5.5E-04	3E-02	1.9E-03	1.6E-04	1E-01
Antimony	4.E-04	N/A	1.87E-02	5.1E-04	1E+00	1.8E-03	1.5E-04	4E+00
Arsenic	3.E-04	1.5E+00	3.10E-03	8.5E-05	3E-01	3.0E-04	2.6E-05	1E+00
Cobalt	3.E-04	N/A	1.48E-02	4.1E-04	1E+00	1.4E-03	1.2E-04	5E+00
Thallium	6.E-04	N/A	4.06E-03	1.1E-04	2E-01	3.9E-04	3.3E-05	6E-01
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>3E+00</b>			<b>5E-05</b>
								<b>1E+01</b>
								<b>4E-05</b>
								<b>9E-05</b>

**Assumptions for Resident Adult**

BW =	70 kg
IR =	2 liters/day
EF =	350 days/year
ED =	24 years
AT (NC) =	8,760 days
AT (Car) =	25,550 days

**Assumptions for Resident Child**

BW =	15 kg
IR =	1.5 liters/day
EF =	350 days/year
ED =	6 years
AT (NC) =	2,190 days
AT (Car) =	25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A= Information not available.

TABLE 6A  
 SEAD-57 CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER  
 REASONABLE MAXIMUM EXPOSURE (RME) EXCLUDING ESI SAMPLES  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Groundwater (mg/L)  
 IR = Intake Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	EPC Groundwater (mg/liter)	Park Worker		Construction Worker		Recreational Visitor							
				Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk			
Bis(2-Ethylhexyl)phthalate	2.E-02	1.4E-02	2.00E-02	1.4E-04	4.9E-05	7E-03	7E-07	2.0E-04	2.8E-06	1E-02	4E-08	7.7E-05	5.5E-06	4E-03	8E-08
Antimony	4.E-04	N/A	3.00E-03	2.1E-05	7.3E-06	5E-02	1E-05	2.9E-05	4.2E-07	7E-02	7E-07	1.2E-05	8.2E-07	3E-02	1E-06
Arsenic	3.E-04	1.5E+00	3.10E-03	2.1E-05	7.6E-06	7E-02	1E-05	3.0E-05	4.3E-07	1E-01	7E-07	1.2E-05	8.5E-07	4E-02	1E-06
Cobalt	3.E-04	N/A	4.06E-03	0.0E+00	0.0E+00	0E+00	0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0.0E+00	0.0E+00	0E+00	0E+00
Thallium	6.E-04	N/A	4.06E-03	2.8E-05	9.9E-06	4E-02	1E-05	4.0E-05	5.7E-07	6E-02	7E-07	1.6E-05	1.1E-06	2E-02	1E-06
<b>Total Hazard Quotient and Cancer Risk:</b>															
				Assumptions for Park Worker		Assumptions for Construction Worker		Assumptions for Recreational child Visitor							
				BW =	70 kg	IR =	1 liters/day	BW =	70 kg	IR =	1.5 liters/day	BW =	15 kg	IR =	1.5 liters/day
				EF =	175 days/year	EF =	250 days/year	EF =	250 days/year	EF =	14 days/year	EF =	14 days/year	ED =	5 years
				ED =	25 years	ED =	1 years	ED =	1 years	ED =	5 years	ED =	5 years	AT (Nc) =	1,825 days
				AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days	AT (Nc) =	1,825 days	AT (Car) =	25,550 days
				AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days		

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A = Information not available.

TABLE 6A  
 SEAD-57 CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER  
 REASONABLE MAXIMUM EXPOSURE (RME) EXCLUDING ESI SAMPLES  
 SENECA ARMY DEPOT ACTIVITY

$$\text{Equation for Intake (mg/kg-day)} = \frac{\text{EPC} \times \text{IR} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}}$$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Groundwater (mg/L)  
 IR = Intake Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

$$\text{Equation for Hazard Quotient} = \text{Chronic Daily Intake (NC)/Reference Dose}$$

$$\text{Equation for Cancer Risk} = \text{Chronic Daily Intake (Car)} \times \text{Slope Factor}$$

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	EPC Groundwater (mg/liter)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk			
				Intake (mg/kg-day)		Intake (mg/kg-day)			Cancer Risk		
				(NC)	(Car)	(NC)	(Car)				
Bis(2-Ethylhexyl)phthalate	2.E-02	1.4E-02	2.00E-02	1.9E-04	1.6E-04	1.9E-03	1.6E-04	1E-01	2E-06	5E-06	
Antimony	4.E-04	N/A	3.00E-03	8.2E-05	2.8E-05	2.9E-04	2.5E-05	7E-01	4E-05	8E-05	
Arsenic	3.E-04	1.5E+00	3.10E-03	8.5E-05	2.9E-05	3.0E-04	2.6E-05	1E+00	4E-05	8E-05	
Cobalt	3.E-04	N/A	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0E+00	0E+00	0E+00	
Thallium	6.E-04	N/A	4.06E-03	1.1E-04	3.8E-05	3.9E-04	3.3E-05	6E-01	4E-05	9E-05	
<b>Total Hazard Quotient and Cancer Risk:</b>								<b>7E-01</b>	<b>5E-05</b>	<b>2E+00</b>	<b>4E-05</b>
				<b>Assumptions for Resident Adult</b>		<b>Assumptions for Resident Child</b>					
				BW = 70 kg	IR = 2 liters/day	BW = 15 kg	IR = 1.5 liters/day				
				EF = 350 days/year	ED = 24 years	EF = 350 days/year	ED = 6 years				
				AT (NC) = 8,760 days	AT (Car) = 25,550 days	AT (NC) = 2,190 days	AT (Car) = 25,550 days				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A= Information not available.



TABLE 7  
SEAD-57 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day) <sup>-1</sup>	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor							
						CF	BW	SA	CF	BW	SA	CF	BW	SA					
						(mg/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)	(mg/kg-day)	(mg/kg-day)	(mg/kg-day)		
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	2.2E-02	2.2E-02	4.71E-09	3.93E-10	3.93E-10	2.98E-10	2.18E-10	2.98E-10	2.98E-10	2.18E-10						
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	3.0E-02	2.9E-02	6.38E-09	5.14E-10	5.14E-10	4.04E-10	2.95E-09	4.04E-10	4.04E-10	2.95E-09						
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	2.1E-02	2.1E-02	4.44E-09	3.80E-10	3.80E-10	2.81E-10	2.05E-10	2.81E-10	2.81E-10	2.05E-10						
Benzo(k)fluoranthene	N/A	N/A	1.3E-01	2.5E-02	2.5E-02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A						
Benzo(e)fluoranthene	N/A	7.3E-02	1.3E-01	1.8E-02	1.8E-02	3.78E-09	3.24E-10	3.24E-10	2.39E-10	1.75E-11	3.24E-10	3.24E-10	1.75E-11						
Chrysene	3.00E-04	7.3E-03	1.3E-01	2.3E-02	2.1E-02	4.92E-09	2.70E-08	2.70E-08	3.12E-09	2.28E-12	4.37E-09	3.12E-09	2.28E-12						
Dibenz(a,h)anthracene	N/A	7.3E+00	1.3E-01	1.7E-02	1.7E-02	3.61E-09	3.10E-10	3.10E-10	2.29E-10	1.67E-09	2.29E-10	2.29E-10	1.67E-09						
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	1.8E-02	2.0E-02	4.11E-09	3.52E-10	3.52E-10	2.60E-10	1.90E-10	3.52E-10	2.60E-10	1.90E-10						
Phenanthrene	N/A	3.0E-01	2.5E-01	1.1E-02	1.6E-02	4.55E-09	3.96E-08	3.96E-08	4.03E-09	3.00E-09	4.03E-09	4.03E-09	3.00E-09						
Endosulfan II	6.00E-03	N/A	4E-02	3.1E-03	3.1E-03	5.19E-10	1.11E-09	1.11E-09	1.64E-10	8.65E-11	1.64E-10	1.64E-10	8.65E-11						
Endrin aldehyde	N/A	N/A	4E-02	3.8E-03	3.8E-03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A						
Endrin ketone	N/A	N/A	4E-02	4.0E-03	4.0E-03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A						
Hepachlor epoxide	1.30E-05	9.1E+00	4E-02	2.0E-03	2.0E-03	3.35E-10	1.19E-10	1.19E-10	1.02E-11	6E-05	1.02E-11	1.02E-11	6E-05						
Aluminum	1.00E+00	N/A	1E-03	1.4E+04	1.4E+04	6.53E-05	1.39E-04	1.39E-04	2.07E-05	2.07E-05	1.39E-04	2.07E-05	2.07E-05						
Antimony	6.00E-05	N/A	1E-03	8.2E-01	1.2E+00	3.69E-09	6.78E-07	6.78E-07	1.48E-06	1.95E-05	6.78E-07	1.48E-06	1.95E-05						
Arsenic	3.00E-04	1.5E+00	3E-02	5.0E+00	5.1E+00	6.78E-07	2.42E-07	2.42E-07	2.11E-08	3E-08	2.42E-07	2.11E-08	3E-08						
Cadmium	5.00E-04	N/A	1E-03	2.3E+00	1.9E+00	1.02E-08	1.85E-08	1.85E-08	2.00E-08	2E-05	1.85E-08	2.00E-08	2E-05						
Cobalt	3.00E-04	N/A	1E-03	1.1E+01	4.87E-08	9.27E-08	1.07E-07	1.07E-07	4E-05	6.47E-06	1.07E-07	4E-05	6.47E-06						
Copper	4.00E-02	N/A	1E-03	2.1E+01	9.5E+01	4.87E-08	9.27E-08	9.27E-08	2E-05	5.15E-05	9.27E-08	2E-05	5.15E-05						
Iron	3.00E-01	N/A	1E-03	2.5E+04	2.5E+04	1.13E-04	1.13E-04	1.13E-04	8E-04	7.58E-07	1.13E-04	8E-04	7.58E-07						
Lead	N/A	N/A	1E-03	2.3E+01	1.0E+02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A						
Manganese	9.60E-04	N/A	1E-03	6.8E+02	6.2E+02	3.07E-06	3.07E-06	3.07E-06	6E-03	1.01E-03	3.07E-06	6E-03	1.01E-03						
Thallium	6.47E-04	N/A	1E-03	2.6E+00	2.3E+00	1.16E-08	2.24E-08	2.24E-08	3E-05	3.67E-09	2.24E-08	3E-05	3.67E-09						
Vanadium	2.60E-05	N/A	1E-03	2.6E+01	2.7E+01	1.19E-07	1.19E-07	1.19E-07	2.63E-07	1.45E-03	1.19E-07	2.63E-07	1.45E-03						
<b>Total Hazard Quotient and Cancer Risk:</b>									<b>6E-03</b>	<b>4E-07</b>				<b>1E-02</b>	<b>4E-08</b>			<b>2E-03</b>	<b>3E-08</b>

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{B \times W \times AT}$

Variables/Assumptions for Each Receptor are Listed at the Bottom:

- EPC = Chemical Concentration in Soil, mg/kg
- CF = Conversion Factor
- SA = Surface Area Contact
- AF = Adherence Factor
- ABS = Absorption Factor
- EV = Event Frequency
- EF = Exposure Frequency
- ED = Exposure Duration
- BW = Bodyweight
- AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (NC)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Assumptions for Park Worker

- CF = 1E-06 kg/mg
- CS = EPC Surface Only
- BW = 70 kg
- SA = 3,300 cm<sup>2</sup>
- SA = 3,300 cm<sup>2</sup>
- AF = 0.2 mg/cm<sup>2</sup>-event
- EV = 1 event/day
- EF = 175 days/year
- ED = 25 years
- AT (NC) = 9,125 days
- AT (Car) = 25,550 days

Assumptions for Construction Worker

- CF = 1E-06 kg/mg
- CS = EPC Surface and Subsurface
- BW = 70 kg
- SA = 3,300 cm<sup>2</sup>
- SA = 3,300 cm<sup>2</sup>
- AF = 0.3 mg/cm<sup>2</sup>-event
- EV = 1 event/day
- EF = 350 days/year
- ED = 1 years
- AT (NC) = 365 days
- AT (Car) = 25,550 days

Assumptions for Recreational Child Visitor

- CF = 1E-06 kg/mg
- CS = EPC Surface Only
- BW = 15 kg
- SA = 2,800 cm<sup>2</sup>
- SA = 2,800 cm<sup>2</sup>
- AF = 0.2 mg/cm<sup>2</sup>-event
- EV = 1 event/day
- EF = 14 days/year
- ED = 5 years
- AT (NC) = 1,825 days
- AT (Car) = 25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA= Information not available.  
 \* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1).  
 Absorption factor for YOC was assumed to be 0.01 and metals not presented in the EPA (2004) document, assumed to be 0.001 in accordance with the USEPA Region 4 (2000) Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/os/healthbul.htm).  
 Absorption factor for pesticides was assumed to be 0.037 in accordance with the average absorption factor of chlordane (0.03), DDT (0.04), and lindane (0.04) in accordance with USEPA Region 4 (2000).

TABLE 7  
SEAD-57 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-ds) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{B \times W \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor  
 EV = Event Frequency  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RfD (mg/kg-ds)	Carc. Slope Dermal (mg/kg-ds) <sup>-1</sup>	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk	
						Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)	Hazard Quotient		Cancer Risk
						(NC)	(Car)	(NC)	(Car)		
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	2.2E-02	2.2E-02	5.46E-09	4E-09	8.94E-09	6.53E-09	1E-08	
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	3.0E-02	2.9E-02	7.40E-09	5E-08	1.21E-08	8.85E-08	1E-07	
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	2.1E-02	2.1E-02	5.15E-09	4E-09	8.44E-09	6.16E-09	1E-08	
Benzo(k)fluoranthene	N/A	N/A	1.3E-01	2.5E-02	2.5E-02	N/A	N/A	N/A	N/A	N/A	
Chrysene	3.00E-04	7.3E-03	1.3E-01	1.8E-02	1.8E-02	4.39E-09	3E-10	7.18E-09	5.24E-10	8E-10	
Dibenz(a,h)anthracene	N/A	7.3E+00	1.3E-01	2.3E-02	2.1E-02	5.71E-09	4E-11	1.09E-07	6.83E-11	1E-10	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	1.7E-02	1.7E-02	4.20E-09	3E-08	6.87E-09	5.01E-08	8E-08	
Phenanthrene	N/A	N/A	1.3E-01	2.0E-02	2.0E-02	4.77E-09	3E-09	7.81E-09	5.70E-09	9E-09	
Phenol	3.00E-01	3.0E-01	2.5E-01	1.8E-02	1.6E-02	5.28E-09	2E-09	1.01E-07	2.59E-09	4E-09	
Endosulfan II	6.00E-03	N/A	4E-02	3.1E-03	3.1E-03	6.27E-10	1E-07	4.11E-09	6.84E-07	N/A	
Endrin aldehyde	N/A	N/A	4E-02	4.0E-03	4.0E-03	N/A	N/A	N/A	N/A	N/A	
Endrin ketone	N/A	N/A	4E-02	4.0E-03	4.0E-03	N/A	N/A	N/A	N/A	N/A	
Hepaachlor epoxide	1.30E-05	9.1E+00	4E-02	2.0E-03	2.0E-03	1.39E-10	1E-09	2.65E-09	2.07E-09	3E-09	
Aluminum	1.00E+00	N/A	1E-03	1.4E+04	1.4E+04	7.90E-05	8E-05	5.17E-04	5.17E-04	N/A	
Antimony	6.00E-05	N/A	1E-03	8.2E-01	1.2E+00	4.47E-09	2.92E-08	1.79E-04	4.87E-04	N/A	
Arsenic	3.00E-04	1.5E+00	3E-02	5.0E+00	5.1E+00	8.20E-07	3E-03	5.37E-06	1.79E-02	6.90E-07	
Cadmium	5.00E-04	N/A	1E-03	2.3E+00	1.9E+00	1.23E-08	2E-05	8.08E-08	1.62E-04	N/A	
Cobalt	3.00E-04	N/A	1E-03	1.1E+01	1.1E+01	5.89E-08	2E-04	3.86E-07	1.29E-03	N/A	
Copper	4.00E-02	N/A	1E-03	2.1E+01	9.3E+01	1.16E-07	3E-06	7.38E-07	1.90E-05	N/A	
Iron	3.00E-01	N/A	1E-03	2.5E+04	2.5E+04	1.36E-04	5E-04	8.91E-04	2.97E-03	N/A	
Lead	N/A	N/A	1E-03	1.0E+01	1.0E+02	N/A	N/A	N/A	N/A	N/A	
Manganese	9.60E-04	N/A	1E-03	6.8E+02	6.2E+02	3.71E-06	4E-03	2.43E-05	2.53E-02	N/A	
Thallium	6.47E-04	N/A	1E-03	2.6E+00	2.3E+00	1.40E-08	2E-05	9.18E-08	1.42E-04	N/A	
Vanadium	2.60E-05	N/A	1E-03	2.6E+01	2.7E+01	1.44E-07	6E-03	9.41E-07	3.62E-02	N/A	
<b>Total Hazard Quotient and Cancer Risk:</b>											
						<b>8E-03</b>	<b>5E-07</b>		<b>5E-02</b>	<b>9E-07</b>	<b>1E-06</b>
						Assumptions for Resident (Adult)		Assumptions for Resident (Child)			
						CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	EPC = EPC Surface Only	EPC = EPC Surface Only	
						EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	BW = 15 kg	BW = 15 kg	
						BW = 70 kg	BW = 70 kg	BW = 15 kg	SA = 2,800 cm <sup>2</sup>	SA = 2,800 cm <sup>2</sup>	
						SA = 5,700 cm <sup>2</sup>	SA = 5,700 cm <sup>2</sup>	SA = 2,800 cm <sup>2</sup>	AF = 0.2 mg/cm <sup>2</sup> -event	AF = 0.2 mg/cm <sup>2</sup> -event	
						AF = 0.07 mg/cm <sup>2</sup> -event	AF = 0.07 mg/cm <sup>2</sup> -event	AF = 0.2 mg/cm <sup>2</sup> -event	EV = 1 event/day	EV = 1 event/day	
						EV = 350 days/year	EV = 350 days/year	EV = 350 days/year	ED = 24 years	ED = 24 years	
						ED = 24 years	ED = 24 years	ED = 6 years	AT (Ns) = 2,190 days	AT (Ns) = 2,190 days	
						AT (Ns) = 8,760 days	AT (Ns) = 8,760 days	AT (Ns) = 2,190 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

\* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1)

Absorption factor for VOC was assumed to be 0.01 and metals not presented in the EPA (2004) document.

a assumed to be 0.01 in accordance with the USEPA Region 4 (2000)

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins

(<http://www.epa.gov/region4/waste/ohs/healthbul.htm>)

Absorption factor for pesticides was assumed to be 0.037 in accordance with the average absorption factor

of chlordane (0.03), DDT (0.04), and lindane (0.04) in accordance with USEPA Region 4 (2000).

TABLE 8  
SEAD-57 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Equation for Dermal (mg/kg-day) = $\frac{DA \times SA \times EF \times ED \times EV}{BW \times AT}$	Equation for Absorbed Dose per Event (DA): 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> For inorganic DA = K <sub>p</sub> x EPC x t <sub>event</sub> x C For organics if t <sub>event</sub> < t* then: DA <sub>event</sub> = 2 FA x K <sub>p</sub> x EPC x C ((6 t <sub>event</sub> x t <sub>vent</sub> ) / p) <sup>1/2</sup> if t <sub>event</sub> > t*, then: DA <sub>event</sub> = FA x K <sub>p</sub> x EPC x C ((t <sub>event</sub> / (1 + B) + 2 t <sub>vent</sub> ((1 + 3 B + 3 B <sup>2</sup> ) / (1 + B) <sup>2</sup> )) ]
Variables (Assumptions for Each Receptor are Listed at the Bottom): DA = Absorbed Dose per Event, mg/cm <sup>2</sup> -event SA = Surface Area Contact EF = Exposure Frequency EV = Event Frequency ED = Exposure Duration BW = Bodyweight AT = Averaging Time	B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless) FA = Fraction absorbed water (dimensionless) B = K <sub>p</sub> (MW) <sup>1/2</sup> / 2.6 t <sub>vent</sub> is Lag Time per event (hr/event) = 0.105 x 10 <sup>(0.000099W)</sup> t* is time to reach steady-state (hr) t <sub>vent</sub> = duration of event, hr/event If B <= 0.6, then t* = 2.4 t <sub>vent</sub> If B > 0.6, then t* = 6 t <sub>vent</sub> (b-SQRT(b <sup>2</sup> -c <sup>2</sup> )) b = ((2(1+B) <sup>2</sup> )/p) - c c = (1+3B+3B <sup>2</sup> )/3(1+B)

Equation for Hazard Quotient =  $\frac{\text{Chronic Daily Intake (NE)}}{\text{Reference Dose}}$   
Equation for Cancer Risk =  $\frac{\text{Chronic Daily Intake (Car)}}{\text{Slope Factor}}$

Analyte	Dermal RfD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Permeability Coefficient K <sub>p</sub> (cm/hr)	t <sub>event</sub> (hr/event)	Fraction Absorbed Water	B	t* (hour)	EPC Ground Water (mg/L)	Absorbed Dose/Event (mg/cm <sup>2</sup> -event)	Park Worker		Construction Worker		Recreational Child Visitor	
										Intake (mg/kg-day) (NE)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (NE)	Hazard Quotient (Car)	Cancer Risk
Bis(2-Ethylhexyl)phthalate	2.E-02	1.4E-02	6.60E-01	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	2.E-02	8.4.E-06	1E-07	2E-03	2E-03	1E-07	2E-04	1E-09
Antimony	6.E-05	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	2.E-02	1.2.E-08	6E-08	8E-10	2E-04	6E-08	2E-04	
Arsenic	3.E-04	1.5E+00	1.00E-03	8.9.E-01	1.00E+00	5.0.E-03	2.1.E+00	3.E-03	5.7.E-09	3E-03					
Cobalt	3.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	1.E-02	9.4.E-09	3E-08		4E-05	3E-08	4E-05	
Thallium	6.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	4.E-03	2.6.E-09			2E-03		2E-03	
<b>Total Hazard Quotient and Cancer Risk:</b>															
										Assumptions for Construction Worker					
										BW =	70	kg			
										SA =	2,490	cm <sup>2</sup>			
										EV =	1	event/day			
										EF =	100	days/year			
										ED =	1	years			
										t <sub>event</sub> =	0.5	hr/event			
										AT (NE) =	365	days			
										AT (Car) =	25,550	days			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

K<sub>p</sub> value from Exhibit B1 or B-2 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health

E valuation Manual (Volume 1), August 16, 2004. For chemicals that did not have a K<sub>p</sub> value listed in Exhibit B-1 or B-2, K<sub>p</sub> was calculated using:

$K_p = 10^{(-2.80+0.66(\log Kow)-0.0056(MW))}$

TABLE 8  
SEAD-57 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Equation for Dermal (mg/kg-day) = $\frac{DA \times SA \times EF \times ED \times EV}{BW \times AT}$	Equation for Absorbed Dose per Event (DA): $K_p =$ Permeability Coefficient, cm/hr $EPC = EPC$ in Groundwater, mg/L $C =$ Conversion Factor, $10^3$ L/cm <sup>3</sup> For inorganic: $DA = K_p \times EPC \times t_{vent} \times C$ For organic: $DA_{vent} < t^*$ , then: $DA_{vent} = 2 \times FA \times K_p \times EPC \times C \times (0.6 \times t_{vent} \times t_{vent} / p)^{1/2}$ if $t_{vent} > t^*$ , then: $DA_{vent} = FA \times K_p \times EPC \times C \times [t_{vent} / (1 + B) + 2 \times t_{vent} \times ((1 + 3B + 3B^2) / (1 + B)^2)]$
Variables (Assumptions for Each Receptor are Listed at the Bottom): DA = Absorbed Dose per Event, mg/cm <sup>2</sup> -event SA = Surface Area Contact EF = Exposure Frequency EV = Event Frequency	$B = K_p (MW)^{1/2} / 2.6$ $t_{vent}$ is Lag Time per event (hr/event) = $0.105 \times 10^{(0.055 \times MW)}$ $t^*$ is time to reach steady-state (hr) $t_{vent}$ = duration of event, hr/event
	$B =$ Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless) $FA =$ Fraction absorbed water (dimensionless) If $B <= 0.6$ , then $t^* = 2.4 \times t_{vent}$ If $B > 0.6$ , then $t^* = 6 \times t_{vent} \times (b \times \sqrt{0.055 \times MW})$ $b = ((2(1+B)^2) / p) \cdot c$ $c = (1 + 3B + 3B^2) / (3(1+B))$

Equation for Hazard Quotient = Chronic Daily Intake (Cd) x Reference Dose  
Equation for Cancer Risk = Chronic Daily Intake (Cd) x Slope Factor

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Permeability Coefficient $K_p$ (cm/hr)	$t_{vent}$ (hr/event)	Fraction Absorbed Water	B	$t^*$ (hour)	EPC Ground Water (mg/L)	Dose/Event (mg/cm <sup>2</sup> -event)	Resident Adult		Resident Child		Resident			
										Hazard Quotient	Cancer Risk	Hazard Quotient	Cancer Risk	Total Lifetime Cancer Risk			
Bis(2-Ethylhexyl)phthalate	2.E-02	1.4E-02	6.60E-01	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	2.E-02	1.2.E-05	3E-03	1E-03	1E-01	5E-03	4E-04	2E-01	6E-06	2E-05
Antimony	6.E-05	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	2.E-02	1.7.E-08	4E-06	7E-02	7E-02	7E-06	1E-01	1E-01	0E+00	0E+00
Arsenic	3.E-04	1.5E+00	1.00E-03	8.9.E-01	1.00E+00	0.0.E+00	2.1.E+00	3.E-03	8.1.E-09	2E-06	7E-07	1E-02	3E-06	3E-07	1E-02	4E-07	1E-06
Cobalt	3.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	1.E-02	1.3.E-08	3E-06	1E-02	1E-02	6E-06	2E-03	2E-03	0E+00	0E+00
Thallium	6.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	4.E-03	3.6.E-09	9E-07	1E-03	2E-01	2E-06	2E-03	2E-03	0E+00	0E+00
<b>Total Hazard Quotient and Cancer Risk:</b>										2E-01	2E-05	4E-01	6E-06	2E-05			
Assumptions for Resident Adult										70 kg	2E-01	2E-05	18,000 cm2	6E-06	2E-05		
Assumptions for Resident Child										15 kg	4E-01	6E-06	6,600 cm2	6E-06	2E-05		
										1 event/day	4E-01	6E-06	6,600 cm2	6E-06	2E-05		
										350 days/year	4E-01	6E-06	6,600 cm2	6E-06	2E-05		
										24 years	4E-01	6E-06	6,600 cm2	6E-06	2E-05		
										0.58 hr/event	4E-01	6E-06	6,600 cm2	6E-06	2E-05		
										8,760 days	4E-01	6E-06	6,600 cm2	6E-06	2E-05		
										25,550 days	4E-01	6E-06	6,600 cm2	6E-06	2E-05		

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
NA = Information not available.  
Kp value from Exhibit B1 or B-2 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For chemicals that did not have a Kp value listed in Exhibit B-1 or B-2, Kp was calculated using:  
 $Kp = 10^{(-2.80 + 0.66(\log Kow) - 0.0056(MW))}$

TABLE 8A  
SEAD-57 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER  
REASONABLE MAXIMUM EXPOSURE (RME) EXCLUDING ESI SAMPLES  
SENECA ARMY DEPOT ACTIVITY

Equation for Dermal (mg/kg-day) = $DA \times SA \times EF \times ED \times EV$ $B \times W \times AT$	Equation for Absorbed Dose per Event (DA): $K_p =$ Permeability Coefficient, cm/hr $EPC =$ EPC in Groundwater, mg/L $C =$ Conversion Factor, $10^3 \text{ L/cm}^3$ For inorganic $DA = K_p \times EPC \times t_{event} \times C$ For organics if $t_{event} < t^*$ , then: $DA_{event} = 2 \times FA \times K_p \times EPC \times C \times ((6 \times t_{event} \times t_{event}) / p)^{1/2}$ if $t_{event} > t^*$ , then: $DA_{event} = FA \times K_p \times EPC \times C \times [ (t_{event} / 1 + B) + 2 \times t_{event} \times (1 + 3 \times B + 3 \times B^2) / (1 + B)^2 ]$
Variables (Assumptions for Each Receptor are Listed at the Bottom):  DA = Absorbed Dose per Event, mg/cm <sup>2</sup> -event SA = Surface Area Contact EF = Exposure Frequency EV = Event Frequency  ED = Exposure Duration BW = Bodyweight AT = Averaging Time	$B =$ Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless) $FA =$ Fraction absorbed water (dimensionless) $B = K_p (MW)^{1/2} / 2.6$ $t_{event}$ is Lag Time per event (hr/event) = $0.105 \times 10^{(0.056 \times MW)}$ $t^*$ is time to reach steady-state (hr) $t_{event} =$ duration of event, hr/event  If $B < 0.6$ , then $t^* = 2.4 \times t_{event}$ If $B > 0.6$ , then $t^* = 6 \times \text{SQRT}(0.2 \times c^2)$ $b = ((2(1+B)^2) / p) \cdot c$ $c = (1 + 3B + 3B^2) / 3(1+B)$

Equation for Hazard Quotient = Chronic Daily Intake (Ne)  
Reference Dose  
  
Equation for Cancer Risk = Chronic Daily Intake (Car)  
x Slope Factor

Analyte	Dermal RD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Permeability Coefficient $K_p$ (cm/hr)	$t_{event}$ (hr/event)	Fraction Absorbed Water	B	$t^*$ (hour)	EPC Ground Water (mg/L)	Absorbed Dose/Event (mg/cm <sup>2</sup> -event)	Park Worker		Construction Worker		Recreational Child Visitor		
										Intake (mg/kg-day) (Ne)	Hazard Quotient (Car)	Intake (mg/kg-day) (Ne)	Hazard Quotient (Car)	Intake (mg/kg-day) (Ne)	Hazard Quotient (Car)	
Bis(2-Ethylhexyl)phthalate	2.E-02	1.4E-02	6.60E-01	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	2.E-02	8.4.E-06							
Animony	6.E-05	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	2.E-02	1.2.E-08							
Arsenic	3.E-04	1.5E+00	1.00E-03	8.9.E-01	1.00E+00	5.0.E-03	2.1.E+00	3.E-03	5.7.E-09							
Cobalt	3.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	1.E-02	9.4.E-09							
Thallium	6.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	4.E-03	2.6.E-09							
<b>Total Hazard Quotient and Cancer Risk:</b>																
										Assumptions for Construction Worker						
										BW =	70 kg					
										SA =	2,490 cm <sup>2</sup>					
										EV =	1 event/day					
										EF =	100 days/year					
										ED =	1 years					
										$t_{event}$ =	0.5 hr/event					
										AT (Ne) =	365 days					
										AT (Car) =	25,550 days					

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
NA = information not available.  
Kp value from Exhibit B1 or B-2 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For chemicals that did not have a Kp value listed in Exhibit B-1 or B-2, Kp was calculated using:  
 $K_p = 10^{(-2.80 + 0.66(\log Kow) - 0.0056(MW))}$

TABLE 8A  
SEAD-57 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER  
REASONABLE MAXIMUM EXPOSURE (RME) EXCLUDING ESI SAMPLES  
SENECA ARMY DEPOT ACTIVITY

Equation for Dermal (mg/kg-day) = $\frac{DA \times SA \times EF \times ED \times EV}{BW \times AT}$	Equation for Absorbed Dose per Event (DA): $DA = K_p \times EPC \times I_{vevent} \times C$ For inorganic: $DA = K_p \times EPC \times I_{vevent} \times C$ For organic: If $I_{vevent} < t^*$ , then: $DA_{vevent} = 2 \times FA \times K_p \times EPC \times C \left( \frac{6 \times I_{vevent} \times I_{vevent}}{p} \right)^{1/2}$ If $I_{vevent} > t^*$ , then: $DA_{vevent} = FA \times K_p \times EPC \times C \left[ \left( \frac{I_{vevent}}{1+B} + 2 \right) \times I_{vevent} \left( \frac{1+3B}{1+B} \right)^2 \right]$
Variables (Assumptions for Each Receptor are Listed at the Bottom): DA = Absorbed Dose per Event, mg/cm <sup>2</sup> -event SA = Surface Area Contact EF = Exposure Frequency EV = Event Frequency	$K_p$ = Permeability Coefficient, cm/hr EPC = EPC in Groundwater, mg/L C = Conversion Factor, 10 <sup>3</sup> L/cm <sup>3</sup> B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless) FA = Fraction absorbed water (dimensionless) B = $K_p \times (MW)^{1/2} / 2.6$ $I_{vevent}$ is Lag Time per event (hr/event) = $0.105 \times 10^{(0.00184MW)}$ $t^*$ is time to reach steady-state (hr) $I_{vevent}$ = duration of event, hr/event

Equation for Hazard Quotient = Chronic Daily Intake (NC)  
Reference Dose  
Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Permeability Coefficient $K_p$ (cm/hr)	$I_{vevent}$ (hr/event)	Fraction Absorbed Water	B	$t^*$ (hour)	EPC Ground Water (mg/L)	Absorbed Dose/Event (mg/cm <sup>2</sup> -event)	Resident Adult		Resident Child		Resident	
										Hazard Quotient (Car)	Cancer Risk	Hazard Quotient (Car)	Cancer Risk	Total Lifetime Cancer Risk	
Bis(2-Ethylhexyl)phthalate	2.E-02	1.4E-02	6.60E-01	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	2.E-02	1.2.E-05	3E-03	1E-01	1E-05	2E-01	6E-06	2E-05
Antimony	6.E-05	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	3.E-03	3.0.E-09	7E-07	1E-02	1E-06	2E-02	0E+00	0E+00
Arsenic	3.E-04	1.5E+00	1.00E-03	8.9.E-01	1.00E+00	5.0.E-03	2.1.E+00	3.E-03	8.1.E-09	2E-06	7E-03	1E-06	1E-02	4E-07	1E-06
Cobalt	3.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	4.E-03	0.0.E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
Thallium	6.E-04	N/A	1.00E-03	1.1.E-01	1.00E+00	0.0.E+00	2.5.E-01	4.E-03	3.6.E-09	9E-07	1E-03	2E-05	2E-03	0E+00	0E+00
<b>Total Hazard Quotient and Cancer Risk:</b>										2E-01	2E-05	3E-01	6E-06	2E-05	
Assumptions for Resident Adult										Assumptions for Resident Child					
BW = 70 kg										BW = 15 kg					
SA = 18,000 cm <sup>2</sup>										SA = 6,600 cm <sup>2</sup>					
EF = 350 days/year										EF = 350 days/year					
ED = 24 years										ED = 6 years					
$I_{vevent}$ = 0.58 hr/event										$I_{vevent}$ = 1 hr/event					
AT (NC) = 8,760 days										AT (NC) = 2,190 days					
AT (Car) = 25,550 days										AT (Car) = 25,550 days					

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
NA = Information not available.  
Kp value from Exhibit B1 or B-2 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For chemicals that did not have a Kp value listed in Exhibit B-1 or B-2, Kp was calculated using:  
 $Kp = 10^{-(2.80+0.66(\log Kow))-0.0056(MW)}$

TABLE 9  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF GROUNDWATER (WHILE SHOWERING)  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-57  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times L_{vent} \times EV \times EF \times ED}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Air (mg/m<sup>3</sup>)  
 L<sub>vent</sub> = Event Duration  
 IR = Inhalation Rate  
 EF = Exposure Frequency

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RID (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	EPC* Air Adult (mg/m <sup>3</sup> )	EPC* Air Child (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Resident Total Lifetime Cancer Risk	
					Intake (mg/kg-day) (Nc)	Hazard Quotient	Intake (mg/kg-day) (Car)	Hazard Quotient		Contribution to Lifetime Cancer Risk
Bis(2-Ethylhexyl)phthalate	N/A	N/A	1.02E-06	1.02E-06						
Antimony	N/A	N/A	1.36E-01	1.36E-01						
Arsenic	N/A	4.30E-03	NA	NA						
Cobalt	1.71E-06	9.00E-03	NA	NA						
Thallium	N/A	N/A	NA	NA						
<b>Total Hazard Quotient and Cancer Risk:</b>										
					Assumptions for Future Resident (Adult)					
					BW = 70 kg	Assumptions for Future Resident (Child)				
					IR = 1.0 m <sup>3</sup> /hr	BW = 15 kg				
					L <sub>vent</sub> = 0.58 hr/event	IR = 1.0 m <sup>3</sup> /hr				
					EV = 1 event/day	L <sub>vent</sub> = 1.0 hr/event				
					EF = 350 days/year	EV = 1 event/day				
					ED = 24 years	EF = 350 days/year				
					AT (Nc) = 8,760 days	ED = 6 years				
					AT (Car) = 25,550 days	AT (Nc) = 2,190 days				
						AT (Car) = 25,550 days				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA = Information not available.

\* EPC air is the concentration of chemical available for inhalation after accounting for partitioning between the air and water in the shower.

TABLE 9  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF GROUNDWATER (WHILE SHOWERING)  
 REASONABLE MAXIMUM EXPOSURE (RME) SEAD-57 EXCLUDING ESI SAMPLES  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) = 
$$\frac{EPC \times IR \times I_{\text{total}} \times EV \times EF \times ED}{BW \times AT}$$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Air (mg/m<sup>3</sup>)  
 I<sub>event</sub> = Event Duration  
 IR = Inhalation Rate  
 EF = Exposure Frequency

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RID (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	EPC* Air Adult (mg/m <sup>3</sup> )	EPC* Air Child (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Resident Total Lifetime Cancer Risk	
					Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)		
Bis(2-Ethylhexyl)phthalate	N/A	N/A	1.02E-06	1.02E-06						
Antimony	N/A	N/A	1.36E-01	1.36E-01						
Arsenic	N/A	4.30E-03	NA	NA						
Cobalt	1.71E-06	9.00E-03	NA	NA						
Thallium	N/A	N/A	NA	NA						
<b>Total Hazard Quotient and Cancer Risk:</b>										
					Assumptions for Future Resident (Adult)					
					BW = 70 kg	Assumptions for Future Resident (Child)				
					IR = 1.0 m <sup>3</sup> /hr	BW = 15 kg				
					I <sub>event</sub> = 0.58 hr/event	IR = 1.0 m <sup>3</sup> /hr				
					EV = 1 event/day	I <sub>event</sub> = 1.0 hr/event				
					EF = 350 days/year	EV = 1 event/day				
					ED = 24 years	EF = 350 days/year				
					AT (Nc) = 8,760 days	ED = 6 years				
					AT (Car) = 25,550 days	AT (Nc) = 2,190 days				
						AT (Car) = 25,550 days				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA = Information not available.

\* EPC air is the concentration of chemical available for inhalation after accounting for partitioning between the air and water in the shower.



TABLE 10  
SEAD-57 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) = $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$
Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose
Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor
Variables (Assumptions for Each Receptor are Listed at the Bottom):
EPC = EPC in Air, mg/m <sup>3</sup>
IR = Inhalation Rate
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

Analyte	Inhalation RID (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Air EPC from Surface Soil (mg/m <sup>3</sup> )	Air EPC from Total Soils (mg/m <sup>3</sup> )	Park Worker		Construction Worker		Recreational Child Visitor		
					Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)
Benzo(a)anthracene	N/A	N/A	9.9E-10	9.6E-10	1.01E-11	1.01E-11	1.83E-12	1.83E-12	8.21E-13	8.21E-13	3E-12
Benzo(a)pyrene	N/A	3.85E+00	5.2E-10	1.3E-09	7.04E-12	7.04E-12	1.36E-12	1.36E-12	5.71E-13	5.71E-13	2E-13
Benzo(b)fluoranthene	N/A	3.85E-01	3.6E-10	9.3E-10							
Benzo(ghi)perylene	N/A	N/A	4.3E-10	1.1E-09							
Benzo(k)fluoranthene	N/A	3.85E-01	3.1E-10	7.9E-10	5.99E-12	5.99E-12	1.16E-12	1.16E-12	4.86E-13	4.86E-13	2E-13
Chrysene	N/A	3.85E-02	4.0E-10	9.5E-10	7.80E-12	7.80E-12	1.38E-12	1.38E-12	6.33E-13	6.33E-13	2E-14
Dibenz(a,h)anthracene	N/A	4.20E+00	2.9E-10	7.6E-10	5.73E-12	5.73E-12	1.10E-12	1.10E-12	4.65E-13	4.65E-13	2E-12
Indeno(1,2,3-cd)pyrene	N/A	3.85E-01	3.3E-10	8.6E-10	6.51E-12	6.51E-12	1.26E-12	1.26E-12	5.29E-13	5.29E-13	2E-13
Phenanthrene	N/A	N/A	3.0E-10	8.9E-10							
Phenol	5.71E-02	N/A	1.9E-10	7.2E-10	1.05E-11	2E-10	7.34E-11	7.34E-11	4.26E-12	4.26E-12	7E-11
Endosulfan II	N/A	N/A	5.3E-11	1.4E-10							
Endrin aldehyde	N/A	N/A	6.5E-11	1.7E-10							
Endrin ketone	N/A	N/A	6.8E-11	1.8E-10							
Heptachlor epoxide	N/A	9.10E+00	3.4E-11	8.8E-11	6.65E-13	9E-03	1.28E-13	1.28E-13	5.40E-14	5.40E-14	5E-13
Aluminum	1.43E-03	N/A	2.5E-04	6.3E-04	1.35E-05	1.35E-05	6.46E-05	6.46E-05			
Antimony	N/A	N/A	1.4E-08	5.3E-08							
Arsenic	N/A	1.51E+01	8.5E-08	2.2E-07	1.66E-09	1.66E-09	3.26E-10	3.26E-10	1.35E-10	1.35E-10	2E-09
Cadmium	2.86E-06	6.30E+00	3.8E-08	8.4E-08	2.10E-09	7.51E-10	1.23E-10	1.23E-10	8.54E-10	8.54E-10	4E-10
Cobalt	1.71E-06	3.15E+01	1.8E-07	4.9E-07	1.00E-08	3.59E-09	4.95E-08	7.07E-10	4.08E-09	4.08E-09	9E-09
Copper	N/A	N/A	3.6E-07	4.2E-06							
Iron	N/A	N/A	4.2E-04	1.1E-03	6.33E-07	4E-02	2.81E-06	2.81E-06	2.57E-07	2.57E-07	2E-02
Lead	N/A	N/A	3.9E-07	4.6E-06							
Manganese	1.43E-05	N/A	1.2E-05	2.8E-05							
Thallium	N/A	N/A	4.4E-08	1.0E-07							
Vanadium	N/A	N/A	4.5E-07	1.2E-06							
<b>Total Hazard Quotient and Cancer Risk:</b>											
						<b>6E-02</b>	<b>1E-07</b>	<b>3E-01</b>	<b>3E-08</b>	<b>2E-02</b>	<b>1E-08</b>
						<b>Assumptions for Park Worker</b>		<b>Assumptions for Construction Worker</b>		<b>Assumptions for Recreational Child Visitor</b>	
						CA = EPC Surface Only	CA = EPC Surface and Sub-Surface	CA = EPC Surface Only			
						BW = 70 kg	BW = 70 kg	BW = 15 kg			
						IR = 8 m <sup>3</sup> /day	IR = 10.4 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day			
						EF = 175 days/year	EF = 250 days/year	EF = 14 days/year			
						ED = 25 years	ED = 1 year	ED = 5 years			
						AT (Nc) = 9,125 days	AT (Nc) = 365 days	AT (Nc) = 1,825 days			
						AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
NA = Information not available.

TABLE 10  
SEAD-57 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

Analyte	Inhalation RID (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	Air EPC (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Resident Total Lifetime Cancer Risk
				Intake (mg/kg-day)		Intake (mg/kg-day)		
				(Nc)	(Car)	(Nc)	(Car)	
Benzo(a)anthracene	N/A	N/A	9.9E-10	4.85E-11	2.46E-11	9E-11	3E-10	
Benzo(a)pyrene	N/A	3.85E+00	5.2E-10	3.38E-11	1.71E-11	7E-12	2E-11	
Benzo(b)fluoranthene	N/A	3.85E-01	3.6E-10	N/A	N/A	N/A	N/A	
Benzo(ghi)perylene	N/A	N/A	4.3E-10	2.87E-11	1.46E-11	6E-12	2E-11	
Benzo(k)fluoranthene	N/A	3.85E-01	3.1E-10	3.74E-11	1.90E-11	7E-13	2E-12	
Chrysene	N/A	3.85E-02	4.0E-10	2.75E-11	1.40E-11	6E-11	2E-10	
Dibenz(a,h)anthracene	N/A	4.20E+00	2.9E-10	3.13E-11	1.59E-11	6E-12	2E-11	
Indeno(1,2,3-cd)pyrene	N/A	3.85E-01	3.3E-10	N/A	N/A	N/A	N/A	
Phenanthrene	N/A	N/A	3.0E-10	5.25E-11	1.07E-10	2E-09	N/A	
Phenol	5.71E-02	N/A	1.9E-10	9E-10	N/A	N/A	N/A	
Endosulfan II	N/A	N/A	5.3E-11	N/A	N/A	N/A	N/A	
Endrin aldehyde	N/A	N/A	6.5E-11	N/A	N/A	N/A	N/A	
Endrin ketone	N/A	N/A	6.8E-11	N/A	N/A	N/A	N/A	
Heptachlor epoxide	N/A	9.10E+00	3.4E-11	3.19E-12	1.62E-12	1E-11	4E-11	
Aluminum	1.43E-03	N/A	2.5E-04	6.73E-05	1.37E-04	1E-01	N/A	
Antimony	N/A	N/A	1.4E-08	N/A	N/A	N/A	N/A	
Arsenic	N/A	1.51E+01	8.5E-08	7.98E-09	4.05E-09	6E-08	2E-07	
Cadmium	2.86E-06	6.30E+00	3.8E-08	1.05E-08	2.13E-08	1E-08	3E-08	
Cobalt	1.71E-06	3.15E+01	1.8E-07	5.02E-08	1.02E-07	3E-07	8E-07	
Copper	N/A	N/A	3.6E-07	1.72E-08	N/A	N/A	N/A	
Iron	N/A	N/A	4.2E-04	N/A	N/A	N/A	N/A	
Lead	N/A	N/A	3.9E-07	N/A	N/A	N/A	N/A	
Manganese	1.43E-05	N/A	1.2E-05	3.16E-06	6.42E-06	4E-01	N/A	
Thallium	N/A	N/A	4.4E-08	N/A	N/A	N/A	N/A	
Vanadium	N/A	N/A	4.5E-07	N/A	N/A	N/A	N/A	
<b>Total Hazard Quotient and Cancer Risk:</b>				<b>3E-01</b>	<b>7E-07</b>	<b>6E-01</b>	<b>3E-07</b>	<b>1E-06</b>
				Assumptions for Resident Adult		Assumptions for Resident Child		
				CA = EPC Surface Only	CA = EPC Surface Only			
				BW = 70 kg	BW = 15 kg			
				IR = 20 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day			
				EF = 350 days/year	EF = 350 days/year			
				ED = 24 years	ED = 6 years			
				AT (Nc) = 8,760 days	AT (Nc) = 2,190 days			
				AT (Car) = 25,550 days	AT (Car) = 25,550 days			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
N/A= Information not available.

Equation for Intake (mg/kg-day) =  $\frac{CA \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 CA = Chemical Concentration in Air from Stockpile Soil, mg/m<sup>3</sup>  
 IR = Inhalation Rate, m<sup>3</sup>/day  
 EF = Exposure Frequency, day/year  
 ED = Exposure Duration, year  
 BW = Bodyweight, kg  
 AT = Averaging Time, day

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

TABLE 11  
SEAD-57 CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS  
REASONABLE MAXIMUM EXPOSURE (RME)  
SENECA ARMY DEPOT ACTIVITY

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent	Cancer Risk	Percent
<u>PARK WORKER</u>	Inhalation of Dust in Ambient Air	6E-02	6%	1E-07	1%
	Ingestion of Soil	1E-01	15%	2E-06	13%
	Intake of Groundwater	8E-01	78%	1E-05	83%
	Dermal Contact to Soil	6E-03	1%	4E-07	3%
	Dermal Contact to Groundwater	NA		NA	
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>1E+00</i>	100%	<i>1E-05</i>	100%
<u>CONSTRUCTION WORKER</u>	Inhalation of Dust in Ambient Air	3E-01	13%	3E-08	2%
	Ingestion of Soil	7E-01	33%	4E-07	33%
	Intake of Groundwater	1E+00	53%	7E-07	61%
	Dermal Contact to Soil	1E-02	1%	4E-08	3%
	Dermal Contact to Groundwater	2E-03	0%	1E-09	0%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>2.1E+00</i>	100%	<i>1E-06</i>	100%
<u>RECREATIONAL CHILD VISITOR</u>	Inhalation of Dust in Ambient Air	2E-02	4%	1E-08	1%
	Ingestion of Soil	1E-01	19%	3E-07	17%
	Intake of Groundwater	4E-01	76%	1E-06	80%
	Dermal Contact to Soil	2E-03	0%	3E-08	2%
	Dermal Contact to Groundwater	NA		NA	
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>6E-01</i>	100%	<i>2E-06</i>	100%
<u>RESIDENT (ADULT)</u>	Inhalation of Dust in Ambient Air	3E-01	8%	7E-07	1%
	Inhalation of Groundwater	NA		NA	
	Ingestion of Soil	3E-01	7%	4E-06	6%
	Intake of Groundwater	3E+00	79%	5E-05	70%
	Dermal Contact to Soil	8E-03	0%	5E-07	1%
	Dermal Contact to Groundwater	2E-01	6%	2E-05	23%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>4E+00</i>	100%	<i>7E-05</i>	100%
<u>RESIDENT (CHILD)</u>	Inhalation of Dust in Ambient Air	6E-01	4%	3E-07	1%
	Inhalation of Groundwater	NA		NA	
	Ingestion of Soil	3E+00	19%	9E-06	15%
	Intake of Groundwater	1E+01	74%	4E-05	71%
	Dermal Contact to Soil	5E-02	0%	9E-07	1%
	Dermal Contact to Groundwater	4E-01	3%	6E-06	11%
<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>1E+01</i>	100%	<i>6E-05</i>	100%	
<u>RESIDENT (TOTAL)</u>	Inhalation of Dust in Ambient Air			1E-06	1%
	Inhalation of Groundwater			NA	
	Ingestion of Soil			1E-05	10%
	Intake Groundwater			9E-05	71%
	Dermal Contact to Soil			1E-06	1%
	Dermal Contact to Groundwater			2E-05	17%
<i>TOTAL RECEPTOR CANCER RISK</i>			<i>1E-04</i>	100%	

NA - Not Applicable

TABLE 11A  
 SEAD-57 CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS  
 REASONABLE MAXIMUM EXPOSURE (RME) EXCLUDING ESI SAMPLES  
 SENECA ARMY DEPOT ACTIVITY

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent	Cancer Risk	Percent
<u>PARK WORKER</u>	Inhalation of Dust in Ambient Air	6E-02	15%	1E-07	1%
	Ingestion of Soil	1E-01	38%	2E-06	13%
	Intake of Groundwater	2E-01	44%	1E-05	83%
	Dermal Contact to Soil	1E-02	3%	4E-07	3%
	Dermal Contact to Groundwater	NA		NA	
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>4E-01</b>	<b>100%</b>	<b>1E-05</b>	<b>100%</b>
<u>CONSTRUCTION WORKER</u>	Inhalation of Dust in Ambient Air	3E-01	22%	3E-08	2%
	Ingestion of Soil	7E-01	56%	4E-07	33%
	Intake of Groundwater	2E-01	20%	7E-07	61%
	Dermal Contact to Soil	2E-02	2%	4E-08	3%
	Dermal Contact to Groundwater	2E-03	0%	1E-09	0%
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>1.2E+00</b>	<b>100%</b>	<b>1E-06</b>	<b>100%</b>
<u>RECREATIONAL CHILD VISITOR</u>	Inhalation of Dust in Ambient Air	2E-02	10%	1E-08	1%
	Ingestion of Soil	1E-01	47%	3E-07	17%
	Intake of Groundwater	1E-01	41%	1E-06	80%
	Dermal Contact to Soil	3E-03	1%	3E-08	2%
	Dermal Contact to Groundwater	NA		NA	
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>2E-01</b>	<b>100%</b>	<b>2E-06</b>	<b>100%</b>
<u>RESIDENT (ADULT)</u>	Inhalation of Dust in Ambient Air	3E-01	21%	7E-07	1%
	Inhalation of Groundwater	NA		NA	
	Ingestion of Soil	3E-01	20%	4E-06	6%
	Intake of Groundwater	7E-01	47%	5E-05	70%
	Dermal Contact to Soil	1E-02	1%	5E-07	1%
	Dermal Contact to Groundwater	2E-01	11%	2E-05	23%
<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>1E+00</b>	<b>100%</b>	<b>7E-05</b>	<b>100%</b>	
<u>RESIDENT (CHILD)</u>	Inhalation of Dust in Ambient Air	6E-01	10%	1E-08	0%
	Inhalation of Groundwater	NA		NA	
	Ingestion of Soil	3E+00	45%	9E-06	15%
	Intake of Groundwater	2E+00	39%	4E-05	72%
	Dermal Contact to Soil	9E-02	1%	9E-07	2%
	Dermal Contact to Groundwater	3E-01	5%	6E-06	11%
<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>6E+00</b>	<b>100%</b>	<b>6E-05</b>	<b>100%</b>	
<u>RESIDENT (TOTAL)</u>	Inhalation of Dust in Ambient Air			1E-06	1%
	Inhalation of Groundwater			0E+00	0%
	Ingestion of Soil			1E-05	10%
	Intake Groundwater			9E-05	71%
	Dermal Contact to Soil			1E-06	1%
	Dermal Contact to Groundwater			2E-05	17%
<b>TOTAL RECEPTOR CANCER RISK</b>			<b>1E-04</b>	<b>100%</b>	

NA - Not Applicable

TABLE 12  
SEAD-57 RESIDENT ADULT LEAD BLOOD CALCULATION  
SENECA ARMY DEPOT ACTIVITY

**Calculations of Blood Lead Concentrations (PbBs)**

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee  
Version date 6/21/09

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	103.2	103.2
$R_{\text{fetal/maternal}}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
$GSD_i$	Geometric standard deviation PbB	--	1.8	2.1
$PbB_0$	Baseline PbB	ug/dL	1.0	1.5
$IR_S$	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
$IR_{S+D}$	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
$W_S$	Weighting factor; fraction of $IR_{S+D}$ ingested as outdoor soil	--	--	--
$K_{SD}$	Mass fraction of soil in dust	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365
$PbB_{\text{adult}}$	PbB of adult worker, geometric mean	ug/dL	1.1	1.6
$PbB_{\text{fetal}, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.7	5.0
$PbB_t$	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	10.0	10.0
$P(PbB_{\text{fetal}} > PbB_t)$	Probability that fetal PbB > $PbB_t$ , assuming lognormal distribution	%	0.0%	0.5%

LEAD MODEL FOR WINDOWS Version 1.1

=====  
Model Version: 1.1 Build9

User Name:

Date:

Site Name:

Operable Unit:

Run Mode: Research  
=====

\*\*\*\*\* Air \*\*\*\*\*

Indoor Air Pb Concentration: 30.000 percent of outdoor.

Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m <sup>3</sup> /day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m <sup>3</sup> )
.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(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

\*\*\*\*\* Drinking Water \*\*\*\*\*

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
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 µg Pb/L

\*\*\*\*\* Soil & Dust \*\*\*\*\*

Multiple Source Analysis Used

Average multiple source concentration: 26.240 µg/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 ( $\mu\text{g Pb/g}$ )	House Dust ( $\mu\text{g Pb/g}$ )
.5-1	23.200	26.240
1-2	23.200	26.240
2-3	23.200	26.240
3-4	23.200	26.240
4-5	23.200	26.240
5-6	23.200	26.240
6-7	23.200	26.240

\*\*\*\*\* Alternate Intake \*\*\*\*\*

Age	Alternate ( $\mu\text{g Pb/day}$ )
.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: 1.000  $\mu\text{g Pb/dL}$

\*\*\*\*\*

**CALCULATED BLOOD LEAD AND LEAD UPTAKES:**

\*\*\*\*\*

Year	Air ( $\mu\text{g/day}$ )	Diet ( $\mu\text{g/day}$ )	Alternate ( $\mu\text{g/day}$ )	Water ( $\mu\text{g/day}$ )
.5-1	0.021	1.103	0.000	0.391
1-2	0.034	0.956	0.000	0.975
2-3	0.062	1.041	0.000	1.017
3-4	0.067	1.001	0.000	1.040
4-5	0.067	0.960	0.000	1.084
5-6	0.093	1.011	0.000	1.144
6-7	0.093	1.096	0.000	1.165

Year	Soil+Dust ( $\mu\text{g/day}$ )	Total ( $\mu\text{g/day}$ )	Blood ( $\mu\text{g/dL}$ )
.5-1	0.619	2.134	1.2
1-2	0.982	2.947	1.2
2-3	0.985	3.105	1.2
3-4	0.988	3.096	1.1
4-5	0.735	2.846	1.0
5-6	0.662	2.911	0.9
6-7	0.626	2.980	0.8





**Attachment C**

**SEAD-002-R-01 – EOD-2**



TABLE 1  
SEAD-002-R-01 (EOD-2) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD2			EOD2			EOD2			EOD2		
									EOD2-A1 SOIL	EOD2-A2 SOIL	EOD2-A3 SOIL	EOD2-A4 SOIL	EOD2-B1 SOIL	EOD2-B2 SOIL	EOD2-A1 SOIL	EOD2-A2 SOIL	EOD2-A3 SOIL	EOD2-A4 SOIL	EOD2-B1 SOIL	EOD2-B2 SOIL
	1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,1-Dichloroethane	UG/KG	0	0%	330	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,1-Dichloroethane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,2-Dibromomethane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,2-Dichloroethane	UG/KG	0	0%	20	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,2-Dichloropropane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Acetone	UG/KG	100	83%	50	8	10	12	31.2 U	31.2 U	32 U	56 U	61 U	98 U						
	Benzene	UG/KG	0	0%	60	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Bromodichloromethane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Bromoform	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Carbon disulfide	UG/KG	2.4	8%		0	1	12	16 U	16 U	16 U	14 U	15 U	15 U						
	Carbon tetrachloride	UG/KG	0	0%	760	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Chlorobenzene	UG/KG	0	0%	1100	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Chlorodibromomethane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Chloroethane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Chloroform	UG/KG	0	0%	370	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Cis-1,2-Dichloroethane	UG/KG	0	0%	250	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Cyclohexane	UG/KG	0.88	8%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Dichlorodifluoromethane	UG/KG	0	0%		0	1	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Ethyl benzene	UG/KG	0	0%	1000	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Isopropylbenzene	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Meta/Para Xylene	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Methyl Acetate	UG/KG	2.8	8%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Methyl Tertbutyl Ether	UG/KG	0	0%	930	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Methyl bromide	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Methyl butyl ketone	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Methyl chloride	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Methyl cyclohexane	UG/KG	1.1	8%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Methyl ethyl ketone	UG/KG	15	92%		0	11	12	2.8 J	2.8 J	3 J	6.2 J	3.9 J	7.5 U						
	Methyl isobutyl ketone	UG/KG	0	0%		0	0	12	16 U	16 U	16 U	14 U	15 U	15 U						
	Methylene chloride	UG/KG	2.3	100%	50	0	12	14 U	14 U	14 U	14 U	14 U	14 U	15 U						
	Ortho Xylene	UG/KG	0	0%		0	0	12	2.3 J	2.3 J	2.3 J	1.8 J	1.7 J	2 J						
	Styrene	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Tetrachloroethene	UG/KG	0	0%	1300	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Toluene	UG/KG	1.4	25%	700	0	3	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Trans-1,2-Dichloroethene	UG/KG	0	0%	190	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Trichloroethene	UG/KG	0	0%	470	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Trichlorofluoromethane	UG/KG	0	0%		0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	Vinyl chloride	UG/KG	0	0%	20	0	0	12	7.8 U	7.8 U	8 U	7.1 U	7.7 U	7.5 U						
	<b>Semivolatile Organic Compounds</b>																			
	1,1-Biphenyl	UG/KG	0	0%		0	0	12	460 U	460 U	470 U	450 U	480 U	480 U						
	2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	12	460 U	460 U	470 U	450 U	480 U	480 U						
	2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	12	460 U	460 U	470 U	450 U	480 U	480 U						
	2,4-Dichlorophenol	UG/KG	0	0%		0	0	12	460 U	460 U	470 U	450 U	480 U	480 U						

TABLE 1  
SEAD-002-R-01 (EOD-2) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD2-A1 SOIL		EOD2-A2 SOIL		EOD2-A3 SOIL		EOD2-A4 SOIL		EOD2-B1 SOIL		EOD2-B2 SOIL	
									Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA
	2,4-Dimethylphenol	UG/KG	0	0%		0	0	12	470 U	450 U	470 U	450 U	470 U	450 U	470 U	450 U	470 U	450 U	470 U	450 U
	2,4-Dinitrophenol	UG/KG	0	0%		0	0	12	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U
	2,4-Dinitrotoluene	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	2,6-Dinitrotoluene	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	2-Chloronaphthalene	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	2-Chlorophenol	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	2-Methylnaphthalene	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	2-Methylphenol	UG/KG	0	0%	330	0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	2-Nitroaniline	UG/KG	0	0%		0	0	12	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U
	2-Nitrophenol	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	3-Nitroaniline	UG/KG	0	0%		0	0	12	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U
	4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	12	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U
	4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	4-Chloro-3-methylphenol	UG/KG	98	17%	20000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	4-Chloroaniline	UG/KG	0	0%	100000	0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	4-Methylphenol	UG/KG	240	17%	100000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	4-Nitroaniline	UG/KG	0	0%		0	0	12	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U
	4-Nitrophenol	UG/KG	0	0%		0	0	12	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U
	Acenaphthene	UG/KG	98	17%	20000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Acenaphthylene	UG/KG	0	0%	100000	0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Acetophenone	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Anthracene	UG/KG	240	17%	100000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Atrazine	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Benzaldehyde	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Benz(a)anthracene	UG/KG	410	17%	1000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Benz(a)pyrene	UG/KG	310	17%	1000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Benzo(b)fluoranthene	UG/KG	230	17%	1000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Benzo(g)hperylene	UG/KG	150	17%	100000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Benzo(k)fluoranthene	UG/KG	300	17%	800	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Bis(2-Chloroethoxy)ether	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Bis(benzoyl)phthalate	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Caprolactam	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Carbazole	UG/KG	120	17%		0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Chrysene	UG/KG	350	17%	1000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Di-n-butylphthalate	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Di-n-octylphthalate	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Dibenz(a,h)anthracene	UG/KG	59	8%	330	0	1	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Dibenzofuran	UG/KG	51	8%	7000	0	1	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Diethyl phthalate	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Dimethylphthalate	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Fluoranthene	UG/KG	750	17%	100000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Fluorene	UG/KG	100	17%	30000	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Hexachlorobenzene	UG/KG	0	0%	330	0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Hexachlorobutadiene	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Hexachloroethane	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Indeno(1,2,3-c)pyrene	UG/KG	150	17%	500	0	2	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	Isophorone	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	N-Nitrosodiphenylamine	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U
	N-Nitrosodipropylamine	UG/KG	0	0%		0	0	12	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U	470 U	460 U

TABLE 1  
SEAD-002-R-01 (EOD-2) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (l)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD2-A1			EOD2-A2			EOD2-A3			EOD2-A4			EOD2-B1			EOD2-B2		
									Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA
	Naphthalene	UG/KG	45	17%	12000	0	2	12	470 U			460 U			470 U			450 U			45 U			37 J		
	Nitrobenzene	UG/KG	0	0%		0	0	12	470 U			460 U			470 U			450 U			45 U			480 U		
	Benachlorophenol	UG/KG	0	0%	800	0	0	12	2400 U			2400 U			2400 U			2300 U			2500 U			2400 U		
	Pentafluorobenzene	UG/KG	720	17%	1000000	0	2	12	470 U			460 U			470 U			450 U			340 J			720		
	Phenol	UG/KG	0	0%	330	0	0	12	470 U			460 U			470 U			450 U			480 U			460 U		
	Pyrene	UG/KG	520	17%	100000	0	2	12	470 U			460 U			470 U			450 U			220 J			520		
	<b>Explosives</b>																									
	1,3,5-Trinitrobenzene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	1,3-Dinitrobenzene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	2,4,6-Trinitrotoluene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	2,4-Dinitrotoluene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	2,6-Dinitrotoluene	UG/KG	0	0%		0	0	12	1000 U			1000 U			1000 U			1000 U			1000 U			1000 U		
	2-Nitrotoluene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	2-amino-4,6-Dinitrotoluene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	3-Nitrotoluene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	4-Nitrotoluene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	4-amino-2,6-Dinitrotoluene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	HMX	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	Nitrobenzene	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	Nitroglycerine	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	Pentaerythritol Tetranitrate	UG/KG	0	0%		0	0	12	500 U			500 U			500 U			500 U			500 U			500 U		
	RDX	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	Tetryl	UG/KG	0	0%		0	0	12	2000 U			2000 U			2000 U			2000 U			2000 U			2000 U		
	<b>PCBs</b>																									
	Aroclor-1016	UG/KG	0	0%		0	0	12	47 UJ			46 U			47 U			45 U			48 U			46 U		
	Aroclor-1221	UG/KG	0	0%		0	0	12	95 UJ			94 U			94 U			92 U			98 U			94 U		
	Aroclor-1232	UG/KG	0	0%		0	0	12	47 UJ			46 U			47 U			45 U			48 U			46 U		
	Aroclor-1242	UG/KG	0	0%		0	0	12	47 UJ			46 U			47 U			45 U			48 U			46 U		
	Aroclor-1248	UG/KG	0	0%		0	0	12	47 UJ			46 U			47 U			45 U			48 U			46 U		
	Aroclor-1254	UG/KG	0	0%		0	0	12	47 UJ			46 U			47 U			45 U			48 U			46 U		
	Aroclor-1260	UG/KG	0	0%		0	0	12	47 UJ			46 U			47 U			45 U			48 U			46 U		
	<b>Pesticides</b>																									
	4,4'-DDD	UG/KG	0	0%	3.3	0	0	12	47 U			46 U			47 U			45 U			48 U			46 U		
	4,4'-DDE	UG/KG	0	0%	3.3	0	0	12	47 U			46 U			47 U			45 U			48 U			46 U		
	4,4'-DDT	UG/KG	0	0%	3.3	0	0	12	47 U			46 U			47 U			45 U			48 U			46 U		
	Aldrin	UG/KG	0	0%	5	0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		
	Alpha-BHC	UG/KG	0	0%	20	0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		
	Alpha-Chlordane	UG/KG	0	0%	94	0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		
	Beta-BHC	UG/KG	0	0%	36	0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		
	Delta-BHC	UG/KG	0	0%	40	0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		
	Dieldrin	UG/KG	0	0%	5	0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		
	Endosulfan I	UG/KG	0	0%	2400	0	0	12	4.7 U			4.6 U			4.7 U			4.5 U			4.8 U			4.6 U		
	Endosulfan II	UG/KG	0	0%	2400	0	0	12	4.7 U			4.6 U			4.7 U			4.5 U			4.8 U			4.6 U		
	Endosulfan sulfate	UG/KG	0	0%	2400	0	0	12	4.7 U			4.6 U			4.7 U			4.5 U			4.8 U			4.6 U		
	Endrin	UG/KG	0	0%	14	0	0	12	4.7 U			4.6 U			4.7 U			4.5 U			4.8 U			4.6 U		
	Endrin aldehyde	UG/KG	0	0%		0	0	12	4.7 U			4.6 U			4.7 U			4.5 U			4.8 U			4.6 U		
	Endrin ketone	UG/KG	0	0%		0	0	12	4.7 U			4.6 U			4.7 U			4.5 U			4.8 U			4.6 U		
	Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	12	4.7 U			4.6 U			4.7 U			4.5 U			4.8 U			4.6 U		
	Gamma-Chlordane	UG/KG	0	0%		0	0	12	4.7 U			4.6 U			4.7 U			4.5 U			4.8 U			4.6 U		
	Heptachlor	UG/KG	0	0%	42	0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		
	Heptachlor epoxide	UG/KG	0	0%		0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		
	Methoxychlor	UG/KG	0	0%		0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		
	Toxaphene	UG/KG	0	0%		0	0	12	2.4 U			2.4 U			2.4 U			2.3 U			2.5 U			2.4 U		

TABLE 1  
SEAD-002-R-01 (EOD-2) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedences	Number of Times Detected	Number of Samples Analyzed	EOD2-A1		EOD2-A2		EOD2-A3		EOD2-A4		EOD2-B1		EOD2-B2	
							Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA
Aluminum	18100	100%		0	12	12	16700	0.49 UJ	17100	0.49 UJ	14500	0.49 UJ	13100	0.48 UJ	16700	0.49 UJ	17400	0.49 UJ
Antimony	0	0%	13	0	12	12	3.7	4.5	4.5	2.7	2.8	2.8	2.8	3.7	3.7	3.9	3.9	3.9
Arsenic	4.5	100%	350	0	12	12	100	144	144	89.7	89.7	84.1	84.1	111	111	95.2	95.2	95.2
Beryllium	144	100%	7.2	0	12	12	0.85	0.85	0.85	0.63 J	0.63 J	0.61 J	0.61 J	0.02 U	0.02 U	0.87	0.87	0.87
Cadmium	0.91	92%	2.5	0	11	11	0.05 U	0.05 U	0.61 J	0.05 U	0.05 U	0.13 J	0.13 J	0.01 J	0.01 J	0.1 J	0.1 J	0.1 J
Calcium	19200	67%		0	8	8	3260	2830	2830	2630	2630	2930	2930	5250	5250	2440	2440	2440
Calcium	0.61	100%		0	12	12	25.7	23.7	23.7	19.2	19.2	18.2	18.2	24.3	24.3	25.8	25.8	25.8
Chromium	26.8	100%		0	12	12	10.1	19.4	19.4	6.4 J	6.4 J	7.3	7.3	9.6	9.6	10.3	10.3	10.3
Cobalt	19.4	100%		0	12	12	20.7	17.9	17.9	12.3	12.3	12.1	12.1	20.8	20.8	20.2	20.2	20.2
Copper	37.3	100%	50	0	12	12	26500	26100	26100	19200	19200	18500	18500	24200	24200	26900	26900	26900
Iron	28200	100%		0	12	12	21.6	24	24	17.2	17.2	15.4	15.4	22.3	22.3	22.4	22.4	22.4
Lead	27.9	100%	63	0	12	12	4690	3590	3590	3060	3060	3060	3060	4750	4750	4880	4880	4880
Magnesium	6620	100%		0	12	12	442	2770	2770	278	278	605	605	497	497	495	495	495
Manganese	2770	100%	1600	1	12	12	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05
Mercury	0.06	100%	0.18	0	12	12	32.2	32.2	32.2	16.5	16.5	16	16	29.4	29.4	30.4	30.4	30.4
Nickel	49.9	100%	30	3	12	12	1620 J	1320 J	1320 J	1430 J	1430 J	1470 J	1470 J	2040 J	2040 J	1860 J	1860 J	1860 J
Potassium	2040	100%		0	12	12	1.8	2.6	2.6	1.6	1.6	1.7	1.7	1.9	1.9	2.1	2.1	2.1
Selenium	2.6	100%	3.9	0	12	12	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Silver	0	0%	2	0	12	12	140 U	139 U	139 U	138 U	138 U	138 U	138 U	139 U	139 U	138 U	138 U	138 U
Sodium	0	0%		0	12	12	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Thallium	0	0%		0	12	12	29.2	33.8	33.8	27.8	27.8	25.4	25.4	30	30	31.5	31.5	31.5
Vanadium	33.8	100%	109	0	12	12	78.1	68.2	68.2	60.5	60.5	57.5	57.5	79.2	79.2	75.2	75.2	75.2
Zinc	79.2	100%		0	12	12	7.07 U	7.07 U	7.07 U	7.17 U	7.17 U	7.16	7.16	7.29 U	7.29 U	7.03	7.03	7.03
<b>Other Analyses</b>																		
Nitrate Nitrogen	9.21	33%		0	4	4	70.7	71.3	71.3	69.7	69.7	72.6	72.6	68.6	68.6	71.1	71.1	71.1
Percent Solids	90.3	100%		0	12	12												

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/webster/regs/subpart375\\_6.html](http://www.dec.state.ny.us/webster/regs/subpart375_6.html)  
 (2) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
 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 analytical result was rejected during data validation.

TABLE 1  
SEAD-002-R-01 (EOD-2) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (l)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD2 EOD2-B3 SOIL 002R011006 12/11/2006 SA RA	EOD2-B4 SOIL 002R011005 12/11/2006 SA RA	EOD2-C1 SOIL 002R011011 12/11/2006 SA RA	EOD2-C2 SOIL 002R011010 12/11/2006 SA RA	EOD2-C3 SOIL 002R011009 12/11/2006 SA RA	EOD2-C4 SOIL 002R011012 12/11/2006 SA RA	Value (Q)
	<b>Volatile Organic Compounds</b>														
	1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	12	6.7 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,1-Dichloroethane	UG/KG	0	0%	330	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,1-Dichloroethene	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,2-Dibromomethane	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,2-Dichloroethane	UG/KG	0	0%	20	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,2-Dichloropropane	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Acetone	UG/KG	100	83%	50	8	10	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Benzene	UG/KG	0	0%	60	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Bromodichloromethane	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Bromoform	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Carbon disulfide	UG/KG	2.4	8%		0	1	12	14 U	13 U	13 U	16 U	16 U	2.4 J	
	Carbon tetrachloride	UG/KG	0	0%	760	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Chlorobenzene	UG/KG	0	0%	1100	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Chlorobromomethane	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Chloroethane	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Chloroform	UG/KG	0	0%	370	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Cis-1,2-Dichloroethane	UG/KG	0	0%	250	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Cyclohexane	UG/KG	0.88	8%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Dichlorodifluoromethane	UG/KG	0	0%	1000	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Ethyl benzene	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Isopropylbenzene	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Meta Para Xylene	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Methyl Acetate	UG/KG	2.8	8%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Methyl Tertbutyl Ether	UG/KG	0	0%	930	0	1	12	2.8 J	13 U	13 U	16 U	16 U	11 U	
	Methyl bromide	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Methyl butyl ketone	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Methyl chloride	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Methyl cyclohexane	UG/KG	1.1	8%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Methyl ethyl ketone	UG/KG	15	92%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Methyl isobutyl ketone	UG/KG	0	0%	120	0	11	12	3.1 J	15	4.4 J	6.3 J	4.6 J	3.8 J	
	Methylene chloride	UG/KG	2.3	100%	50	0	0	12	14 U	13 U	13 U	16 U	16 U	11 U	
	Ortho Xylene	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Styrene	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Tetrachloroethene	UG/KG	0	0%	1300	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Toluene	UG/KG	1.4	25%	700	0	3	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Trans-1,2-Dichloroethene	UG/KG	0	0%	190	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Trichloroethene	UG/KG	0	0%	470	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Trichlorofluoromethane	UG/KG	0	0%		0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	Vinyl chloride	UG/KG	0	0%	20	0	0	12	6.9 U	6.7 U	6.3 U	8 U	7.8 U	5.5 U	5.5 U
	<b>Semivolatile Organic Compounds</b>														
	1,1'-Biphenyl	UG/KG	0	0%		0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	
	2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	
	2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	
	2,4-Dichlorophenol	UG/KG	0	0%		0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	

TABLE 1  
SEAD-002-R-01 (EOD-2) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION	EOD2	EOD2	EOD2	EOD2	EOD2	EOD2	EOD2	EOD2	EOD2	EOD2	EOD2	EOD2	EOD2	EOD2	
LOCATION ID	B3	B4	C1	C2	C3	C4	B3	B4	C1	C2	C3	C4	B3	B4	
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
TOP OF SAMPLE	002R011006	002R011003	002R011011	002R011010	002R011009	002R011012	002R011006	002R011003	002R011011	002R011010	002R011009	002R011012	002R011006	002R011003	
BOTTOM OF SAMPLE	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	
SAMPLE DATE	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	12/11/2006	
QC CODE	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
STUDY ID	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	
Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2,4-Dimethylphenol	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
2,4-Dinitrophenol	UG/KG	0	0%	0	0	0	12	2000 U	2300 U	2300 U	2600 U	2400 U	1900 U	2400 U	1900 U
2,4-Dinitrotoluene	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
2,6-Dinitrotoluene	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
2-Chloronaphthalene	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
2-Chlorophenol	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
2-Methylnaphthalene	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
2-Methylphenol	UG/KG	0	0%	330	0	0	12	2000 U	2300 U	2300 U	2600 U	2400 U	1900 U	2400 U	1900 U
2-Nitroaniline	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
2-Nitrophenol	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
3,3-Dichlorobenzidine	UG/KG	0	0%	0	0	0	12	2000 U	2300 U	2300 U	2600 U	2400 U	1900 U	2400 U	1900 U
3-Nitroaniline	UG/KG	0	0%	0	0	0	12	2000 U	2300 U	2300 U	2600 U	2400 U	1900 U	2400 U	1900 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
4-Bromophenyl phenyl ether	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
4-Chloro-3-methylphenol	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
4-Chloroaniline	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
4-Chlorophenyl phenyl ether	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
4-Methylphenol	UG/KG	0	0%	330	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
4-Nitroaniline	UG/KG	0	0%	0	0	0	12	2000 U	2300 U	2300 U	2600 U	2400 U	1900 U	2400 U	1900 U
4-Nitrophenol	UG/KG	0	0%	0	0	0	12	2000 U	2300 U	2300 U	2600 U	2400 U	1900 U	2400 U	1900 U
Acenaphthene	UG/KG	98	17%	20000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Acenaphthylene	UG/KG	0	0%	100000	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Acetophenone	UG/KG	0	0%	100000	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Anthracene	UG/KG	240	17%	100000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Atrazine	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Benzaldehyde	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Benzo(a)anthracene	UG/KG	410	17%	1000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Benzo(a)pyrene	UG/KG	310	17%	1000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Benzo(b)fluoranthene	UG/KG	230	17%	1000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Benzo(k)perylene	UG/KG	150	17%	100000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Benzo(k)fluoranthene	UG/KG	300	17%	800	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Bis(2-Chloroethyl)ether	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Butylbenzylphthalate	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Caproactam	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Carbazole	UG/KG	120	17%	1000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Chrysene	UG/KG	350	17%	1000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Dt-n-butylphthalate	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Dt-n-octylphthalate	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Dibenz(a,h)anthracene	UG/KG	59	8%	330	0	1	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Dibenzofuran	UG/KG	51	8%	7000	0	1	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Diethyl phthalate	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Dimethyl phthalate	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Fluoranthene	UG/KG	750	17%	100000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Fluorene	UG/KG	100	17%	30000	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Hexachlorobenzene	UG/KG	0	0%	330	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Hexachlorobutadiene	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Hexachlorocyclopentadiene	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Hexachloroethane	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Indeno(1,2,3-c)pyrene	UG/KG	150	17%	500	0	2	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
Isophorone	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
N-Nitrosodiphenylamine	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U
N-Nitrosodipropylamine	UG/KG	0	0%	0	0	0	12	390 U	450 U	440 U	510 U	470 U	370 U	1900 U	370 U





TABLE 1  
SEAD-002-R-01 (EOD-2) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD2-B3 SOIL		EOD2-B4 SOIL		EOD2-C1 SOIL		EOD2-C2 SOIL		EOD2-C3 SOIL		EOD2-C4 SOIL	
									Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
	Aluminum	MG/KG	18100	100%		0	12	12	11000	13800	18100	13800	18100	13800	14500	12700				
	Antimony	MG/KG	0	0%		0	12	12	0.41 UJ	0.46 UJ	0.46 UJ	0.53 UJ	0.46 UJ	0.51 UJ	0.37 UJ					
	Arsenic	MG/KG	4.5	100%	13	0	12	12	2.5	3.5	3.6	2.9	3.6	2.8	2.8					
	Barium	MG/KG	144	100%	350	0	12	12	70.8	103	111	91.3	111	91.9	28.5					
	Beryllium	MG/KG	0.91	92%	7.2	0	11	12	0.53 J	0.69	0.91	0.67 J	0.91	0.72	0.61					
	Cadmium	MG/KG	0.61	67%	2.5	0	8	12	0.08 J	0.07 J	0.07 J	0.05 U	0.07 J	0.14 J	0.04 U					
	Calcium	MG/KG	19200	100%		0	12	12	1900	19200	2490	2880	2490	3530	18300					
	Chromium	MG/KG	26.8	100%		0	12	12	15.2	20.6	26.8	19.2	26.8	20.9	24.9					
	Cobalt	MG/KG	19.4	100%		0	12	12	8.8	8.8	15.3	6 J	15.3	8	14.1					
	Copper	MG/KG	37.3	100%	50	0	12	12	9.4	19.5	15.3	14	15.3	17.6	37.3					
	Iron	MG/KG	28200	100%		0	12	12	16200	22200	27800	18900	27800	19100	28200					
	Lead	MG/KG	27.9	100%	63	0	12	12	14.2	17.6	21.1	17.1	21.1	22	27.9					
	Magnesium	MG/KG	6620	100%		0	12	12	2430	6400	4370	3110	4370	3640	6620					
	Manganese	MG/KG	2770	100%	1600	1	12	12	297	423	859	317	859	442	349					
	Mercury	MG/KG	0.06	100%	0.18	0	12	12	0.04	0.05	0.05	0.06	0.05	0.04	0.02 J					
	Nickel	MG/KG	49.9	100%	30	3	12	12	13.3	25.4	29.2	16.4	29.2	22.6	49.9					
	Potassium	MG/KG	2040	100%		0	12	12	1050 J	1570 J	1510 J	1590 J	1510 J	1660 J	1350 J					
	Selenium	MG/KG	2.6	100%	3.9	0	12	12	1.5	1.9	2.2	1.4 J	2.2	2	2					
	Silver	MG/KG	0	0%	2	0	12	12	0.13 U	0.15 U	0.15 U	0.17 U	0.15 U	0.17 U	0.12 U					
	Sodium	MG/KG	0	0%		0	12	12	117 U	132 U	130 U	152 U	130 U	144 U	105 U					
	Thallium	MG/KG	0	0%		0	12	12	0.34 U	0.39 U	1.1 U	0.44 U	1.1 U	0.42 U	0.31 U					
	Vanadium	MG/KG	33.8	100%		0	12	12	21.6	27.2	31.5	27	31.5	27.4	18					
	Zinc	MG/KG	79.2	100%	109	0	12	12	51.3	71.8	75	59.2	75	71.3	78.2					
	<b>Other Analytes</b>																			
	Nitrate Nitrogen	MG/KG	9.21	33%		0	4	12	5.87 U	6.86 U	6.65 U	7.66 U	6.65 U	9.21	5.54 U					
	Percent Solids	%	90.3	100%		0	12	12	85.2	72.9	75.2	65.3	75.2	69.5	90.3					

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives.  
[http://www.dec.state.ny.us/website/reg/subpart375\\_6.html](http://www.dec.state.ny.us/website/reg/subpart375_6.html)  
 (2) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
 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 analytical result was rejected during data validation.

TABLE 2  
 OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-002-R-01 (EOD-2) SOIL  
 SENECA ARMY DEPOT ACTIVITY

CAS Number	Chemical	Minimum Detected Concentration (1) (mg/kg)	Q	Maximum Detected Concentration (1) (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency (1)	Range of Reporting Limits (1) (mg/kg)	Concentration Used for Screening (2) (mg/kg)	Background Value (3) (mg/kg)	Screening Value (4) (mg/kg)	Potential ARAR/TBC Source	ARAR / TBC Value (5) (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection (6)
<b>VOC</b>															
67-64-1	Acetone	0.047	J	0.1	J	EOD2-C4	10 / 12	0.0312 - 0.052	0.1		6,100	NYSDEC Subpart 375-6	0.05	NO	BSL
76-15-0	Carbon disulfide	0.0034	J	0.0024	J	EOD2-C4	1 / 12	0.013 - 0.016	0.0024		67			NO	BSL
110-82-7	Cyclohexane	0.00088	J	0.00088	J	EOD2-B4	1 / 12	0.0055 - 0.008	0.00088		720			NO	BSL
79-20-9	Methyl acetate	0.0028	J	0.0028	J	EOD2-B3	1 / 12	0.011 - 0.016	0.0028		7,800			NO	BSL
108-87-2	Methyl cyclohexane	0.0011	J	0.0011	J	EOD2-B4	1 / 12	0.0055 - 0.008	0.0011					NSV	NSV
78-93-3	Methyl ethyl ketone	0.0028	J	0.015	J	EOD2-B4	11 / 12	0.016 - 0.016	0.015		2,800	NYSDEC Subpart 375-6	0.12	NO	BSL
75-09-2	Methylene chloride	0.00051	J	0.0023	J	EOD2-A3	12 / 12	0 - 0	0.0023		11	NYSDEC Subpart 375-6	0.05	NO	BSL
108-88-3	Toluene	0.00044	J	0.0014	J	EOD2-A1	3 / 12	0.0055 - 0.008	0.0014		500	NYSDEC Subpart 375-6	0.7	NO	BSL
<b>SVOC</b>															
83-32-9	Acenaphthene	0.06	J	0.098	J	EOD2-B2	2 / 12	0.37 - 0.51	0.098		340	NYSDEC Subpart 375-6	20	NO	BSL
120-12-7	Anthracene	0.087	J	0.24	J	EOD2-B2	2 / 12	0.37 - 0.51	0.24		1,700	NYSDEC Subpart 375-6	100	NO	BSL
56-55-3	Benzo(a)anthracene	0.15	J	0.41	J	EOD2-B2	2 / 12	0.37 - 0.51	0.41		0.15	NYSDEC Subpart 375-6	1	YES	ASL
50-32-8	Benzo(a)pyrene	0.11	J	0.31	J	EOD2-B2	2 / 12	0.37 - 0.51	0.31		0.015	NYSDEC Subpart 375-6	1	YES	ASL
205-99-2	Benzo(b)fluoranthene	0.11	J	0.23	J	EOD2-B2	2 / 12	0.37 - 0.51	0.23		0.15	NYSDEC Subpart 375-6	1	YES	ASL
191-24-2	Benzo(g)hperylene	0.057	J	0.15	J	EOD2-B2	2 / 12	0.37 - 0.51	0.15		0.15	NYSDEC Subpart 375-6	100	NSV	NSV
207-08-9	Benzo(k)fluoranthene	0.12	J	0.3	J	EOD2-B2	2 / 12	0.37 - 0.51	0.3		1.5	NYSDEC Subpart 375-6	0.8	NO	CSG
86-74-8	Carbazole	0.048	J	0.12	J	EOD2-B2	2 / 12	0.37 - 0.51	0.12					NSV	NSV
218-01-9	Chrysene	0.14	J	0.35	J	EOD2-B2	2 / 12	0.37 - 0.51	0.35		1.5	NYSDEC Subpart 375-6	1	NO	CSG
53-70-3	Dibenz(a,h)anthracene	0.059	J	0.059	J	EOD2-B2	1 / 12	0.37 - 0.51	0.059		0.015	NYSDEC Subpart 375-6	0.33	YES	ASL
132-64-9	Dibenzofuran	0.051	J	0.051	J	EOD2-B2	1 / 12	0.37 - 0.51	0.051					NSV	NSV
206-44-0	Fluoranthene	0.31	J	0.75	J	EOD2-B2	2 / 12	0.37 - 0.51	0.75		230	NYSDEC Subpart 375-6	100	NO	BSL
86-73-7	Fluorene	0.05	J	0.1	J	EOD2-B2	2 / 12	0.37 - 0.51	0.1		230	NYSDEC Subpart 375-6	100	NO	BSL
193-39-5	Indene(1,2,3-cd)pyrene	0.057	J	0.15	J	EOD2-B2	2 / 12	0.37 - 0.51	0.15		230	NYSDEC Subpart 375-6	100	NO	BSL
91-20-3	Naphthalene	0.037	J	0.45	J	EOD2-B1	2 / 12	0.37 - 0.51	0.45		0.15	NYSDEC Subpart 375-6	0.5	NO	CSG
85-01-8	Phenanthrene	0.34	J	0.72	J	EOD2-B2	2 / 12	0.37 - 0.51	0.72		3.9	NYSDEC Subpart 375-6	1.2	NO	BSL
129-00-0	Pyrene	0.22	J	0.52	J	EOD2-B2	2 / 12	0.37 - 0.51	0.52		170	NYSDEC Subpart 375-6	100	NSV	NSV
<b>METALS</b>															
7429-90-5	Aluminum	11,000	J	18,100	J	EOD2-C1	12 / 12	0 - 0	18,100	20,500	7,700			YES	ASL
7440-38-2	Arsenic	2.5	J	4.5	J	EOD2-A2	12 / 12	0 - 0	4.5	21.5	0.39	NYSDEC Subpart 375-6	13	YES	ASL
7440-39-3	Barium	28.5	J	144	J	EOD2-A2	12 / 12	0 - 0	144	159	1,500	NYSDEC Subpart 375-6	350	NO	BSL
7440-41-7	Beryllium	0.53	J	0.91	J	EOD2-C1	11 / 12	0.02 - 0.02	0.91	1.4	16	NYSDEC Subpart 375-6	7.2	NO	BSL
7440-43-9	Cadmium	0.06	J	0.61	J	EOD2-A2	8 / 12	0.04 - 0.05	0.61	2.9	7	NYSDEC Subpart 375-6	2.3	NO	BSL
7440-70-2	Calcium	1,900	J	19,200	J	EOD2-B4	12 / 12	0 - 0	19,200	293,000				NSV	NUT
7440-47-3	Chromium	15.2	J	26.8	J	EOD2-C1	12 / 12	0 - 0	26.8	32.7	280			NO	BSL
7440-48-4	Cobalt	5.1	J	19.4	J	EOD2-A2	12 / 12	0 - 0	19.4	29.1	2.3			YES	ASL
7440-50-8	Copper	9.4	J	37.3	J	EOD2-C4	12 / 12	0 - 0	37.3	62.8	310	NYSDEC Subpart 375-6	50	NO	BSL
7439-89-6	Iron	16,200	J	28,200	J	EOD2-C4	12 / 12	0 - 0	28,200	381,600	5,500			YES	ASL
7439-92-1	Lead	14.2	J	27.9	J	EOD2-C4	12 / 12	0 - 0	27.9	266	40	NYSDEC Subpart 375-6	63	NO	BSL
7439-95-4	Magnesium	2,430	J	6,620	J	EOD2-C4	12 / 12	0 - 0	6,620	29,100				NSV	NUT
7439-96-5	Manganese	278	J	2,770	J	EOD2-A2	12 / 12	0 - 0	2,770	2,380	180	NYSDEC Subpart 375-6	1,600	YES	ASL
7439-97-6	Mercury	0.02	J	0.06	J	EOD2-B1	12 / 12	0 - 0	0.06	0.13	0.43	NYSDEC Subpart 375-6	0.18	NO	BSL
7440-02-0	Nickel	13.3	J	49.9	J	EOD2-C4	12 / 12	0 - 0	49.9	62.3	150	NYSDEC Subpart 375-6	30	NO	BSL
7440-09-7	Potassium	1,050	J	2,040	J	EOD2-B1	12 / 12	0 - 0	2,040	3,160				NSV	NUT
7782-49-2	Selenium	1.4	J	2.6	J	EOD2-A2	12 / 12	0 - 0	2.6	1.7	39	NYSDEC Subpart 375-6	3.9	NO	BSL
7440-62-2	Vanadium	18	J	33.8	J	EOD2-A2	12 / 12	0 - 0	33.8	32.7	55			NO	BSL
7440-66-6	Zinc	51.3	J	79.2	J	EOD2-B1	12 / 12	0 - 0	79.2	126	2,300	NYSDEC Subpart 375-6	109	NO	BSL
<b>Other Analytes</b>															
14797-55-8	Nitrate Nitrogen	7.03	J	9.21	J	EOD2-C3	4 / 12	5.54 - 7.66	9.21		13,000			NO	BSL

Notes:  
 1. Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.  
 2. The maximum detected concentration was used for screening.  
 3. Background value is the maximum Seneca background concentration.  
 4. EPA Regional Screening Levels for residential soil. On-line resources available at <http://www.epa.gov/region09/superfund/prg/index.html>. Last updated April 2009.  
 Region 9 PRGs were derived based on Direct contact exposure (ingestion and dermal contact) and a target Cancer Risk of 1E-6 or a Target Hazard Quotient of 0.1.  
 Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium) from Merylyn Wright (2001) Dietary Reference Intakes. PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium. PRG for nickel (soluble salts) was used as screening value for nickel.  
 5. Potential ARAR/TBC values are from NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html). Above Screening Levels (ASL) No Screening Value (NSV) Essential Nutrient (NUT) Below Screening Level (BSL)  
 Selection Reason:  
 Deletion Reason:  
 Definitions:  
 COPC = Chemical of Potential Concern  
 ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered  
 Q = Qualifier  
 J = Estimated Value



TABLE 2  
 OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-002-R-01 (EOD-2) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Scenario Time frame: Current/Future  
 Medium: Soil  
 Exposure Medium: Soil  
 Exposure Point: SEAD 002-R-01 (EOD-2)

CAS Number	Chemical	Minimum Detected Concentration (1) (mg/kg)	Q	Maximum Detected Concentration (1) (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency (1)	Range of Reporting Limits (1) (mg/kg)	Concentration Used for Screening (2) (mg/kg)	Background Value (3) (mg/kg)	Screening Value (4) (mg/kg)	Potential ARAR/TBC Source	ARAR / TBC Value (5) (mg/kg)	COPC Flag	Rationale for Contaminant Selection or Section (6)
<b>VOC</b>															
67-64-1	Acetone	0.047	J	0.1	J	EOD2-C4	10 / 12	0.0312 - 0.052	0.1		6,100	NYSDEC Subpart 375-6	0.05	NO	BSL
75-15-0	Carbon disulfide	0.0024	J	0.0024	J	EOD2-C4	1 / 12	0.013 - 0.016	0.0024		67			NO	BSL
110-82-7	Cyclohexane	0.00088	J	0.00088	J	EOD2-B4	1 / 12	0.0055 - 0.008	0.00088		720			NO	BSL
79-20-9	Methyl acetate	0.0028	J	0.0028	J	EOD2-B4	1 / 12	0.011 - 0.016	0.0028		7,800			NO	BSL
108-87-2	Methyl cyclohexane	0.0011	J	0.0011	J	EOD2-B4	1 / 12	0.0055 - 0.008	0.0011		2,800	NYSDEC Subpart 375-6	0.12	NO	NSV
78-93-3	Methyl ethyl ketone	0.0015	J	0.0015	J	EOD2-B4	11 / 12	0.016 - 0.016	0.015		11	NYSDEC Subpart 375-6	0.05	NO	BSL
75-09-2	Methylene chloride	0.00051	J	0.00051	J	EOD2-A3	12 / 12	0 - 0	0.0023		500	NYSDEC Subpart 375-6	0.7	NO	BSL
108-88-3	Toluene	0.00044	J	0.00044	J	EOD2-A1	3 / 12	0.0055 - 0.008	0.0014		340	NYSDEC Subpart 375-6	20	NO	BSL
<b>SVOC</b>															
83-32-9	Acenaphthene	0.06	J	0.098	J	EOD2-B2	2 / 12	0.37 - 0.51	0.098		1,700	NYSDEC Subpart 375-6	100	YES	ASL
120-12-7	Anthracene	0.087	J	0.24	J	EOD2-B2	2 / 12	0.37 - 0.51	0.24		0.015	NYSDEC Subpart 375-6	1	YES	ASL
56-55-3	Benzo(a)anthracene	0.15	J	0.41	J	EOD2-B2	2 / 12	0.37 - 0.51	0.41		0.15	NYSDEC Subpart 375-6	1	YES	ASL
50-33-8	Benzo(b)fluoranthene	0.11	J	0.31	J	EOD2-B2	2 / 12	0.37 - 0.51	0.31		0.15	NYSDEC Subpart 375-6	1	YES	ASL
205-99-2	Benzo(k)fluoranthene	0.1	J	0.23	J	EOD2-B2	2 / 12	0.37 - 0.51	0.23		0.15	NYSDEC Subpart 375-6	1	YES	ASL
191-24-2	Benzo(g)herylene	0.057	J	0.15	J	EOD2-B2	2 / 12	0.37 - 0.51	0.15		1.5	NYSDEC Subpart 375-6	0.8	NO	CSG
207-08-9	Benzo(f)fluoranthene	0.12	J	0.3	J	EOD2-B2	2 / 12	0.37 - 0.51	0.3		15	NYSDEC Subpart 375-6	1	NO	NSV
86-74-8	Carbazole	0.048	J	0.12	J	EOD2-B2	2 / 12	0.37 - 0.51	0.12		0.015	NYSDEC Subpart 375-6	0.33	YES	ASL
218-01-9	Chrysene	0.14	J	0.35	J	EOD2-B2	2 / 12	0.37 - 0.51	0.35		0.015	NYSDEC Subpart 375-6	7	NSV	BSL
53-70-3	Dibenz(a,h)anthracene	0.059	J	0.15	J	EOD2-B2	1 / 12	0.37 - 0.51	0.15		230	NYSDEC Subpart 375-6	100	NO	BSL
132-64-9	Dibenzofuran	0.051	J	0.15	J	EOD2-B2	1 / 12	0.37 - 0.51	0.15		230	NYSDEC Subpart 375-6	30	NO	BSL
206-44-0	Fluoranthene	0.31	J	0.75	J	EOD2-B2	2 / 12	0.37 - 0.51	0.75		3.9	NYSDEC Subpart 375-6	12	NO	NSV
86-73-7	Fluorene	0.05	J	0.1	J	EOD2-B2	2 / 12	0.37 - 0.51	0.1		170	NYSDEC Subpart 375-6	100	NO	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	0.057	J	0.15	J	EOD2-B2	2 / 12	0.37 - 0.51	0.15		20,500	NYSDEC Subpart 375-6	13	YES	ASL
91-20-3	Naphthalene	0.037	J	0.045	J	EOD2-B1	2 / 12	0.37 - 0.51	0.045		1,500	NYSDEC Subpart 375-6	350	NO	BSL
85-01-8	Phenanthrene	0.04	J	0.072	J	EOD2-B2	2 / 12	0.37 - 0.51	0.072		16	NYSDEC Subpart 375-6	7.2	NO	BSL
129-00-0	Pyrene	0.22	J	0.52	J	EOD2-B2	2 / 12	0.37 - 0.51	0.52		7	NYSDEC Subpart 375-6	2.5	NO	BSL
<b>METALS</b>															
7429-90-5	Aluminum	11,000	J	18,100	J	EOD2-C1	12 / 12	0 - 0	18,100	20,500	7,700	NYSDEC Subpart 375-6	100	NO	BSL
7440-38-2	Arsenic	2.5	J	4.5	J	EOD2-A2	12 / 12	0 - 0	4.5	21.5	0.39	NYSDEC Subpart 375-6	13	YES	ASL
7440-39-3	Barium	28.5	J	144	J	EOD2-A2	11 / 12	0 - 0	144	159	1,500	NYSDEC Subpart 375-6	350	NO	BSL
7440-41-7	Beryllium	0.53	J	0.91	J	EOD2-C1	11 / 12	0.02 - 0.02	0.91	1.4	16	NYSDEC Subpart 375-6	7.2	NO	BSL
7440-43-9	Cadmium	0.06	J	0.61	J	EOD2-A2	8 / 12	0.04 - 0.05	0.61	2.9	7	NYSDEC Subpart 375-6	2.5	NO	BSL
7440-70-2	Calcium	1,900	J	19,200	J	EOD2-B4	12 / 12	0 - 0	19,200	293,000	280	NYSDEC Subpart 375-6	100	NO	BSL
7440-47-3	Chromium	15.2	J	26.8	J	EOD2-C1	12 / 12	0 - 0	26.8	31.7	280	NYSDEC Subpart 375-6	100	NO	BSL
7440-48-4	Cobalt	5.1	J	19.4	J	EOD2-A2	12 / 12	0 - 0	19.4	29.1	2.3	NYSDEC Subpart 375-6	50	NO	BSL
7440-50-8	Copper	9.4	J	37.3	J	EOD2-C4	12 / 12	0 - 0	37.3	62.8	310	NYSDEC Subpart 375-6	63	YES	ASL
7439-89-6	Iron	16,500	J	28,200	J	EOD2-C4	12 / 12	0 - 0	28,200	381,600	5,500	NYSDEC Subpart 375-6	100	NO	BSL
7439-92-1	Lead	14.2	J	27.9	J	EOD2-C4	12 / 12	0 - 0	27.9	266	40	NYSDEC Subpart 375-6	63	YES	ASL
7439-95-4	Magnesium	2,430	J	6,620	J	EOD2-C4	12 / 12	0 - 0	6,620	29,100	40	NYSDEC Subpart 375-6	100	NO	BSL
7439-96-5	Manganese	278	J	2,770	J	EOD2-A2	12 / 12	0 - 0	2,770	2,380	180	NYSDEC Subpart 375-6	1,600	YES	ASL
7439-97-6	Mercury	0.02	J	0.06	J	EOD2-B1	12 / 12	0 - 0	0.06	0.13	0.43	NYSDEC Subpart 375-6	0.18	NO	BSL
7440-02-0	Nickel	13.3	J	49.9	J	EOD2-C4	12 / 12	0 - 0	49.9	62.3	150	NYSDEC Subpart 375-6	30	NO	BSL
7440-09-7	Potassium	1,050	J	2,040	J	EOD2-B1	12 / 12	0 - 0	2,040	3,160	39	NYSDEC Subpart 375-6	3.9	NO	BSL
7782-49-2	Selenium	1.4	J	2.6	J	EOD2-A2	12 / 12	0 - 0	2.6	1.7	55	NYSDEC Subpart 375-6	109	NO	BSL
7440-62-2	Sodium	18	J	33.8	J	EOD2-A2	12 / 12	0 - 0	33.8	32.7	2,300	NYSDEC Subpart 375-6	100	NO	BSL
7440-66-6	Zinc	51.3	J	79.2	J	EOD2-B1	12 / 12	0 - 0	79.2	126	13,000	NYSDEC Subpart 375-6	100	NO	BSL
14797-55-8	Nitrate Nitrogen	7.03	J	9.21	J	EOD2-C3	4 / 12	5.54 - 7.66	9.21					NO	BSL

Notes:  
 1. Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.  
 2. The maximum detected concentration was used for screening.  
 3. Background value is the maximum Seneca background concentration.  
 4. EPA Regional Screening Levels for residential soil. On-line resources available at <http://www.epa.gov/region9/superfund/rsl/index.html>. Last updated April 2009.  
 Region 9 PRGs were derived based on Direct contact exposure (ingestion and dermal contact) and a target Cancer Risk of 1E-6 or a Target Hazard Quotient of 0.1.  
 Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium) from Marilyn Wright (2001) Dietary Reference Intakes. PRG for total chromium (1:6 ratio Cr:Vl: Cr III) was used as screening value for chromium. PRG for nickel (soluble salts) was used as screening value for nickel.  
 5. Potential ARAR/TBC values are from NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives. [http://www.dec.state.ny.us/webster/regsubpart375\\_6.html](http://www.dec.state.ny.us/webster/regsubpart375_6.html)  
 6. Rationale codes  
 Above Screening Levels (ASL)  
 Chemicals in the Same Group were retained as COPC (CSG)  
 Essential Nutrient (NUT)  
 Below Screening Level (BSL)  
 No Screening Value (NSV)  
 Deletion Reason:  
 Selection Reason:  
 COPC = Chemical of Potential Concern  
 ARAR/TBC = Applicable or Relevant and Appropriate Requirement (To Be Considered)  
 Q = Qualifier  
 J = Estimated Value



TABLE 3A

SOIL EXPOSURE POINT CONCENTRATION SUMMARY FOR SEAD 002-R-01 (EOD-2)  
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD 002-R-01 (EOD-2)

CAS Number	Chemical of Potential Concern	Units	Arithmetic Mean (1)	EPA ProUCL Student-t 95th UCL Value (1, 2, 4)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)		
								EPA ProUCL Recommended UCL Value	Medium EPC Statistic	Medium EPC Rationale
108-87-2	Methyl cyclohexane	mg/kg	0.00	-(3)	0.001	J	mg/kg	0.001	-	-
56-55-3	Benzo(a)anthracene	mg/kg	0.28	0.358	0.41	J	mg/kg	0.358	95% KM Student-t <sup>5</sup>	Non-parametric
50-32-8	Benzo(a)pyrene	mg/kg	0.21	<b>0.390</b>	0.31	J	mg/kg	0.390	95% KM Student-t <sup>5</sup>	Non-parametric
205-99-2	Benzo(b)fluoranthene	mg/kg	0.17	<b>0.282</b>	0.23	J	mg/kg	0.282	95% KM Student-t <sup>5</sup>	Non-parametric
191-24-2	Benzo(ghi)perylene	mg/kg	0.10	<b>0.187</b>	0.15	J	mg/kg	0.187	95% KM Student-t <sup>5</sup>	Non-parametric
207-08-9	Benzo(k)fluoranthene	mg/kg	0.21	<b>0.372</b>	0.3	J	mg/kg	0.372	95% KM Student-t <sup>5</sup>	Non-parametric
218-01-9	Chrysene	mg/kg	0.25	<b>0.434</b>	0.35	J	mg/kg	0.434	95% KM Student-t <sup>5</sup>	Non-parametric
53-70-3	Dibenz(a,h)anthracene	mg/kg	0.06	-(3)	0.06	J	mg/kg	0.06	-	-
132-64-9	Dibenzofuran	mg/kg	0.05	-(3)	0.05	J	mg/kg	0.05	-	-
193-39-5	Indeno(1,2,3-cd)pyrene	mg/kg	0.10	<b>0.187</b>	0.15	J	mg/kg	0.187	95% KM Student-t <sup>5</sup>	Non-parametric
85-01-8	Phenanthrene	mg/kg	0.53	0.449	0.72	J	mg/kg	0.449	95% KM Student-t <sup>5</sup>	Non-parametric
7429-90-5	Aluminum	mg/kg	14,950	16,097	18,100	J	mg/kg	16,097	95% Student's-t UCL	Normal
7440-38-2	Arsenic	mg/kg	3.3	3.6	4.5	J	mg/kg	3.60	95% Student's-t UCL	Normal
7440-48-4	Cobalt	mg/kg	10.0	12.2	19.4	J	mg/kg	12.24	95% Student's-t UCL	Normal
7439-89-6	Iron	mg/kg	22,817	25,037	28,200	J	mg/kg	25,037	95% Student's-t UCL	Normal
7439-96-5	Manganese	mg/kg	647.8	1,512	2,770	J	mg/kg	1,512	95% Student's-t UCL	Normal

## Notes:

- Field duplicates were not averaged and presented as discreet samples. Laboratory duplicates were not included in the assessment. Non-detects were included in the dataset and 95% UCL analysis was performed as 'With ND' in ProUCL.
- The EPCs were calculated using the ProUCL (Version 4.00.02) and the EPCs were selected in accordance with the ProUCL Version 4.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).  
Q - qualifier  
J = Estimated Value  
KM = Kaplan-Meier statistical method
- Insufficient number of detects in the dataset to perform 95th UCL analysis in ProUCL. This typical means there was a single detect in the dataset for this compound.
- Bold values represent ProUCL recommended values that are greater than maximum detected value for a compound.
- Insufficient number of detects in dataset to get meaningful results from ProUCL. Warning message from ProUCL regarding dataset:





**TABLE 3B**  
**AMBIENT AIR EXPOSURE POINT CONCENTRATIONS**  
**FOR PARK WORKERS, VISITORS, RESIDENTS AT SEAD 002-R-01 (EOD-2)**  
**SENECA ARMY DEPOT ACTIVITY**

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD 002-R-01 (EOD-2)

Equation for Air EPC from Surface Soil (mg/m <sup>3</sup> ) =	CSsurf x PM10 x CF
Variables:	
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)	
PM10 = Average Measured PM10 Concentration = 32.21 ug/m <sup>3</sup>	
CF = Conversion Factor = 1E-9 kg/ug	

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m <sup>3</sup> )
Methyl cyclohexane	1.1E-03	3.5E-11
Benzo(a)anthracene	3.6E-01	1.2E-08
Benzo(a)pyrene	3.9E-01	1.3E-08
Benzo(b)fluoranthene	2.8E-01	9.1E-09
Benzo(ghi)perylene	1.9E-01	6.0E-09
Benzo(k)fluoranthene	3.7E-01	1.2E-08
Chrysene	4.3E-01	1.4E-08
Dibenz(a,h)anthracene	5.9E-02	1.9E-09
Dibenzofuran	5.1E-02	1.6E-09
Indeno(1,2,3-cd)pyrene	1.9E-01	6.0E-09
Phenanthrene	4.5E-01	1.4E-08
Aluminum	1.6E+04	5.2E-04
Arsenic	3.6E+00	1.2E-07
Cobalt	1.2E+01	3.9E-07
Iron	2.5E+04	8.1E-04
Manganese	1.5E+03	4.9E-05

**TABLE 3C**  
**AMBIENT AIR EXPOSURE POINT CONCENTRATIONS**  
**FOR CONSTRUCTION WORKER AT SEAD 002-R-01 (EOD-2)**  
**SENECA ARMY DEPOT ACTIVITY**

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD 002-R-01 (EOD-2)

$$\text{Equation for Air EPC from Total Soils (mg/m}^3\text{)} = \text{CStot} \times \text{PM10} \times \text{CF}$$

Variables:

CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)

PM10 = PM10 Concentration Calculated for Construction Worker = 279 ug/m<sup>3</sup>

CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m <sup>3</sup> )
Methyl cyclohexane	1.1E-03	3.5E-11
Benzo(a)anthracene	3.6E-01	1.2E-08
Benzo(a)pyrene	3.9E-01	1.3E-08
Benzo(b)fluoranthene	2.8E-01	9.1E-09
Benzo(ghi)perylene	1.9E-01	6.0E-09
Benzo(k)fluoranthene	3.7E-01	1.2E-08
Chrysene	4.3E-01	1.4E-08
Dibenz(a,h)anthracene	5.9E-02	1.9E-09
Dibenzofuran	5.1E-02	1.6E-09
Indeno(1,2,3-cd)pyrene	1.9E-01	6.0E-09
Phenanthrene	4.5E-01	1.4E-08
Aluminum	1.6E+04	5.2E-04
Arsenic	3.6E+00	1.2E-07
Cobalt	1.2E+01	3.9E-07
Iron	2.5E+04	8.1E-04
Manganese	1.5E+03	4.9E-05

TABLE 4  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-2)  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 B = Bioavailability  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor					
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
					(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Methyl cyclohexane	N/A	N/A	1	1.1E-03	8.76E-08	1.65E-08	1.31E-08	1E-08	1E-08	1.31E-08	1E-08	1E-08	1E-08			
Benzo(a)anthracene	N/A	7.3E-01	1	3.6E-01	9.53E-08	1.80E-08	1.42E-08	1E-07	1E-07	1.42E-08	1E-07	1E-07	1E-07			
Benzo(a)pyrene	N/A	7.3E+00	1	3.9E-01	6.89E-08	1.30E-08	1.03E-08	9E-09	9E-09	1.03E-08	9E-09	9E-09	8E-09			
Benzo(b)fluoranthene	N/A	7.3E-01	1	2.8E-01	9.09E-08	1.71E-08	1.36E-08	1E-09	1E-09	1.36E-08	1E-09	1E-09	1E-09			
Benzo(k)fluoranthene	N/A	7.3E-02	1	3.7E-01	1.06E-07	2.00E-08	1.58E-08	1E-10	1E-10	1.58E-08	1E-10	1E-10	1E-10			
Chrysene	3.00E-04	7.3E-03	1	4.3E-01	2.97E-07	1.40E-06	2.22E-07	2E-08	2E-08	2.22E-07	2E-08	2E-08	2E-08			
Dibenz(a,h)anthracene	N/A	7.3E+00	1	5.9E-02	1.44E-08	2.72E-09	2.16E-09	6E-09	6E-09	2.16E-09	6E-09	6E-09	5E-09			
Dibenzofuran	N/A	N/A	1	1.9E-01	4.57E-08	8.63E-09	6.83E-09	8E-03	8E-03	6.83E-09	8E-03	8E-03	8E-03			
Phenanthrene	N/A	N/A	1	4.5E-01	1.10E-02	5.20E-02	8.23E-03	5E-02	5E-02	8.23E-03	5E-02	5E-02	5E-02			
Aluminum	1.00E+00	N/A	1	1.6E+04	2.47E-06	1.16E-05	1.84E-06	4E-02	4E-02	1.84E-06	4E-02	4E-02	4E-02			
Arsenic	3.00E-04	1.5E+00	1	3.6E+00	8.81E-07	1.66E-07	1.32E-07	2E-07	2E-07	1.32E-07	2E-07	2E-07	2E-07			
Cobalt	3.00E-04	N/A	1	1.2E+01	8.38E-06	3.95E-05	6.26E-06	1E-01	1E-01	6.26E-06	1E-01	1E-01	1E-01			
Iron	3.00E-01	N/A	1	2.5E+04	1.71E-02	8.08E-02	1.28E-02	3E-01	3E-01	1.28E-02	3E-01	3E-01	3E-01			
Manganese	2.40E-02	N/A	1	1.5E+03	1.04E-03	4.88E-03	7.73E-04	2E-01	2E-01	7.73E-04	2E-01	2E-01	2E-01			
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>1E-01</b>	<b>2E-06</b>	<b>1E-01</b>	<b>4E-07</b>	<b>7E-01</b>	<b>4E-07</b>	<b>1E-01</b>	<b>3E-07</b>				
					<b>Assumptions for Park Worker</b>			<b>Assumptions for Construction Worker</b>			<b>Assumptions for Recreational Child Visitor</b>					
					CF = 1E-06 kg/mg EPC = EPC Surface Only BW = 70 kg IR = 100 mg/day FI = 1 unitless EF = 175 days/year ED = 25 years AT (Nc) = 9,125 days AT (Car) = 25,550 days	CF = 1E-06 kg/mg EPC = EPC Surface and Subsurface BW = 70 kg IR = 330 mg/day FI = 1 unitless EF = 250 days/year ED = 1 years AT (Nc) = 365 days AT (Car) = 25,550 days	CF = 1E-06 kg/mg EPC = EPC Surface Only BW = 15 kg IR = 200 mg/day FI = 1 unitless EF = 14 days/year ED = 5 years AT (Nc) = 1,825 days AT (Car) = 25,550 days									

TABLE 4  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-2)  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 B = Bioavailability  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (NC)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RID (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk		
					Intake (mg/kg-day)		Intake (mg/kg-day)			Hazard Quotient	Cancer Risk
					(NC)	(Car)	(NC)	(Car)			
Methyl cyclohexane	N/A	N/A	1	1.1E-03	1.68E-07	3.92E-07	3.92E-07	1E-07	3E-07	4E-07	
Benzo(a)anthracene	N/A	7.3E-01	1	3.6E-01	1.83E-07	4.27E-07	4.27E-07	1E-06	3E-06	4E-06	
Benzo(a)pyrene	N/A	7.3E+00	1	3.9E-01	1.32E-07	3.09E-07	3.09E-07	1E-07	2E-07	3E-07	
Benzo(b)fluoranthene	N/A	7.3E-01	1	2.8E-01	1.9E-01						
Benzo(k)fluoranthene	N/A	7.3E-02	1	1.9E-01	1.75E-07	4.07E-07	4.07E-07	1E-08	3E-08	4E-08	
Chrysene	3.00E-04	7.3E-03	1	4.3E-01	2.04E-07	4.75E-07	4.75E-07	1E-09	3E-09	5E-09	
Dibenz(a,h)anthracene	N/A	7.3E+00	1	5.9E-02	2.77E-08	6.47E-08	6.47E-08	2E-07	5E-07	7E-07	
Dibenzofuran	N/A	N/A	1	5.1E-02	8.78E-08	2.05E-07	2.05E-07	6E-08	1E-07	2E-07	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1	1.9E-01							
Phenanthrene	N/A	N/A	1	4.5E-01							
Aluminum	1.00E+00	N/A	1	1.6E+04	2.21E-02	2E-02	2.06E-01	2E-02	2E-01	8E-06	
Arsenic	3.00E-04	1.5E+00	1	3.6E+00	4.93E-06	1.69E-06	4.61E-05	3E-06	6E-06		
Cobalt	3.00E-04	N/A	1	1.2E+01	1.68E-05	6E-02	1.50E-04	1E-01	3E-01		
Iron	3.00E-01	N/A	1	2.5E+04	3.43E-02	1E-01	3.20E-01	1E+00	1E+00		
Manganese	2.40E-02	N/A	1	1.5E+03	2.07E-03	9E-02	1.93E-02	8E-01	8E-01		
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>3E-01</b>	<b>4E-06</b>	<b>3E+00</b>	<b>1E-05</b>	<b>1E-05</b>	<b>1E-05</b>	
					<b>Assumptions for Resident (Adult)</b>		<b>Assumptions for Resident (Child)</b>				
					CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	
					EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	
					BW = 70 kg	BW = 70 kg	BW = 15 kg	BW = 15 kg	BW = 15 kg	BW = 15 kg	
					IR = 100 mg/day	IR = 100 mg/day	IR = 200 mg/day	IR = 200 mg/day	IR = 200 mg/day	IR = 200 mg/day	
					FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	
					EF = 350 days/year	EF = 350 days/year	EF = 350 days/year	EF = 350 days/year	EF = 350 days/year	EF = 350 days/year	
					ED = 24 years	ED = 24 years	ED = 6 years	ED = 6 years	ED = 6 years	ED = 6 years	
					AT (Ne) = 8,760 days	AT (Ne) = 8,760 days	AT (Ne) = 2,190 days	AT (Ne) = 2,190 days	AT (Ne) = 2,190 days	AT (Ne) = 2,190 days	
					AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	

TABLE 5  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-2) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor  
 BW = Bodyweight  
 AT = Averaging Time  
 EV = Event Frequency  
 EF = Exposure Frequency  
 ED = Exposure Duration

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RfD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day) <sup>-1</sup>	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor					
						Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)	Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)	Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)	Hazard Quotient	Cancer Risk	
																	(Nc)
Methyl cyclohexane	N/A	N/A	1.0E-02	1.1E-03	1.1E-03	7.51E-08	5E-08	6.44E-09	6E-07	4.76E-09	4.76E-09	3.47E-09					
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	3.6E-01	3.6E-01	8.18E-08	6E-07	7.01E-09	5E-08	5.18E-09	5.18E-09	3.78E-08					
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	3.9E-01	3.9E-01	5.91E-08	4E-08	5.07E-09	4E-09	3.75E-09	3.75E-09	2.73E-09					
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	2.8E-01	2.8E-01	1.9E-01	1.9E-01	1.9E-01	1.9E-01	1.9E-01	1.9E-01	1.9E-01					
Benzo(k)fluoranthene	N/A	7.3E-02	1.3E-01	3.7E-01	3.7E-01	7.80E-08	6E-09	6.69E-09	5E-10	4.94E-09	4.94E-09	3.61E-10					
Chrysene	3.00E-04	7.3E-03	1.3E-01	4.3E-01	4.3E-01	9.10E-08	7E-10	7.80E-09	6E-11	5.77E-09	5.77E-09	4.21E-11					
Dibenz(a,h)anthracene	N/A	7.3E+00	1.3E-01	5.9E-02	5.9E-02	1.24E-08	9E-08	1.06E-09	8E-09	7.85E-10	7.85E-10	5.73E-09					
Dibenzofuran	N/A	N/A	1.0E-01	5.1E-02	5.1E-02	3.92E-08	3E-08	3.36E-09	2E-09	2.49E-09	2.49E-09	1.82E-09					
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	1.9E-01	1.9E-01	7.28E-05	3E-08	1.56E-04	2E-04	2.31E-05	2.31E-05	1.66E-08					
Phenanthrene	N/A	N/A	1.3E-01	4.5E-01	4.5E-01	1.74E-07	7E-05	1.05E-06	3E-03	1.55E-07	1.55E-07	1.11E-08					
Aluminum	1.00E+00	N/A	1.0E-03	1.6E+04	1.6E+04	4.88E-07	3E-07	1.19E-07	2E-04	1.75E-08	1.75E-08	5.84E-05					
Arsenic	3.00E-04	1.5E+00	3.0E-02	3.6E+00	3.6E+00	5.53E-08	2E-04	2.43E-04	8E-04	3.59E-05	3.59E-05	1.20E-04					
Cobalt	3.00E-01	N/A	1.0E-03	1.2E+01	1.2E+01	1.13E-04	4E-04	1.46E-05	2E-02	2.17E-06	2.17E-06	2.26E-03					
Iron	3.00E-01	N/A	1.0E-03	2.5E+04	2.5E+04	6.84E-06	7E-03	1.46E-05	2E-02	2.17E-06	2.17E-06	2.26E-03					
Manganese	9.60E-04	N/A	1.0E-03	1.5E+03	1.5E+03												
<b>Total Hazard Quotient and Cancer Risk:</b>							<b>1E-02</b>		<b>1E-06</b>			<b>3E-03</b>	<b>7E-08</b>				
						<b>Assumptions for Park Worker</b>						<b>Assumptions for Construction Worker</b>					
CF =	1E-06	kg/mg				CF =	1E-06	kg/mg			CF =	1E-06	kg/mg				
CS =	EPC Surface Only					EPC =	EPC Surface and Subsurface				EPC =	EPC Surface Only					
BW =	70 kg					BW =	70 kg				BW =	15 kg					
SA =	3,300 cm <sup>2</sup>					SA =	3,300 cm <sup>2</sup>				SA =	2,800 cm <sup>2</sup>					
AF =	0.2 mg/cm <sup>2</sup> -event					AF =	0.3 mg/cm <sup>2</sup> -event				AF =	0.2 mg/cm <sup>2</sup> -event					
EV =	1 event/day					EV =	1 event/day				EV =	1 event/day					
EF =	175 days/year					EF =	250 days/year				EF =	14 days/year					
ED =	25 years					ED =	1 years				ED =	5 years					
AT (Nc) =	9,125 days					AT (Nc) =	365 days				AT (Nc) =	1,825 days					
AT (Car) =	25,550 days					AT (Car) =	25,550 days				AT (Car) =	25,550 days					

TABLE 5  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-2) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor  
 EV = Event Frequency  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RfD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk
						Absorbed Dose (mg/kg-day) (Nc)	Hazard Quotient (Car)	Absorbed Dose (mg/kg-day) (Nc)	Hazard Quotient (Car)	
Methyl cyclohexane	N/A	N/A	1.0E-02	1.1E-03	1.1E-03	8.72E-08	1.43E-07	1.43E-07	1.04E-07	2E-07
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	3.6E-01	3.6E-01	9.49E-08	1.55E-07	1.55E-07	1.13E-06	2E-06
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	3.9E-01	3.9E-01	6.86E-08	1.12E-07	1.12E-07	8.20E-08	1E-07
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	2.8E-01	2.8E-01	9.05E-08	1.48E-07	1.48E-07	1.08E-08	2E-08
Benzo(ghi)perylene	N/A	N/A	1.3E-01	1.9E-01	1.9E-01	1.06E-07	1.73E-07	1.73E-07	1.26E-09	2E-09
Benzo(k)fluoranthene	N/A	7.3E-02	1.3E-01	3.7E-01	3.7E-01	1.44E-08	2.02E-06	2.35E-08	1.72E-07	3E-07
Chrysene	3.00E-04	7.3E-03	1.3E-01	4.3E-01	4.3E-01	4.56E-08	7.46E-08	7.46E-08	5.45E-08	9E-08
Dibenz(a,b)anthracene	N/A	7.3E+00	1.3E-01	5.9E-02	5.9E-02	8.80E-05	5.76E-04	5.76E-04	4.97E-07	8E-07
Dibenzofuran	N/A	N/A	1.0E-01	5.1E-02	5.1E-02	5.91E-07	3.87E-06	3.32E-07	1.29E-02	2E-02
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	1.9E-01	1.9E-01	6.69E-08	4.38E-07	4.38E-07	1.46E-03	2E-03
Phenanthrene	N/A	N/A	1.3E-01	4.5E-01	4.5E-01	1.37E-04	8.96E-04	8.96E-04	2.99E-03	5E-03
Aluminum	1.00E+00	N/A	1.0E-03	1.6E+04	1.6E+04	8.26E-06	5.41E-05	5.41E-05	5.64E-02	8E-02
Arsenic	3.00E-04	1.5E+00	3.0E-02	3.6E+00	3.6E+00					
Cobalt	3.00E-04	N/A	1.0E-03	1.2E+01	1.2E+01					
Iron	3.00E-01	N/A	1.0E-03	2.5E+04	2.5E+04					
Manganese	9.60E-04	N/A	1.0E-03	1.5E+03	1.5E+03					
<b>Total Hazard Quotient and Cancer Risk:</b>						<b>1E-02</b>	<b>1E-06</b>	<b>8E-02</b>	<b>2E-06</b>	<b>3E-06</b>

Assumptions for Resident (Adult)		Assumptions for Resident (Child)	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC =	EPC Surface Only	EPC =	EPC Surface Only
BW =	70 kg	BW =	15 kg
SA =	5,700 cm <sup>2</sup>	SA =	2,800 cm <sup>2</sup>
AF =	0.07 mg/cm <sup>2</sup> -event	AF =	0.2 mg/cm <sup>2</sup> -event
EV =	1 event/day	EV =	1 event/day
EF =	350 days/year	EF =	350 days/year
ED =	24 years	ED =	6 years
AT (Nc) =	8,760 days	AT (Nc) =	2,190 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days

TABLE 6  
CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-2) SOIL  
SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = EPC in Air, mg/m<sup>3</sup>  
 IR = Inhalation Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	Air EPC from Surface Soil (mg/m <sup>3</sup> )	Air EPC from Total Soils (mg/m <sup>3</sup> )	Park Worker			Construction Worker			Recreational Child Visitor			
					Intake (mg/kg-day)	Hazard Quotient	Cancer Risk	Intake (mg/kg-day)	Hazard Quotient	Cancer Risk	Intake (mg/kg-day)	Hazard Quotient	Cancer Risk	
					(Nc)	(Car)	(Nc)	(Nc)	(Car)	(Nc)	(Car)	(Nc)	(Car)	(Nc)
Methyl cyclohexane	8.57E-01	N/A	3.5E-11	3.5E-11	1.94E-12	2E-12	3.61E-12	3.61E-12	4E-12	7.88E-13	9E-13			
Benzo(a)anthracene	N/A	N/A	1.2E-08	1.2E-08										
Benzo(a)pyrene	N/A	3.85E+00	1.3E-08	1.3E-08	2.46E-10	9E-10	1.82E-11	1.82E-11	1.82E-11	1.99E-11	8E-11			
Benzo(b)fluoranthene	N/A	3.85E-01	9.1E-09	9.1E-09	1.78E-10	7E-11	1.32E-11	1.32E-11	1.32E-11	1.44E-11	6E-12			
Benzo(ghi)perylene	N/A	N/A	6.0E-09	6.0E-09										
Benzo(k)fluoranthene	N/A	3.85E-01	1.2E-08	1.2E-08	2.34E-10	9E-11	1.74E-11	1.74E-11	1.74E-11	1.90E-11	7E-12			
Chrysene	N/A	3.85E-02	1.4E-08	1.4E-08	2.73E-10	1E-11	2.03E-11	2.03E-11	2.03E-11	2.22E-11	9E-13			
Dibenz(a,h)anthracene	N/A	4.20E+00	1.9E-09	1.9E-09	3.72E-11	2E-10	2.76E-12	2.76E-12	2.76E-12	3.02E-12	1E-11			
Dibenzofuran	N/A	N/A	1.6E-09	1.6E-09										
Indeno(1,2,3-cd)pyrene	N/A	3.85E-01	6.0E-09	6.0E-09	1.18E-10	5E-11	8.76E-12	8.76E-12	8.76E-12	9.57E-12	4E-12			
Phenanthrene	N/A	N/A	1.4E-08	1.4E-08										
Aluminum	1.43E-03	N/A	5.2E-04	5.2E-04	2.84E-05	2E-02	5.28E-05	5.28E-05	4E-02	1.15E-05	8E-03			
Arsenic	N/A	1.51E+01	1.2E-07	1.2E-07	2.27E-09	3E-08	1.69E-10	1.69E-10	1.69E-10	1.84E-10	3E-09			
Cobalt	1.71E-06	3.15E+01	3.9E-07	3.9E-07	2.16E-08	2E-07	4.01E-08	4.01E-08	5.73E-10	8.77E-09	5E-03			
Iron	N/A	N/A	8.1E-04	8.1E-04	2.67E-06	2E-01	4.96E-06	4.96E-06	3E-01	1.08E-06	8E-02			
<b>Total Hazard Quotient and Cancer Risk:</b>						<b>2E-01</b>	<b>3E-07</b>	<b>4E-01</b>	<b>2E-08</b>	<b>9E-02</b>	<b>2E-08</b>			
						<b>Assumptions for Park Worker</b>			<b>Assumptions for Construction Worker</b>			<b>Assumptions for Recreational Child Visitor</b>		
			CA = BW = IR = EF = ED = AT (Nc) = AT (Car) =	EPC Surface Only 70 kg 8 m <sup>3</sup> /day 175 days/year 25 years 9,125 days 25,550 days	CA = BW = IR = EF = ED = AT (Nc) = AT (Car) =	EPC Surface and Sub-Surface 70 kg 10.4 m <sup>3</sup> /day 250 days/year 1 year 365 days 25,550 days	CA = BW = IR = EF = ED = AT (Nc) = AT (Car) =	EPC Surface Only 15 kg 8.7 m <sup>3</sup> /day 14 days/year 5 years 1,825 days 25,550 days						

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA = Information not available.

TABLE 6  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-2)  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =	$\frac{CA \times IR \times EF \times ED}{BW \times AT}$
Variables (Assumptions for Each Receptor are Listed at the Bottom):	
CA = Chemical Concentration in Air from Stockpile Soil, mg/m <sup>3</sup>	ED = Exposure Duration, year
IR = Inhalation Rate, m <sup>3</sup> /day	BW = Bodyweight, kg
EF = Exposure Frequency, day/year	AT = Averaging Time, day

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose
Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	Air EPC (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Resident Total Lifetime Cancer Risk
				Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Contribution to Lifetime Cancer Risk	Intake (mg/kg-day) (Nc)	
Methyl cyclohexane	8.57E-01	N/A	3.5E-11	9.71E-12	1E-11	1.97E-11	2E-11	
Benzo(a)anthracene	N/A	N/A	1.2E-08	1.18E-09	5E-09	5.98E-10	2E-09	7E-09
Benzo(a)pyrene	N/A	3.85E+00	1.3E-08	8.52E-10	3E-10	4.33E-10	2E-10	5E-10
Benzo(b)fluoranthene	N/A	3.85E-01	9.1E-09					
Benzo(ghi)perylene	N/A	N/A	6.0E-09					
Benzo(k)fluoranthene	N/A	3.85E-01	1.2E-08	1.12E-09	4E-10	5.71E-10	2E-10	7E-10
Chrysene	N/A	3.85E-02	1.4E-08	1.31E-09	5E-11	6.66E-10	3E-11	8E-11
Dibenz(a,h)anthracene	N/A	4.20E+00	1.9E-09	1.79E-10	7E-10	9.06E-11	4E-10	1E-09
Dibenzofuran	N/A	N/A	1.6E-09					
Indeno(1,2,3-cd)pyrene	N/A	3.85E-01	6.0E-09	5.66E-10	2E-10	2.87E-10	1E-10	3E-10
Phenanthrene	N/A	N/A	1.4E-08					
Aluminum	1.43E-03	N/A	5.2E-04	1.42E-04	1E-01	2.88E-04	2E-01	
Arsenic	N/A	1.51E+01	1.2E-07	1.09E-08	2E-07	5.53E-09	8E-08	2E-07
Cobalt	1.71E-06	3.15E+01	3.9E-07	3.70E-08	1E-06	2.19E-07	6E-07	2E-06
Iron	N/A	N/A	8.1E-04					
Manganese	1.43E-05	N/A	4.9E-05	1.33E-05	9E-01	2.71E-05	2E+00	
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>1E+00</b>		<b>2E+00</b>	<b>2E-06</b>
				<b>Assumptions for Resident Adult</b>		<b>Assumptions for Resident Child</b>		
				CA = EPC Surface Only	CA = EPC Surface Only			
				BW = 70 kg	BW = 15 kg			
				IR = 20 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day			
				EF = 350 days/year	EF = 350 days/year			
				ED = 24 years	ED = 6 years			
				AT (Nc) = 8,760 days	AT (Nc) = 2,190 days			
				AT (Car) = 25,550 days	AT (Car) = 25,550 days			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A= Information not available.



TABLE 7  
 CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-002-R-01 (EOD-2)  
 REASONABLE MAXIMUM EXPOSURE (RME)  
 SENECA ARMY DEPOT ACTIVITY

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent Contribution	Cancer Risk	Percent Contribution
<u>PARK WORKER</u>	Inhalation of Dust in Ambient Air	2E-01	58%	3E-07	8%
	Ingestion of Soil	1E-01	39%	2E-06	63%
	Dermal Contact to Soil	1E-02	3%	1E-06	30%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>4E-01</i>	100%	<i>4E-06</i>	100%
<u>CONSTRUCTION WORKER</u>	Inhalation of Dust in Ambient Air	4E-01	36%	2E-08	4%
	Ingestion of Soil	7E-01	62%	4E-07	79%
	Dermal Contact to Soil	2E-02	2%	9E-08	17%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>1E+00</i>	100%	<i>5E-07</i>	100%
<u>RECREATIONAL CHILD VISITOR</u>	Inhalation of Dust in Ambient Air	9E-02	44%	2E-08	5%
	Ingestion of Soil	1E-01	55%	3E-07	79%
	Dermal Contact to Soil	3E-03	2%	7E-08	16%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>2E-01</i>	100%	<i>4E-07</i>	100%
<u>RESIDENT (ADULT)</u>	Inhalation of Dust in Ambient Air	1E+00	78%	1E-06	19%
	Ingestion of Soil	3E-01	21%	4E-06	63%
	Dermal Contact to Soil	1E-02	1%	1E-06	18%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>1E+00</i>	100%	<i>7E-06</i>	100%
<u>RESIDENT (CHILD)</u>	Inhalation of Dust in Ambient Air	2E+00	44%	7E-07	5%
	Ingestion of Soil	3E+00	55%	1E-05	79%
	Dermal Contact to Soil	8E-02	2%	2E-06	16%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>5E+00</i>	100%	<i>1E-05</i>	100%
<u>RESIDENT (TOTAL)</u>	Inhalation of Dust in Ambient Air			2E-06	10%
	Ingestion of Soil			1E-05	73%
	Dermal Contact to Soil			3E-06	17%
	<i>TOTAL RECEPTOR CANCER RISK</i>			<i>2E-05</i>	100%

NA - Not Applicable



**Attachment D**

**SEAD-002-R-01 – EOD-3**



TABLE 1  
SEAD-002-R-01 (EOD-3) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (l)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD3 EOD3-F18 SOIL 002R011013	EOD3 EOD3-F19 SOIL 002R011014	EOD3 EOD3-F10 SOIL 002R011016	EOD3 EOD3-G19 SOIL 002R011015	EOD3 EOD3-H18 SOIL 002R011017	Value (Q)	Value (Q)	Value (Q)	Value (Q)
SA	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA
<b>Volatile Organic Compounds</b>															
1,1,1-Trichloroethane	0	0%	680	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,1,2,2-Tetrachloroethane	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,1,2-Trichloroethane	0	0%	270	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,1-Dichloroethane	0	0%	330	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,1-Dichlorobenzene	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,2,4-Trichlorobenzene	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,2-Dibromo-3-chloropropane	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,2-Dibromochloroethane	0	0%	1100	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,2-Dichlorobenzene	0	0%	20	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,2-Dichloroethane	0	0%	2400	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,2-Dichloropropane	0	0%	1800	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,3-Dichlorobenzene	0	0%	50	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
1,4-Dichlorobenzene	0	100%	60	6	8	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Acetone	260	13%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Benzene	0.49	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Bromodichloromethane	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Bromoform	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Carbon disulfide	0.79	13%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Carbon tetrachloride	0	0%	760	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Chlorobenzene	0	0%	1100	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Chlorodibromomethane	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Chloroethane	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Chloroform	0	0%	370	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Cis-1,2-Dichloroethene	0	0%	250	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Cis-1,3-Dichloropropene	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Cyclohexane	1.2	13%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Dichlorodifluoromethane	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Ethyl benzene	0	0%	1000	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Isopropylbenzene	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Meta/Para Xylene	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Methyl Acetate	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Methyl Tertbutyl Ether	0	0%	930	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Methyl bromide	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Methyl butyl ketone	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Methyl chloride	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Methyl cyclohexane	1.3	88%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Methyl ethyl ketone	23	88%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Methyl isobutyl ketone	0	0%	120	0	7	8	6.5 J	5.4 J	9.7 J	5.1 J	10 U	6.5 J	5.4 J	9.7 J	5.1 J
Methylene chloride	2.5	100%	50	0	0	8	15 UJ	18 U	14 U	14 U	10 U	15 UJ	18 U	14 U	10 U
Ortho Xylene	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Styrene	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Tetrachloroethene	0	0%	1300	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Toluene	0.55	25%	700	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Trans-1,2-Dichloroethene	0	0%	190	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Trans-1,3-Dichloropropene	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Trichloroethene	0	0%	470	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Trichlorofluoromethane	0	0%		0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U
Vinyl chloride	0	0%	20	0	0	8	7.7 U	8.8 U	7.2 U	7.2 U	5.2 U	7.2 U	8.8 U	7.2 U	5.2 U

TABLE 1  
SEAD-002-R-01 (EOD-3) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (I)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD3-EOD3-F18			EOD3-EOD3-F19			EOD3-EOD3-G18			EOD3-EOD3-G19			EOD3-EOD3-H18		
								Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA
1,1-Biphenyl	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2,4-Dichlorophenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2,4-Dimethylphenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2,4-Dinitrophenol	UG/KG	0	0%		0	0	8	2300 U			2700 U			2300 U			3000 U			2100 U		
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2-Chloronaphthalene	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2-Chlorophenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2-Methylnaphthalene	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2-Methylphenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
2-Nitroaniline	UG/KG	0	0%		0	0	8	2300 U			2700 U			2300 U			3000 U			2100 U		
2-Nitrophenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
3-Nitroaniline	UG/KG	0	0%		0	0	8	2300 U			2700 U			2300 U			3000 U			2100 U		
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	8	2300 U			2700 U			2300 U			3000 U			2100 U		
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
4-Chloroaniline	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
4-Methylphenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
4-Nitroaniline	UG/KG	0	0%		0	0	8	2300 U			2700 U			2300 U			3000 U			2100 U		
4-Nitrophenol	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Acenaphthene	UG/KG	0	0%	20000	0	0	8	460 U			520 U			440 U			590 U			400 U		
Acenaphthylene	UG/KG	0	0%	1000000	0	0	8	460 U			520 U			440 U			590 U			400 U		
Acetophenone	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Anthracene	UG/KG	0	0%	1000000	0	0	8	460 U			520 U			440 U			590 U			400 U		
Atrazine	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Benzaldehyde	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Benzo(a)anthracene	UG/KG	0	0%	1000	0	0	8	460 U			520 U			440 U			590 U			400 U		
Benzo(a)pyrene	UG/KG	0	0%	1000	0	0	8	460 U			520 U			440 U			590 U			400 U		
Benzo(b)fluoranthene	UG/KG	0	0%	1000	0	0	8	460 U			520 U			440 U			590 U			400 U		
Benzo(g,h)perylene	UG/KG	0	0%	1000000	0	0	8	460 U			520 U			440 U			590 U			400 U		
Benzo(k)fluoranthene	UG/KG	0	0%	800	0	0	8	460 U			520 U			440 U			590 U			400 U		
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Bis(2-Chloroethoxy)ether	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Butylbenzylphthalate	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Caprolactam	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Carbazole	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Chrysene	UG/KG	0	0%	1000	0	0	8	460 U			520 U			440 U			590 U			400 U		
Di-n-butylphthalate	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Di-n-octylphthalate	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Dibenz(a,h)anthracene	UG/KG	0	0%	330	0	0	8	460 U			520 U			440 U			590 U			400 U		
Dibenzofuran	UG/KG	0	0%	7000	0	0	8	460 U			520 U			440 U			590 U			400 U		
Diethyl phthalate	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		
Dimethylphthalate	UG/KG	0	0%		0	0	8	460 U			520 U			440 U			590 U			400 U		

TABLE 1  
SEAD-002-R-01 (EOD-3) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD3 EOD3-F18 SOIL 002R011013	EOD3 EOD3-F19 SOIL 002R011014	EOD3 EOD3-G18 SOIL 002R011016	EOD3 EOD3-G19 SOIL 002R011015	EOD3 EOD3-H18 SOIL 002R011017
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Fluoranthene	UG/KG	0	0%	100000	0	0	8	460 U	520 U	440 U	590 U	400 U
Fluorene	UG/KG	0	0%	30000	0	0	8	460 U	520 U	440 U	590 U	400 U
Hexachlorobenzene	UG/KG	0	0%	330	0	0	8	460 U	520 U	440 U	590 U	400 U
Hexachlorobutadiene	UG/KG	0	0%		0	0	8	460 U	520 U	440 U	590 U	400 U
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	8	460 U	520 U	440 U	590 U	400 U
Hexachloroethane	UG/KG	0	0%		0	0	8	460 U	520 U	440 U	590 U	400 U
Indeno(1,2,3-cd)pyrene	UG/KG	0	0%	500	0	0	8	460 U	520 U	440 U	590 U	400 U
Isophorone	UG/KG	0	0%		0	0	8	460 U	520 U	440 U	590 U	400 U
N-Nitrosodiphenylamine	UG/KG	0	0%		0	0	8	460 U	520 U	440 U	590 U	400 U
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	8	460 U	520 U	440 U	590 U	400 U
Naphthalene	UG/KG	0	0%	12000	0	0	8	460 U	520 U	440 U	590 U	400 U
Nitrobenzene	UG/KG	0	0%		0	0	8	460 U	520 U	440 U	590 U	400 U
Pentachlorophenol	UG/KG	0	0%	800	0	0	8	2300 U	2700 U	2300 U	3000 U	2100 U
Phenanthrene	UG/KG	0	0%	100000	0	0	8	460 U	520 U	440 U	590 U	400 U
Phenol	UG/KG	0	0%	330	0	0	8	460 U	520 U	440 U	590 U	400 U
Pyrene	UG/KG	0	0%	100000	0	0	8	460 U	520 U	440 U	590 U	400 U
<b>Explosives</b>												
1,2,3-Trinitrobenzene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
1,3-Dinitrobenzene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
2,4,6-Trinitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	8	1000 U	1000 U	1000 U	1000 U	1000 U
2-Nitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
3-Nitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
4-Nitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
HMX	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
Nitrobenzene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
Nitroglycerine	UG/KG	0	0%		0	0	8	500 U	500 U	500 U	500 U	500 U
Pentaerythritol Tetranitrate	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
RDX	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
Tetryl	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U	2000 U
<b>PCBs</b>												
Aroclor-1016	UG/KG	0	0%		0	0	8	46 U	52 U	44 U	59 U	40 U
Aroclor-1221	UG/KG	0	0%	3.3	0	0	8	92 U	110 U	89 U	120 U	82 U
Aroclor-1232	UG/KG	0	0%	3.3	0	0	8	46 U	52 U	44 U	59 U	40 U
Aroclor-1242	UG/KG	0	0%	5	0	0	8	46 U	52 U	44 U	59 U	40 U
Aroclor-1248	UG/KG	0	0%	20	0	0	8	46 U	52 U	44 U	59 U	40 U
Aroclor-1254	UG/KG	0	0%	94	0	0	8	46 U	52 U	44 U	59 U	40 U
Aroclor-1260	UG/KG	0	0%	36	0	0	8	46 U	52 U	44 U	59 U	40 U
<b>Pesticides</b>												
4,4'-DDD	UG/KG	0	0%	3.3	0	0	8	4.6 U	5.2 U	4.4 U	5.9 U	4 U
4,4'-DDE	UG/KG	0	0%	3.3	0	0	8	4.6 U	5.2 U	4.4 U	5.9 U	4 U
4,4'-DDT	UG/KG	0	0%	3.3	0	0	8	4.6 U	5.2 U	4.4 U	5.9 U	4 U
Aldrin	UG/KG	0	0%	5	0	0	8	2.3 U	2.7 U	2.3 U	3 U	2.1 U
Alpha-BHC	UG/KG	0	0%	20	0	0	8	2.7 U	2.7 U	2.3 U	3 U	2.1 U
Alpha-Chlordane	UG/KG	0	0%	94	0	0	8	2.3 U	2.7 U	2.3 U	3 U	2.1 U
Beta-BHC	UG/KG	0	0%	36	0	0	8	2.3 U	2.7 U	2.3 U	3 U	2.1 U
Delta-BHC	UG/KG	0	0%	40	0	0	8	2.3 U	2.7 U	2.3 U	3 U	2.1 U

TABLE 1  
SEAD-002-R-01 (EOD-3) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (I)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD3		EOD3-F19		EOD3-G18		EOD3-H18		EOD3	
							Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA
Dieldrin	0	0%	5	0	0	8	4.6 U	RA	5.2 U	RA	4.4 U	RA	5.9 U	RA	4 U	4 U
Endosulfan I	0	0%	2400	0	0	8	2.3 U	RA	2.7 U	RA	2.3 U	RA	3 U	RA	2.1 U	2.1 U
Endosulfan II	0	0%	2400	0	0	8	4.6 U	RA	5.2 U	RA	4.4 U	RA	5.9 U	RA	4 U	4 U
Endosulfan sulfate	0	0%	2400	0	0	8	4.6 U	RA	5.2 U	RA	4.4 U	RA	5.9 U	RA	4 U	4 U
Endrin	0	0%	14	0	0	8	4.6 U	RA	5.2 U	RA	4.4 U	RA	5.9 U	RA	4 U	4 U
Endrin aldehyde	0	0%		0	0	8	4.6 U	RA	5.2 U	RA	4.4 U	RA	5.9 U	RA	4 U	4 U
Endrin ketone	0	0%		0	0	8	4.6 U	RA	5.2 U	RA	4.4 U	RA	5.9 U	RA	4 U	4 U
Gamma-BHC/Lindane	0	0%	100	0	0	8	2.3 U	RA	2.7 U	RA	2.3 U	RA	3 U	RA	2.1 U	2.1 U
Gamma-Chlordane	0	0%		0	0	8	2.3 U	RA	2.7 U	RA	2.3 U	RA	3 U	RA	2.1 U	2.1 U
Heptachlor	0	0%	42	0	0	8	2.3 U	RA	2.7 U	RA	2.3 U	RA	3 U	RA	2.1 U	2.1 U
Heptachlor epoxide	0	0%		0	0	8	2.3 U	RA	2.7 U	RA	2.3 U	RA	3 U	RA	2.1 U	2.1 U
Methoxychlor	0	0%		0	0	8	2.3 U	RA	2.7 U	RA	2.3 U	RA	3 U	RA	2.1 U	2.1 U
Toxaphene	0	0%		0	0	8	4.6 U	RA	5.2 U	RA	4.4 U	RA	5.9 U	RA	4 U	4 U
<b>Metals</b>																
Aluminum	16600	100%		0	8	8	14600	RA	13600	RA	14000	RA	16600	RA	8950	8950
Antimony	0	0%		0	0	8	0.46 UJ	RA	0.54 UJ	RA	0.46 UJ	RA	0.62 UJ	RA	0.43 UJ	0.43 UJ
Arsenic	5.1	100%	13	0	8	8	3.7	RA	3.5	RA	5.1	RA	3.8	RA	3.9	3.9
Barium	163	100%	350	0	8	8	111	RA	110	RA	115	RA	163	RA	79.6	79.6
Beryllium	0.95	100%	7.2	0	8	8	0.81	RA	0.69 J	RA	0.83	RA	0.95	RA	0.49 J	0.49 J
Cadmium	0.2	75%	2.5	0	6	8	0.19 J	RA	0.09 J	RA	0.18 J	RA	0.2 J	RA	0.04 U	0.04 U
Calcium	105000	100%		0	8	8	2670	RA	4870	RA	3260	RA	8570	RA	105000	105000
Chromium	24	100%		0	8	8	21.7	RA	18	RA	20.5	RA	24	RA	15	15
Cobalt	10.6	100%		0	8	8	9.4	RA	5.3	RA	10.6	RA	8.5 J	RA	8.5	8.5
Copper	28.7	100%	50	0	8	8	18	RA	18	RA	26.8	RA	28.7	RA	22.1	22.1
Lead	23300	100%	63	0	8	8	22100	RA	17300	RA	23300	RA	23300	RA	17100	17100
Magnesium	25.3	100%		0	8	8	20.5	RA	18.8	RA	22.9	RA	25.3	RA	10.9	10.9
Manganese	14000	100%		0	8	8	3690	RA	3300	RA	3760	RA	4700	RA	14000	14000
Mercury	751	100%	1600	0	8	8	617	RA	220	RA	751	RA	342	RA	462	462
Nickel	0.09	100%	0.18	0	8	8	0.06	RA	0.08	RA	0.07	RA	0.09	RA	0.02 J	0.02 J
Potassium	27	100%	30	0	8	8	25.7	RA	17	RA	25.6	RA	27	RA	26.3	26.3
Selenium	2150	100%		0	8	8	1580 J	RA	1600 J	RA	1570 J	RA	2150 J	RA	1330	1330
Silver	2.9	100%	3.9	0	8	8	2.9	RA	1.9	RA	1.9	RA	1.7 J	RA	0.79 J	0.79 J
Sodium	0	0%	2	0	8	8	0.15 U	RA	0.17 U	RA	0.15 U	RA	0.2 U	RA	0.14 U	0.14 U
Thallium	0	0%		0	0	8	131 U	RA	152 U	RA	130 U	RA	177 U	RA	122 U	122 U
Vanadium	30.6	100%		0	8	8	1.2 U	RA	0.44 U	RA	1.1 U	RA	0.52 U	RA	0.36 U	0.36 U
Zinc	101	100%	109	0	8	8	26.4	RA	23.7	RA	26.8	RA	30.6	RA	17.3	17.3
<b>Other Analyses</b>																
Nitrate Nitrogen	8.1	38%		0	3	8	6.9 U	RA	7.91 U	RA	6.63 U	RA	8.87 U	RA	6.1 U	6.1 U
Percent Solids	82	100%		0	8	8	72.5	RA	63.2	RA	75.4	RA	56.4	RA	82	82

Notes:  
(1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)  
(2) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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



TABLE 1  
SEAD-002-R-01 (EOD-3) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (l)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD3-H19 SOIL		EOD3-H18 SOIL		EOD3-H10 SOIL		EOD3-H11 SOIL	
								Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA
<b>Volatile Organic Compounds</b>															
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,1,2,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,1-Dichloroethane	UG/KG	0	0%	270	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,2-Dibromochloroethane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,2-Dichloroethane	UG/KG	0	0%	20	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,2-Dichloropropane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Acetone	UG/KG	260	100%	50	6	8	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Benzene	UG/KG	0.49	13%	60	0	1	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Bromodichloromethane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Bromoform	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Carbon disulfide	UG/KG	0.79	13%		0	1	8	13 U	15 U	13 U	15 U	13 U	15 U	13 U	15 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Chlorodibromomethane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Chloroethane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Chloroform	UG/KG	0	0%	370	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Cis-1,2-Dichloroethene	UG/KG	0	0%	250	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Cyclohexane	UG/KG	1.2	13%		0	1	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Dichlorodifluoromethane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Ethyl benzene	UG/KG	0	0%	1000	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Isopropylbenzene	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Meta/Para Xylene	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Methyl Acetate	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Methyl Tertbutyl Ether	UG/KG	0	0%	930	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Methyl bromide	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Methyl butyl ketone	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Methyl chloride	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Methyl cyclohexane	UG/KG	1.3	13%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Methyl ethyl ketone	UG/KG	23	88%	120	0	1	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Methyl isobutyl ketone	UG/KG	0	0%		0	7	8	23	8.9 J	23	8.9 J	23	8.9 J	23	8.9 J
Methylene chloride	UG/KG	2.5	100%	50	0	0	8	13 U	15 U	13 U	15 U	13 U	15 U	13 U	15 U
Ortho Xylene	UG/KG	0	0%		0	8	8	1.8 J	1.5 J	1.8 J	1.5 J	1.8 J	1.5 J	1.8 J	1.5 J
Styrene	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Tetrachloroethene	UG/KG	0	0%	1300	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Toluene	UG/KG	0.55	25%	700	0	2	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Trans-1,2-Dichloroethene	UG/KG	0	0%	190	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Trichloroethene	UG/KG	0	0%	470	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Trichlorofluoromethane	UG/KG	0	0%		0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U
Vinyl chloride	UG/KG	0	0%	20	0	0	8	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U	6.7 U	7.5 U

TABLE 1  
SEAD-002-R-01 (EOD-3) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (I)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD3 EOD3-H19 SOIL		EOD3 EOD3-H18 SOIL		EOD3 EOD3-H19 SOIL	
									Value (Q)	RA	Value (Q)	RA	Value (Q)	RA
	<b>Semi-volatile Organic Compounds</b>													
	1,1'-Biphenyl	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2,4-Dichlorophenol	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2,4-Dimethylphenol	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2,4-Dinitrophenol	UG/KG	0	0%		0	0	8	2300 U	2300 U	2400 U	2400 U	2400 U	2400 U
	2,4-Dinitrotoluene	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2,6-Dinitrotoluene	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2-Chloronaphthalene	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2-Chlorophenol	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2-Methylnaphthalene	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2-Methylphenol	UG/KG	0	0%	330	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	2-Nitroaniline	UG/KG	0	0%		0	0	8	2300 U	2300 U	2400 U	2400 U	2400 U	2400 U
	2-Nitrophenol	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	3-Nitroaniline	UG/KG	0	0%		0	0	8	2300 U	2300 U	2400 U	2400 U	2400 U	2400 U
	4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	8	2300 U	2300 U	2400 U	2400 U	2400 U	2400 U
	4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	4-Chloroaniline	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	4-Methylphenol	UG/KG	0	0%	330	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	4-Nitroaniline	UG/KG	0	0%		0	0	8	2300 UJ	2300 UJ	2400 U	2400 U	2400 UJ	2400 U
	4-Nitrophenol	UG/KG	0	0%		0	0	8	2300 U	2300 U	2400 U	2400 U	2400 U	2400 U
	Acenaphthene	UG/KG	0	0%	20000	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Acenaphthylene	UG/KG	0	0%	1000000	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Acetophenone	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Anthracene	UG/KG	0	0%	1000000	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Atrazine	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Benzaldehyde	UG/KG	0	0%		0	0	8	450 UJ	450 UJ	460 U	460 U	470 UJ	470 U
	Benzo(a)anthracene	UG/KG	0	0%	1000	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Benzo(a)pyrene	UG/KG	0	0%	1000	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Benzo(b)fluoranthene	UG/KG	0	0%	1000	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Benzo(g,h,i)perylene	UG/KG	0	0%	1000000	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Benzo(k)fluoranthene	UG/KG	0	0%	800	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Bis(2-Chloroethoxy)ether	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Butylbenzylphthalate	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Caprolactam	UG/KG	0	0%		0	0	8	450 UJ	450 UJ	460 U	460 U	470 UJ	470 U
	Carbazole	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Chrysene	UG/KG	0	0%	1000	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Di-n-butylphthalate	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Di-n-octylphthalate	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Dibenz(a,h)anthracene	UG/KG	0	0%	330	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Dibenzofuran	UG/KG	0	0%	7000	0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Diethyl phthalate	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U
	Dimethylphthalate	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	460 U	470 U	470 U

TABLE 1  
SEAD-002-R-01 (EOD-3) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD3 EOD3-H19 SOIL 002R011018	EOD3 EOD3-H18 SOIL 002R011021	EOD3 EOD3-H18 SOIL 002R011020	EOD3 EOD3-H19 SOIL 002R011019
								Value (Q)	Value (Q)	Value (Q)	Value (Q)
								SA RA	DU SA RA	SA RA	SA RA
Fluoranthene	UG/KG	0	0%	100000	0	0	8	450 U	450 U	460 U	470 U
Fluorene	UG/KG	0	0%	30000	0	0	8	450 U	450 U	460 U	470 U
Hexachlorobenzene	UG/KG	0	0%	330	0	0	8	450 U	450 U	460 U	470 U
Hexachlorobutadiene	UG/KG	0	0%	330	0	0	8	450 U	450 U	460 U	470 U
Hexachlorocyclopentadiene	UG/KG	0	0%	330	0	0	8	450 U	450 U	460 U	470 U
Hexachloroethane	UG/KG	0	0%	330	0	0	8	450 U	450 U	460 U	470 U
Indeno(1,2,3-cd)pyrene	UG/KG	0	0%	500	0	0	8	450 U	450 U	460 U	470 U
Isophorone	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	470 U
N-Nitrosodiphenylamine	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	470 U
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	470 U
Naphthalene	UG/KG	0	0%	12000	0	0	8	450 U	450 U	460 U	470 U
Nitrobenzene	UG/KG	0	0%		0	0	8	450 U	450 U	460 U	470 U
Pentaachlorophenol	UG/KG	0	0%	800	0	0	8	450 U	450 U	460 U	470 U
Phenanthrene	UG/KG	0	0%	100000	0	0	8	2300 U	2300 U	2400 U	2400 U
Phenol	UG/KG	0	0%	330	0	0	8	450 U	450 U	460 U	470 U
Pyrene	UG/KG	0	0%	100000	0	0	8	450 U	450 U	460 U	470 U
<b>Explosives</b>											
1,3,5-Trinitrobenzene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
1,3-Dinitrobenzene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
2,4,6-Trinitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	8	1000 U	1000 U	1000 U	1000 U
2-Nitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
3-Nitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
4-Nitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
HMX	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
Nitrobenzene	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
Nitroglycerine	UG/KG	0	0%		0	0	8	500 U	500 U	500 U	500 U
Pentaerythritol Tetranitrate	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
RDX	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
Tetryl	UG/KG	0	0%		0	0	8	2000 U	2000 U	2000 U	2000 U
<b>PCBs</b>											
Aroclor-1016	UG/KG	0	0%		0	0	8	45 U	45 U	46 U	47 U
Aroclor-1221	UG/KG	0	0%		0	0	8	92 U	92 U	95 U	97 U
Aroclor-1232	UG/KG	0	0%		0	0	8	45 U	45 U	46 U	47 U
Aroclor-1242	UG/KG	0	0%		0	0	8	45 U	45 U	46 U	47 U
Aroclor-1248	UG/KG	0	0%		0	0	8	45 U	45 U	46 U	47 U
Aroclor-1254	UG/KG	0	0%		0	0	8	45 U	45 U	46 U	47 U
Aroclor-1260	UG/KG	0	0%		0	0	8	45 U	45 U	46 U	47 U
<b>Pesticides</b>											
4,4'-DDD	UG/KG	0	0%	3.3	0	0	8	4.5 U	4.5 U	4.6 U	4.7 U
4,4'-DDE	UG/KG	0	0%	3.3	0	0	8	4.5 U	4.5 U	4.6 U	4.7 U
4,4'-DDT	UG/KG	0	0%	3.3	0	0	8	4.5 U	4.5 U	4.6 U	4.7 U
Aldrin	UG/KG	0	0%	5	0	0	8	2.3 U	2.3 U	2.4 U	2.4 U
Alpha-BHC	UG/KG	0	0%	20	0	0	8	2.3 U	2.3 U	2.4 U	2.4 U
Alpha-Chlordane	UG/KG	0	0%	94	0	0	8	2.3 U	2.3 U	2.4 U	2.4 U
Beta-BHC	UG/KG	0	0%	36	0	0	8	2.3 U	2.3 U	2.4 U	2.4 U
Delta-BHC	UG/KG	0	0%	40	0	0	8	2.3 U	2.3 U	2.4 U	2.4 U

TABLE 1  
SEAD-002-R-01 (EOD-3) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (l)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	EOD3 EOD3-H19 SOIL		EOD3 EOD3-I18 SOIL		EOD3 EOD3-I19 SOIL	
									Value (Q)	RA	Value (Q)	RA	Value (Q)	RA
	Dieldrin	UG/KG	0	0%	5	0	0	8	4.5 U	RA	4.6 U	RA	4.7 U	RA
	Endosulfan I	UG/KG	0	0%	2400	0	0	8	2.3 U	RA	2.4 U	RA	2.4 U	RA
	Endosulfan II	UG/KG	0	0%	2400	0	0	8	4.5 U	RA	4.6 U	RA	4.7 U	RA
	Endosulfan sulfate	UG/KG	0	0%	2400	0	0	8	4.5 U	RA	4.6 U	RA	4.7 U	RA
	Endrin	UG/KG	0	0%	14	0	0	8	4.5 U	RA	4.6 U	RA	4.7 U	RA
	Endrin aldehyde	UG/KG	0	0%		0	0	8	4.5 U	RA	4.6 U	RA	4.7 U	RA
	Endrin ketone	UG/KG	0	0%		0	0	8	4.5 U	RA	4.6 U	RA	4.7 U	RA
	Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	8	2.3 U	RA	2.4 U	RA	2.4 U	RA
	Gammachlorodane	UG/KG	0	0%		0	0	8	2.3 U	RA	2.4 U	RA	2.4 U	RA
	Heptachlor	UG/KG	0	0%	42	0	0	8	2.3 U	RA	2.4 U	RA	2.4 U	RA
	Heptachlor epoxide	UG/KG	0	0%		0	0	8	2.3 U	RA	2.4 U	RA	2.4 U	RA
	Methoxychlor	UG/KG	0	0%		0	0	8	2.3 U	RA	2.4 U	RA	2.4 U	RA
	Toxaphene	UG/KG	0	0%		0	0	8	4.5 U	RA	4.6 U	RA	4.7 U	RA
	<b>Metals</b>													
	Aluminum	MG/KG	16600	100%		0	8	8	14700	RA	15800	RA	15800	RA
	Antimony	MG/KG	0	0%		0	0	8	0.48 UJ	RA	0.47 UJ	RA	0.49 UJ	RA
	Arsenic	MG/KG	5.1	100%	13	0	8	8	4.1	RA	3.6	RA	4.4	RA
	Barium	MG/KG	163	100%	350	0	8	8	121	RA	100	RA	99.1	RA
	Beryllium	MG/KG	0.95	100%	7.2	0	8	8	0.77	RA	0.66 J	RA	0.74	RA
	Cadmium	MG/KG	0.2	75%	2.5	0	6	8	0.17 J	RA	0.05 U	RA	0.1 J	RA
	Calcium	MG/KG	105000	100%		0	8	8	5120	RA	2630	RA	4310	RA
	Chromium	MG/KG	24	100%		0	8	8	21.5	RA	18.6	RA	21.3	RA
	Cobalt	MG/KG	10.6	100%		0	8	8	9.5	RA	6.5 J	RA	9.9	RA
	Copper	MG/KG	28.7	100%	50	0	8	8	22.1	RA	14.5	RA	19.1	RA
	Iron	MG/KG	23300	100%		0	8	8	20900	RA	19300	RA	22100	RA
	Lead	MG/KG	25.3	100%	63	0	8	8	24.3	RA	18	RA	21.8	RA
	Magnesium	MG/KG	14000	100%		0	8	8	3900	RA	3140	RA	4130	RA
	Manganese	MG/KG	751	100%	1600	0	8	8	579	RA	400	RA	572	RA
	Mercury	MG/KG	0.09	100%	0.18	0	8	8	0.08	RA	0.06	RA	0.07	RA
	Nickel	MG/KG	27	100%	30	0	8	8	25.2	RA	16.7	RA	22.9	RA
	Potassium	MG/KG	2150	100%		0	8	8	2090	RA	1410	RA	1590	RA
	Selenium	MG/KG	2.9	100%	3.9	0	8	8	1.7	RA	1.5	RA	1.7	RA
	Silver	MG/KG	0	0%	2	0	0	8	0.16 U	RA	0.15 U	RA	0.16 U	RA
	Sodium	MG/KG	0	0%		0	0	8	137 U	RA	133 U	RA	135 U	RA
	Thallium	MG/KG	0	0%		0	0	8	1.2 U	RA	0.39 U	RA	1.2 U	RA
	Vanadium	MG/KG	30.6	100%		0	8	8	28	RA	26.5	RA	30.4	RA
	Zinc	MG/KG	101	100%	109	0	8	8	85.5	RA	63	RA	81.5	RA
	<b>Other Analyses</b>													
	Nitrate Nitrogen	MG/KG	8.1	38%		0	3	8	8.1	RA	6.87 U	RA	7.11	RA
	Percent Solids	%	82	100%		0	8	8	72.8	RA	71.4	RA	70.3	RA

Notes:  
(1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)  
(2) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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

TABLE 2  
 OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-002-R-01 (EOD-3) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Scenario Time frame: Current/Future  
 Medium: Soil  
 Exposure Medium: Soil  
 Exposure Point: SEAD 002-R-01 EOD 3

CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (mg/kg)	Q	Maximum Detected Concentration <sup>1</sup> (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (mg/kg)	Concentration Used for Screening <sup>2</sup> (mg/kg)	Background Value <sup>3</sup> (mg/kg)	Screening Value <sup>4</sup> (mg/kg)	Potential ARAR/TBC Source	ARAR/TBC Value <sup>5</sup> (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>6</sup>
<b>VOC</b>															
67-64-1	Acetone	0.024		0.26		EOD3-H19	9 / 9	0 - 0	0.26		6,100	NYSDEC Subpart 375-6	0.05	NO	BSL
71-43-2	Benzene	0.0049	J	0.0049	J	EOD3-H18	1 / 9	0.0067 - 0.01	0.0049		1.1	NYSDEC Subpart 375-6	0.06	NO	BSL
75-15-0	Carbon disulfide	0.0079	J	0.0079	J	EOD3-H18	1 / 9	0.013 - 0.02	0.0079		67			NO	BSL
110-82-7	Cyclohexane	0.0012	J	0.0012	J	EOD3-H18	1 / 9	0.0067 - 0.01	0.0012		720			NO	BSL
108-87-2	Methyl cyclohexane	0.0013	J	0.0013	J	EOD3-H18	1 / 9	0.0067 - 0.01	0.0013					NO	NSV
78-93-3	Methyl ethyl ketone	0.0051	J	0.023	J	EOD3-H19	7 / 9	0.01 - 0.02	0.023		2,800	NYSDEC Subpart 375-6	0.12	NO	BSL
75-09-2	Methylene chloride	0.0081	J	0.0025	J	EOD3-F19	9 / 9	0 - 0	0.0025		11	NYSDEC Subpart 375-6	0.05	NO	BSL
108-88-3	Toluene	0.0048	J	0.0055	J	EOD3-H18	2 / 9	0.0067 - 0.01	0.0055		500	NYSDEC Subpart 375-6	0.7	NO	BSL
<b>Metals</b>															
7429-90-5	Aluminum	8,950		16,600		EOD3-G19	9 / 9	0 - 0	16,600	20,500	7,700			YES	ASL
7440-38-2	Arsenic	3		5.1		EOD3-G18	9 / 9	0 - 0	5.1	21.5	0.39	NYSDEC Subpart 375-6	13	YES	ASL
7440-39-3	Barium	79.6		163		EOD3-G19	9 / 9	0 - 0	163	159	1,500	NYSDEC Subpart 375-6	350	NO	BSL
7440-41-7	Beryllium	0.49	J	0.95	J	EOD3-G19	9 / 9	0 - 0	0.95	1.4	16	NYSDEC Subpart 375-6	7.2	NO	BSL
7440-43-9	Cadmium	0.09	J	0.2	J	EOD3-G19	6 / 9	0.04 - 0.05	0.2	2.9	7	NYSDEC Subpart 375-6	2.5	NO	BSL
7440-70-2	Calcium	2,630		105,000		EOD3-H18	9 / 9	0 - 0	105,000	293,000				NO	NUT
7440-47-3	Chromium	15		24		EOD3-G19	9 / 9	0 - 0	24	32.7	280			NO	BSL
7440-48-4	Cobalt	5.3		10.6		EOD3-G18	9 / 9	0 - 0	10.6	29.1	2.3			YES	ASL
7440-50-8	Copper	14.5		28.7		EOD3-G19	9 / 9	0 - 0	28.7	62.8	310	NYSDEC Subpart 375-6	50	NO	BSL
7439-89-6	Iron	17,100		23,300		EOD3-G19	9 / 9	0 - 0	23,300	381,600	5,500			YES	ASL
7439-92-1	Lead	10.9		25.3		EOD3-G19	9 / 9	0 - 0	25.3	266	40			NO	BSL
7439-95-4	Magnesium	3,140		14,000		EOD3-H18	9 / 9	0 - 0	14,000	29,100				NO	BSL
7439-96-5	Manganese	220		751		EOD3-G18	9 / 9	0 - 0	751	2,380	180	NYSDEC Subpart 375-6	1,600	YES	ASL
7439-97-6	Mercury	0.02	J	0.09	J	EOD3-G19	9 / 9	0 - 0	0.09	0.13	0.43	NYSDEC Subpart 375-6	0.18	NO	BSL
7440-02-0	Nickel	16.7		27		EOD3-G19	9 / 9	0 - 0	27	62.3	150	NYSDEC Subpart 375-6	30	NO	BSL
7440-09-7	Potassium	1,330	J	2,150	J	EOD3-G19	9 / 9	0 - 0	2,150	3,160				NO	NUT
7782-49-2	Selenium	0.79	J	2.9	J	EOD3-F18	9 / 9	0 - 0	2.9	1.7	39	NYSDEC Subpart 375-6	3.9	NO	BSL
7440-62-2	Vanadium	17.3		30.6		EOD3-G19	9 / 9	0 - 0	30.6	32.7	55			NO	BSL
7440-66-6	Zinc	57.2		101		EOD3-G19	9 / 9	0 - 0	101	126	2,300	NYSDEC Subpart 375-6	109	NO	BSL
<b>Other Analytes</b>															
14797-55-8	Nitrate Nitrogen	7		8.1		EOD3-H19	3 / 9	6.1 - 8.87	8.1		13,000			NO	BSL

Notes:

- Field duplicate pairs were averaged as a discrete sample. Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
- The maximum detected concentration was used for screening.
- Background value is the maximum Seneca background concentration.
- EPA Regional Screening Levels for residential soil. On-line resources available at <http://www.epa.gov/region09/superfund/prg/index.html>. Last updated April 2009.
- Region 9 PRGs were derived based on Direct contact exposure (ingestion and dermal contact) and a target Cancer Risk of 1E-6 or a Target Hazard Quotient of 0.1. Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children 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.
- Potential ARAR/TBC values are from NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/webster/regs/subpart375\\_6.html](http://www.dec.state.ny.us/webster/regs/subpart375_6.html)
- Rationale codes

Selection Reason:  
 Above Screening Levels (ASL)  
 Chemicals in the Same Group were retained as COPC (CSG)  
 Essential Nutrient (NUT)  
 Below Screening Level (BSL)

Deletion Reason:  
 COPC = Chemical of Potential Concern  
 ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered  
 Q = Qualifier  
 J = Estimated Value



TABLE 3A  
SOIL EXPOSURE POINT CONCENTRATION SUMMARY FOR SEAD-002-R-01 (EOD-3)  
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD 002-R-01 EOD 3

CAS#	Chemical of Potential Concern	Units	Arithmetic Mean (1)	EPA ProUCL Student-t 95th UCL Value (1, 2)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)		Medium EPC Rationale
								Recommended UCL Value	Statistic	
108-87-2	Methyl cyclohexane	mg/kg	1.3E-03	- (3)	0.0013	J	mg/kg	1.3E-03	-	-
7429-90-5	Aluminum	mg/kg	14,194	15,559	16,600		mg/kg	15,559	95% Student's-t UCL	Normal
7440-38-2	Arsenic	mg/kg	3.90	4.27	5.1		mg/kg	4.27	95% Student's-t UCL	Normal
7440-48-4	Cobalt	mg/kg	8.48	9.52	10.6		mg/kg	9.52	95% Student's-t UCL	Normal
7439-89-6	Iron	mg/kg	20,722	22,138	23,300		mg/kg	22,138	95% Student's-t UCL	Normal
7439-96-5	Manganese	mg/kg	500.40	600.10	751		mg/kg	600.10	95% Student's-t UCL	Normal

Notes:

- Field duplicates were averaged and regarded as one sample entry. Laboratory duplicates were not included in the assessment. Nondetects were assumed to be half reporting limits.
- The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).  
Q - qualifier  
J = Estimated Value
- Insufficient number of detects in the dataset to perform 95th UCL analysis in ProUCL. This typical means there was a single detect in the dataset for this compound.





TABLE 3B  
 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR PARK  
 WORKERS, VISITORS, & RESIDENTS AT SEAD-002-R-01 (EOD-3)  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-002-R-01 (EOD Area 3)

Equation for Air EPC from Surface Soil (mg/m <sup>3</sup> ) = CSsurf x PM10 x CF
Variables:
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)
PM10 = Average Measured PM10 Concentration = 34.58 ug/m <sup>3</sup>
CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m <sup>3</sup> )
Methyl cyclohexane	1.3E-03	4.5E-11
Aluminum	1.6E+04	5.4E-04
Arsenic	4.3E+00	1.5E-07
Cobalt	9.5E+00	3.3E-07
Iron	2.2E+04	7.7E-04
Manganese	6.0E+02	2.1E-05

TABLE 3C  
 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR  
 CONSTRUCTION WORKER AT SEAD-002-R-01 (EOD-3)  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-002-R-01 (EOD Area 3)

Equation for Air EPC from Total Soils (mg/m <sup>3</sup> ) = CStot x PM10 x CF
Variables:
CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)
PM10 = PM10 Concentration Calculated for Construction Worker= 299 ug/m <sup>3</sup>
CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m <sup>3</sup> )
Methyl cyclohexane	1.3E-03	4.5E-11
Aluminum	1.6E+04	5.4E-04
Arsenic	4.3E+00	1.5E-07
Cobalt	9.5E+00	3.3E-07
Iron	2.2E+04	7.7E-04
Manganese	6.0E+02	2.1E-05

TABLE 4  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL AT SEAD-002-R-01 (EOD-3)  
 REASONABLE MAXIMUM EXPOSURE (RME)  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor					
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
					(Ne)	(Car)			(Ne)	(Car)			(Ne)	(Car)		
Methyl cyclohexane	N/A	N/A	1	1.3E-03	1.07E-02	1E-02	2E-06	5.07E-02	1.97E-07	5E-02	7.96E-03	8E-03	2E-07			
Aluminum	1.00E+00	N/A	1	1.6E+04	2.92E-06	1E-02	2E-06	1.38E-05	1.97E-07	5E-02	2.18E-06	7E-03	2E-07			
Arsenic	3.00E-04	1.5E+00	1	4.3E+00	6.52E-06	2E-02	2E-06	3.07E-05	1E-01	1E-01	4.87E-06	2E-02	2E-07			
Cobalt	3.00E-04	N/A	1	9.5E+00	1.52E-02	5E-02	2E-06	7.15E-02	2E-01	2E-01	1.13E-02	4E-02	2E-07			
Iron	3.00E-01	N/A	1	2.2E+04	4.11E-04	2E-02	2E-06	1.94E-03	8E-02	8E-02	3.07E-04	1E-02	2E-07			
Manganese	2.40E-02	N/A	1	6.0E+02	4.11E-04	2E-02	2E-06	1.94E-03	8E-02	8E-02	3.07E-04	1E-02	2E-07			
<b>Total Hazard Quotient and Cancer Risk:</b>						<b>1E-01</b>	<b>2E-06</b>			<b>5E-01</b>	<b>3E-07</b>		<b>8E-02</b>	<b>2E-07</b>		
					Assumptions for Park Worker			Assumptions for Construction Worker			Assumptions for Recreational Child Visitor					
					CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	
					EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	EPC = EPC Surface Only	
					BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 70 kg	
					IR = 100 mg/day	IR = 330 mg/day	IR = 330 mg/day	IR = 330 mg/day	IR = 330 mg/day	IR = 330 mg/day	IR = 330 mg/day	IR = 330 mg/day	IR = 330 mg/day	IR = 330 mg/day	IR = 330 mg/day	
					FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	FI = 1 unitless	
					EF = 175 days/year	EF = 250 days/year	EF = 250 days/year	EF = 250 days/year	EF = 250 days/year	EF = 250 days/year	EF = 250 days/year	EF = 250 days/year	EF = 250 days/year	EF = 250 days/year	EF = 250 days/year	
					ED = 25 years	ED = 365 days	ED = 365 days	ED = 365 days	ED = 365 days	ED = 365 days	ED = 365 days	ED = 365 days	ED = 365 days	ED = 365 days	ED = 365 days	
					AT (Ne) = 9,125 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 365 days	
					AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA = Information not available.

TABLE 4  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL AT SEAD-002-R-01 (EOD-3)  
 REASONABLE MAXIMUM EXPOSURE (RME)  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 B = Bioavailability  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Resident (Adult)		Resident (Child)		Cancer Risk	Total Lifetime Cancer Risk
					Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)		
Methyl cyclohexane	N/A	N/A	1	1.3E-03	2.13E-02	2E-02	1.99E-01	2E-01		
Aluminum	1.00E+00	N/A	1	1.6E+04	5.85E-06	2E-02	5.46E-05	2E-01		
Arsenic	3.00E-04	1.5E+00	1	4.3E+00	1.30E-05	4E-02	1.22E-04	4E-01		
Cobalt	3.00E-04	N/A	1	9.5E+00	3.03E-02	1E-01	2.83E-01	9E-01		
Iron	3.00E-01	N/A	1	2.2E+04	8.22E-04	3E-02	7.67E-03	3E-01		
Manganese	2.40E-02	N/A	1	6.0E+02						
<b>Total Hazard Quotient and Cancer Risk:</b>										
					Assumptions for Resident (Adult)		Assumptions for Resident (Child)			
					CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	EPC Surface Only			
					EPC = EPC Surface Only	EPC = EPC Surface Only	EPC Surface Only			
					BW = 70 kg	BW = 15 kg				
					IR = 100 mg/day	IR = 200 mg/day				
					FI = 1 unitless	FI = 1 unitless				
					EF = 350 days/year	EF = 350 days/year				
					ED = 24 years	ED = 6 years				
					AT (Nc) = 8,760 days	AT (Nc) = 2,190 days				
					AT (Car) = 25,550 days	AT (Car) = 25,550 days				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA= Information not available.

TABLE 5  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-3) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{B \times W \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor

EV = Event Frequency  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Park Worker		Construction Worker		Recreational Child Visitor		Cancer Risk		
						Absorbed Dose (mg/kg-day) (Ne)	Hazard Quotient (Car)	Absorbed Dose (mg/kg-day) (Ne)	Hazard Quotient (Car)	Absorbed Dose (mg/kg-day) (Ne)	Hazard Quotient (Car)			
Methyl cyclohexane	N/A	N/A	1.0E-02	1.3E-03	1.3E-03	7.03E-05	2.07E-07	1.51E-04	2E-04	2.23E-05	2.23E-05	2.23E-05		
Aluminum	1.00E+00	N/A	1E-03	1.6E+04	1.6E+04	5.79E-07	2.07E-07	1.24E-06	4E-03	1.83E-07	6.11E-04	6.11E-04		
Arsenic	3.00E-04	1.5E+00	3E-02	4.3E+00	4.3E+00	4.30E-08	9.5E+00	9.22E-08	3E-04	1.36E-08	4.54E-05	4.54E-05		
Cobalt	3.00E-04	N/A	1E-03	9.5E+00	9.5E+00	1.00E-04	3E-04	2.14E-04	7E-04	3.17E-05	1.06E-04	1.06E-04		
Iron	3.00E-01	N/A	1E-03	2.2E+04	2.2E+04	2.71E-06	3E-03	5.81E-06	6E-03	8.59E-07	8.95E-04	8.95E-04		
Manganese	9.60E-04	N/A	1E-03	6.0E+02	6.0E+02	2.71E-06	3E-03	5.81E-06	6E-03	8.59E-07	8.95E-04	8.95E-04		
<b>Total Hazard Quotient and Cancer Risk:</b>														
						Assumptions for Park Worker			Assumptions for Construction Worker			Assumptions for Recreational Child Visitor		
						CF = 1E-06 kg/mg	CS = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	CF = 1E-06 kg/mg	
						EPC Surface Only	EPC Surface and Subsurface	EPC Surface and Subsurface	EPC Surface Only	EPC Surface Only	EPC Surface Only	EPC Surface Only		
						70 kg	70 kg	70 kg	70 kg	70 kg	70 kg	70 kg	70 kg	
						3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	
						0.2 mg/cm <sup>2</sup> -event	0.2 mg/cm <sup>2</sup> -event	0.3 mg/cm <sup>2</sup> -event	0.3 mg/cm <sup>2</sup> -event	0.2 mg/cm <sup>2</sup> -event	0.2 mg/cm <sup>2</sup> -event	0.2 mg/cm <sup>2</sup> -event	0.2 mg/cm <sup>2</sup> -event	
						1 event/day	1 event/day	1 event/day	1 event/day	1 event/day	1 event/day	1 event/day		
						175 days/year	175 days/year	250 days/year	250 days/year	14 days/year	14 days/year	14 days/year		
						25 years	25 years	1 years	1 years	5 years	5 years	5 years		
						AT (Ne) = 9,125 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 365 days	AT (Ne) = 1,825 days	AT (Ne) = 1,825 days	AT (Ne) = 1,825 days	AT (Ne) = 1,825 days	
						AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	

TABLE 5  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-3) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED$   
 $B \times W \times AT$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor

EV = Event Frequency  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RfD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Resident (Adult)		Resident (Child)		Total Lifetime Cancer Risk
						Absorbed Dose (mg/kg-day) (Nc)	Cancer Risk	Absorbed Dose (mg/kg-day) (Car)	Hazard Quotient	
Methyl cyclohexane	N/A	N/A	1.0E-02	1.3E-03	1.3E-03	8.50E-05	9E-05	5.57E-04	5.57E-04	9E-07
Aluminum	1.00E+00	N/A	1E-03	1.6E+04	1.6E+04	7.00E-07	2E-03	4.58E-06	1.53E-02	5.89E-07
Arsenic	3.00E-04	1.5E+00	3E-02	4.3E+00	4.3E+00	5.20E-08	2E-04	3.41E-07	1.14E-03	
Cobalt	3.00E-04	N/A	1E-03	9.5E+00	9.5E+00	1.21E-04	4E-04	7.93E-04	2.64E-03	
Iron	3.00E-01	N/A	1E-03	2.2E+04	2.2E+04	3.28E-06	3E-03	2.15E-05	2.24E-02	
Manganese	9.60E-04	N/A	1E-03	6.0E+02	6.0E+02					
<b>Total Hazard Quotient and Cancer Risk:</b>							<b>6E-03</b>		<b>4E-02</b>	<b>9E-07</b>
						Assumptions for Resident (Adult)				
						CF =	1E-06 kg/mg			
						EPC =	EPC Surface Only			
						BW =	70 kg			
						SA =	5,700 cm <sup>2</sup>			
						AF =	0.07 mg/cm <sup>2</sup> -event			
						EV =	1 event/day			
						EF =	350 days/year			
						ED =	24 years			
						AT (Nc) =	8,760 days			
						AT (Car) =	25,550 days			
						Assumptions for Resident (Child)				
						CF =	1E-06 kg/mg			
						EPC =	EPC Surface Only			
						BW =	15 kg			
						SA =	2,800 cm <sup>2</sup>			
						AF =	0.2 mg/cm <sup>2</sup> -event			
						EV =	1 event/day			
						EF =	350 days/year			
						ED =	6 years			
						AT (Nc) =	2,190 days			
						AT (Car) =	25,550 days			

TABLE 6  
CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-3) SOIL  
SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = EPC in Air, mg/m<sup>3</sup>  
 IR = Inhalation Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	Air EPC from Surface Soil (mg/m <sup>3</sup> )	Air EPC from Total Soils (mg/m <sup>3</sup> )	Park Worker		Construction Worker		Recreational Child Visitor			
					Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)
Methyl cyclohexane	8.57E-01	N/A	4.5E-11	4.5E-11	2.46E-12	3E-12	4.58E-12	5E-12	1.00E-12	1E-12		
Aluminum	1.43E-03	N/A	5.4E-04	5.4E-04	2.95E-05	2E-02	5.48E-05	4E-02	1.20E-05	8E-03		
Arsenic	N/A	1.51E+01	1.5E-07	1.5E-07	2.89E-09	1E-02	2.15E-10	2E-02	2.35E-10	4E-09		
Cobalt	1.71E-06	3.15E+01	3.3E-07	3.3E-07	1.80E-08	1E-02	3.35E-08	4.79E-10	7.32E-09	4E-03		
Iron	N/A	N/A	7.7E-04	7.7E-04								
Manganese	1.43E-05	N/A	2.1E-05	2.1E-05	1.14E-06	8E-02	2.11E-06	1E-01	4.62E-07	3E-02		
<b>Total Hazard Quotient and Cancer Risk:</b>						<b>1E-01</b>		<b>2E-01</b>		<b>4E-02</b>		<b>2E-08</b>
					<b>Assumptions for Park Worker</b>		<b>Assumptions for Construction Worker</b>		<b>Assumptions for Recreational Child Visitor</b>			
					CA = EPC Surface Only	CA = EPC Surface Only	CA = EPC Surface and Sub-Surface	CA = EPC Surface Only				
					BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 15 kg				
					IR = 8 m <sup>3</sup> /day	IR = 8 m <sup>3</sup> /day	IR = 10.4 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day				
					EF = 175 days/year	EF = 175 days/year	EF = 250 days/year	EF = 14 days/year				
					ED = 25 years	ED = 25 years	ED = 1 year	ED = 5 years				
					AT (Nc) = 9,125 days	AT (Nc) = 365 days	AT (Nc) = 365 days	AT (Nc) = 1,825 days				
					AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA= Information not available.

TABLE 6  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-002-R-01 (EOD-3) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	Air EPC (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Resident Total Lifetime Cancer Risk
				Intake (mg/kg-day) (Nc) (Car)	Hazard Quotient	Contribution to Lifetime Cancer Risk	Intake (mg/kg-day) (Nc) (Car)	
Methyl cyclohexane	8.57E-01	N/A	4.5E-11	1.23E-11	1E-11	2.50E-11	3E-11	
Aluminum	1.43E-03	N/A	5.4E-04	1.47E-04	1E-01	2.99E-04	2E-01	
Arsenic	N/A	1.51E+01	1.5E-07	1.39E-08	2E-07	7.04E-09	1E-07	3E-07
Cobalt	1.71E-06	3.15E+01	3.3E-07	3.09E-08	5E-02	1.83E-07	1E-01	1E-06
Iron	N/A	N/A	7.7E-04					
Manganese	1.43E-05	N/A	2.1E-05	5.69E-06	4E-01	1.15E-05	8E-01	
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>6E-01</b>		<b>1E+00</b>	<b>2E-06</b>
				<b>Assumptions for Resident Adult</b>		<b>Assumptions for Resident Child</b>		
				CA = EPC Surface Only	CA = EPC Surface Only			
				BW = 70 kg	BW = 15 kg			
				IR = 20 m3/day	IR = 8.7 m3/day			
				EF = 350 days/year	EF = 350 days/year			
				ED = 24 years	ED = 6 years			
				AT (Nc) = 8,760 days	AT (Nc) = 2,190 days			
				AT (Car) = 25,550 days	AT (Car) = 25,550 days			

Equation for Intake (mg/kg-day) =  $\frac{CA \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 CA = Chemical Concentration in Air from Stockpile Soil, mg/m<sup>3</sup>  
 IR = Inhalation Rate, m<sup>3</sup>/day  
 EF = Exposure Frequency, day/year  
 ED = Exposure Duration, year  
 BW = Bodyweight, kg  
 AT = Averaging Time, day

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A = Information not available.



TABLE 7  
 CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-002-R-01 (EOD-3)  
 REASONABLE MAXIMUM EXPOSURE (RME)  
 SENECA ARMY DEPOT ACTIVITY

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent	Cancer Risk	Percent
<u>PARK WORKER</u>	Inhalation of Dust in Ambient Air	1E-01	49%	2E-07	12%
	Ingestion of Soil	1E-01	49%	2E-06	74%
	Dermal Contact to Soil	5E-03	2%	3E-07	15%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>2E-01</i>	100%	<i>2E-06</i>	100%
<u>CONSTRUCTION WORKER</u>	Inhalation of Dust in Ambient Air	2E-01	28%	2E-08	5%
	Ingestion of Soil	5E-01	70%	3E-07	87%
	Dermal Contact to Soil	1E-02	2%	3E-08	8%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>7E-01</i>	100%	<i>3E-07</i>	100%
<u>RECREATIONAL CHILD VISITOR</u>	Inhalation of Dust in Ambient Air	4E-02	35%	2E-08	7%
	Ingestion of Soil	8E-02	64%	2E-07	86%
	Dermal Contact to Soil	2E-03	1%	2E-08	7%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>1E-01</i>	100%	<i>3E-07</i>	100%
<u>RESIDENT (ADULT)</u>	Inhalation of Dust in Ambient Air	6E-01	71%	1E-06	26%
	Ingestion of Soil	2E-01	28%	3E-06	66%
	Dermal Contact to Soil	6E-03	1%	4E-07	8%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>8E-01</i>	100%	<i>5E-06</i>	100%
<u>RESIDENT (CHILD)</u>	Inhalation of Dust in Ambient Air	1E+00	35%	6E-07	7%
	Ingestion of Soil	2E+00	64%	7E-06	86%
	Dermal Contact to Soil	4E-02	1%	6E-07	7%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>3E+00</i>	100%	<i>8E-06</i>	100%
<u>RESIDENT (TOTAL)</u>	Inhalation of Dust in Ambient Air			2E-06	14%
	Ingestion of Soil			1E-05	79%
	Dermal Contact to Soil			9E-07	7%
	<i>TOTAL RECEPTOR CANCER RISK</i>			<i>1E-05</i>	100%

NA - Not Applicable



**Attachment E**

**SEAD-007-R-01 – Grenade Range**



TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	Value (Q)	GR-A1 SOIL	GR-A2-A SOIL	GR-A2-B SOIL	GR-A3 SOIL	GR-A4-A SOIL	GR-A4-B SOIL	Value (Q)
<b>Volatile Organic Compounds</b>															
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,1,1,2-Tetrachloroethane	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,1-Dichloroethene	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,2-Dibromoethane	UG/KG	0	0%	1100	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,2-Dichloroethane	UG/KG	0	0%	20	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,2-Dichloroethene	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,2-Dichloropropane	UG/KG	0	0%	2400	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,3-Dichlorobenzene	UG/KG	0	0%	1800	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Acetone	UG/KG	290	98%	50	31	40	41	16 J	12 J	12 J	61	50	50	55	9.7 U
Benzene	UG/KG	0	0%	60	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Bromochloromethane	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Bromoform	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Carbon disulfide	UG/KG	0	0%		0	0	41	13 U	13 U	19 U	15 U	13 U	13 U	19 U	19 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Chlorobromomethane	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Chloroethane	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Chloroform	UG/KG	0	0%	370	0	0	41	13 U	13 U	19 U	15 U	13 U	13 U	19 U	19 U
Cis-1,2-Dichloroethene	UG/KG	0	0%	250	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Cyclohexane	UG/KG	1.5	2%		0	1	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Dichlorodifluoromethane	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Ethyl benzene	UG/KG	0	0%	1000	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Isopropylbenzene	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Meta-Para Xylene	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Methyl Acetate	UG/KG	1.1	2%		0	1	41	13 U	13 U	19 U	15 U	13 U	13 U	19 U	19 U
Methyl Tertbutyl Ether	UG/KG	0	0%	930	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Methyl bromide	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Methyl butyl ketone	UG/KG	8.1	2%		0	1	41	13 U	13 U	19 U	15 U	13 U	13 U	19 U	19 U
Methyl chloride	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Methyl cyclohexane	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Methyl ethyl ketone	UG/KG	63	90%	120	0	37	41	13 U	13 U	19 U	15 U	13 U	13 U	19 U	19 U
Methyl isobutyl ketone	UG/KG	4.6	73%	50	0	30	41	13 U	13 U	19 U	15 U	13 U	13 U	19 U	19 U
Methylene chloride	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Ortho Xylene	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Styrene	UG/KG	2.4	10%	1300	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Tetrachloroethane	UG/KG	8.7	27%	700	0	11	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Toluene	UG/KG	0	0%	190	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Trans-1,2-Dichloroethene	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Trichloroethane	UG/KG	0	0%	470	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Trichlorofluoromethane	UG/KG	0	0%		0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
Vinyl chloride	UG/KG	0	0%	20	0	0	41	6.6 U	0.2	0.2	0.2	7.3 U	6.7 U	0.2	9.7 U
<b>Semivolatile Organic Compounds</b>															
1,1'-Biphenyl	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	500 U	470 U	430 U	510 U	510 U
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	500 U	470 U	430 U	510 U	510 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	500 U	470 U	430 U	510 U	510 U
2,4-Dichlorophenol	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	500 U	470 U	430 U	510 U	510 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	500 U	470 U	430 U	510 U	510 U
2,4-Dinitrophenol	UG/KG	0	0%		0	0	41	2300 U	2500 U	2600 U	2600 U	2400 U	2200 U	2600 U	2600 U
2,4-Dinitrotoluene	UG/KG	430	2%		0	1	41	450 U	480 U	500 U	500 U	470 U	430 U	510 U	510 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	500 U	470 U	430 U	510 U	510 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	500 U	470 U	430 U	510 U	510 U
2-Chlorophenol	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	500 U	470 U	430 U	510 U	510 U

TABLE I  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-A1		GR-A2-A		GR-A2-B		GR-A3		GR-A4-A		GR-A4-B	
									GR-A1 SOIL	RA	GR-A2-A SOIL	RA	GR-A2-B SOIL	RA	GR-A3 SOIL	RA	GR-A4-A SOIL	RA	GR-A4-B SOIL	RA
007R011001	2-Methylnaphthalene	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	2-Methylphenol	UG/KG	0	0%	330	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	2-Nitroaniline	UG/KG	0	0%		0	0	41	2300 U	2500 U	2600 U	2400 U	2000 U	2600 U	2200 U	2400 U	2600 U			
	2-Nitrophenol	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	3,3'-Dihydrobenzidine	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	3-Nitroaniline	UG/KG	0	0%		0	0	41	2300 U	2500 U	2600 U	2400 U	2000 U	2600 U	2200 U	2400 U	2600 U			
	4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	41	2300 U	2500 U	2600 U	2400 U	2000 U	2600 U	2200 U	2400 U	2600 U			
	4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	4-Chloroaniline	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	4-Methylphenol	UG/KG	0	0%	330	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	4-Nitroaniline	UG/KG	0	0%		0	0	41	2300 U	2500 U	2600 U	2400 U	2000 U	2600 U	2200 U	2400 U	2600 U			
	4-Nitrophenol	UG/KG	0	0%		0	0	41	2300 U	2500 U	2600 U	2400 U	2000 U	2600 U	2200 U	2400 U	2600 U			
	Acenaphthene	UG/KG	0	0%	20000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Acenaphthylene	UG/KG	0	0%	100000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Acetophenone	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Anthracene	UG/KG	0	0%	100000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Atrazine	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Benzenediazole	UG/KG	420	2%		0	1	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Benzo(a)anthracene	UG/KG	0	0%	1000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Benzo(b)fluoranthene	UG/KG	0	0%	1000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Benzo(g)perylene	UG/KG	0	0%	100000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Benzo(k)fluoranthene	UG/KG	0	0%	800	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Butylenediphenylphthalate	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Caprolactam	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Carbazole	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Chrysene	UG/KG	0	0%	1000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	D,4-butyldipthalate	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	D,6-oxylphthalate	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Dibenz(a,h)anthracene	UG/KG	0	0%	330	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Dibenzofuran	UG/KG	0	0%	7000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Diethyl phthalate	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Dimethylphthalate	UG/KG	0	0%	100000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Fluorene	UG/KG	0	0%	30000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Hexachlorobenzene	UG/KG	0	0%	330	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Hexachlorobutadiene	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Hexachloroethane	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Indeno(1,2,3-cd)pyrene	UG/KG	0	0%	500	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Isochlorone	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	N-Nitrosodiphenylamine	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	N-Nitrosodipropylamine	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Naphthalene	UG/KG	0	0%	12000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Nitrobenzene	UG/KG	0	0%	800	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Penachlorophenol	UG/KG	0	0%	100000	0	0	41	2300 U	2500 U	2600 U	2400 U	2000 U	2600 U	2200 U	2400 U	2600 U			
	Phenanthrene	UG/KG	0	0%	330	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Phenol	UG/KG	0	0%	100000	0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	Pyrene	UG/KG	0	0%		0	0	41	450 U	480 U	500 U	470 U	450 U	510 U	430 U	450 U	510 U			
	<b>Explosives</b>																			
	1,3,5-Trinitrobenzene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U			
	1,3-Dinitrobenzene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U			
	2,4,6-Trinitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U			
	2,4-Dinitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U			
	2,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U			

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-A1 SOIL	GR-A2-A SOIL	GR-A2-B SOIL	GR-A3 SOIL	GR-A4-A SOIL	GR-A4-B SOIL
								007R011001	007R011002	007R011003	007R011004	007R011005	007R011006
								12/12/06	12/12/06	12/12/06	12/12/06	12/12/06	12/12/06
								SA	SA	SA	SA	SA	SA
								RA	RA	RA	RA	RA	RA
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2-Nitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
3-Nitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
4-Nitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
HMX	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Nitrobenzene	UG/KG	0	0%		0	0	41	500 U	500 U	500 U	500 U	500 U	500 U
Nitroglycerine	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Pentaerythritol Tetraminate	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
RDX	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Tetryl	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
<b>PCBs</b>													
Aroclor-1016	UG/KG	0	0%		0	0	41	45 U	48 U	50 U	47 U	43 U	51 U
Aroclor-1221	UG/KG	0	0%		0	0	41	92 U	97 U	100 U	96 U	87 U	100 U
Aroclor-1232	UG/KG	0	0%		0	0	41	45 U	48 U	50 U	47 U	43 U	51 U
Aroclor-1248	UG/KG	0	0%		0	0	41	45 U	48 U	50 U	47 U	43 U	51 U
Aroclor-1254	UG/KG	0	0%		0	0	41	45 U	48 U	50 U	47 U	43 U	51 U
Aroclor-1260	UG/KG	0	0%		0	0	41	45 U	48 U	50 U	47 U	43 U	51 U
<b>Pesticides</b>													
4,4'-DDD	UG/KG	0	0%	3.3	0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
4,4'-DDE	UG/KG	0	0%	3.3	0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
4,4'-DDT	UG/KG	0	0%	3.3	0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
Aldrin	UG/KG	0	0%	5	0	0	41	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U	2.6 U
Alpha-BHC	UG/KG	0	0%	20	0	0	41	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U	2.6 U
Beta-BHC	UG/KG	0	0%	94	0	0	41	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U	2.6 U
Delta-BHC	UG/KG	0	0%	36	0	0	41	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U	2.6 U
Dieldrin	UG/KG	0	0%	5	0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
Endosulfan I	UG/KG	0	0%	2400	0	0	41	2.3 U	2.4 U	2.6 U	2.4 U	2.2 U	2.6 U
Endosulfan II	UG/KG	0	0%	2400	0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
Endrin	UG/KG	0	0%	14	0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
Endrin aldehyde	UG/KG	0	0%		0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
Endrin ketone	UG/KG	0	0%		0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
Gamma-Chlordane	UG/KG	0	0%		0	0	41	4.5 U	4.8 U	5 U	4.7 U	4.3 U	5.1 U
Heptachlor	UG/KG	0	0%	42	0	0	41	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U	2.6 U
Heptachlor epoxide	UG/KG	0	0%		0	0	41	2.3 U	2.5 U	2.6 U	2.4 U	2.2 U	2.6 U
Methoxychlor	UG/KG	0	0%		0	0	41	23 U	24 U	26 U	24 U	22 U	26 U
Toxaphene	UG/KG	0	0%		0	0	41	45 U	48 U	50 U	47 U	43 U	51 U
<b>Metals</b>													
Aluminum	MG/KG	19600	100%		0	41	14500	16100	18100	15600	13400	17200	0.53 UJ
Antimony	MG/KG	0	0%		0	0	41	0.48 UJ	0.54 UJ	0.54 UJ	0.44 UJ	0.44 UJ	0.53 UJ
Arsenic	MG/KG	9.3	100%	13	0	41	3.4	3.8	4.4	3.2	3.2	3.3	3.3
Barium	MG/KG	180	100%	350	0	41	112	119	164	103	84.8	148	84.8
Beryllium	MG/KG	1.1	98%	7.2	0	40	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Cadmium	MG/KG	0.25	59%	2.5	0	24	0.08 J	0.08 J	0.09 J	0.08 J	0.08 J	0.08 J	0.08 J
Calcium	MG/KG	11100	100%		0	41	3510	3630	2700	2770	2250	3830	0.14 J
Chromium	MG/KG	27.7	100%		0	41	22	24.9	27.7	21	17.8	24.2	24.2
Cobalt	MG/KG	23.5	100%		0	41	9.4	9.1	23.5	8.2	11.6	8.1	8.1
Copper	MG/KG	22.2	100%	50	0	41	17	19.5	15.7	13.8	15.1	16.6	16.6
Iron	MG/KG	32300	100%		0	41	22100	24600	32100	23000	21600	24800	24800
Lead	MG/KG	38.5	100%	63	0	41	28.2	24.2	28.2	20.2	21.7	20.7	20.7
Magnesium	MG/KG	5230	100%		0	41	3600	3970	3300	3510	3110	4130	4130
Manganese	MG/KG	1880	100%	1600	1	41	641	603	3980	356	312	582	582
Mercury	MG/KG	0.08	100%	0.18	0	41	0.06	0.06	0.06	0.05	0.05	0.08	0.08
Nickel	MG/KG	31.1	100%	30	2	41	27.3	25	27.3	18.7	22	23	23
Potassium	MG/KG	2370	100%		0	41	1590	1920	2060	1400	1160	1880	1880
Selenium	MG/KG	4.4	100%	3.9	2	41	1.9	2.1	3.1	1.7	1.7	2.4	2.4
Silver	MG/KG	0	0%	2	0	0	0.16 U	0.16 U	0.18 U	0.16 U	0.14 U	0.17 U	0.17 U

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-A1			GR-A2-A			GR-A2-B			GR-A3			GR-A4-A			GR-A4-B		
								Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA
Sodium	MG/KG	54.7	63%		0	26	41	136 U			141 U			153 U			140 U			126 U			151 U		
Thallium	MG/KG	0	0%		0	0	41	1.2 U			1.2 U			4.5 U			0.41 U			0.37 U			0.88 U		
Vanadium	MG/KG	33.5	100%		0	41	41	26.9			31.1			33.5			29.4			25.3			30.7		
Zinc	MG/KG	110	100%	109	1	41	41	74.3			88.7			105			72.8			64.7			80.6		
<b>Other Analytes</b>																									
Nitrate Nitrogen	MG/KG	9.52	59%		0	24	41	6.87 U			8.27			8.09			7.13 U			6.53 U			7.79 U		
Percent Solids	%	79.3	100%		0	41	41	72.8			68.9			65.5			70.1			76.6			64.2		

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)  
 (2) Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.



TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-B1 SOIL		GR-B2-A SOIL		GR-B2-B SOIL		GR-B3-A SOIL		GR-B3-B SOIL		GR-B4-A SOIL		
								Value (Q)	RA	Value (Q)	SA	Value (Q)	RA	Value (Q)	SA	Value (Q)	RA	Value (Q)	SA	Value (Q)
<b>Volatile Organic Compounds</b>																				
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,1,1,2-Tetrachloroethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,1-Dichloroethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,2-Dibromoethane	UG/KG	0	0%	1100	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,2-Dichlorobenzene	UG/KG	0	0%	20	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,2-Dichloroethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,2-Dichloropropane	UG/KG	0	0%	2400	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,3-Dichlorobenzene	UG/KG	0	0%	1800	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
1,4-Dichlorobenzene	UG/KG	0	0%	50	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Acetone	UG/KG	290	98%	60	31	40	41	7.7 U	12/12/06	42	0.2	7.9 U	0.2	7.3 U	48	0.2	7.2 U	48	7.1 U	7.1 U
Benzene	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Bromochloromethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Bromoforn	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Carbon disulfide	UG/KG	0	0%		0	0	41	15 U	12/12/06	14 U	0.2	16 U	0.2	15 U	0	14 U	0	14 U	28 U	28 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Chlorobromomethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Chloroethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Chloroform	UG/KG	0	0%	370	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Cis-1,2-Dichloroethene	UG/KG	0	0%	250	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Cyclohexane	UG/KG	1.5	2%		0	1	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Dichlorodifluoromethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Ethyl benzene	UG/KG	0	0%	1000	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Isopropylbenzene	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Meta-Para Xylene	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Methyl Acetate	UG/KG	11	2%		0	1	41	15 U	12/12/06	14 U	0.2	16 U	0.2	15 U	0	14 U	0	14 U	28 U	28 U
Methyl Tertbutyl Ether	UG/KG	0	0%	930	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Methyl bromide	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Methyl butyl ketone	UG/KG	8.1	2%		0	1	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Methyl chloride	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Methyl cyclohexane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Methyl ethyl ketone	UG/KG	63	90%	120	0	37	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Methyl isobutyl ketone	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Methylene chloride	UG/KG	4.6	73%	50	0	30	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Ortho Xylene	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Styrene	UG/KG	2.4	10%	1300	0	4	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Tetrachloroethane	UG/KG	8.7	27%	700	0	11	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Toluene	UG/KG	0	0%	190	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Trans-1,2-Dichloroethene	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Trans-1,3-Dichloropropene	UG/KG	0	0%	470	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Trichloroethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Trichlorofluoromethane	UG/KG	0	0%		0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
Vinyl chloride	UG/KG	0	0%	20	0	0	41	7.7 U	12/12/06	7.0	0.2	7.9 U	0.2	7.3 U	0	7.2 U	0	7.2 U	14 U	14 U
<b>Semi-volatile Organic Compounds</b>																				
1,1'-Biphenyl	UG/KG	0	0%		0	0	41	460 U	12/12/06	450 U	0.2	480 U	0.2	480 U	0	450 U	0	450 U	510 U	510 U
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	41	460 U	12/12/06	450 U	0.2	480 U	0.2	480 U	0	450 U	0	450 U	510 U	510 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	41	460 U	12/12/06	450 U	0.2	480 U	0.2	480 U	0	450 U	0	450 U	510 U	510 U
2,4-Dichlorophenol	UG/KG	0	0%		0	0	41	460 U	12/12/06	450 U	0.2	480 U	0.2	480 U	0	450 U	0	450 U	510 U	510 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	41	460 U	12/12/06	450 U	0.2	480 U	0.2	480 U	0	450 U	0	450 U	510 U	510 U
2,4-Dinitrophenol	UG/KG	430	2%		0	1	41	460 U	12/12/06	450 U	0.2	480 U	0.2	480 U	0	450 U	0	450 U	510 U	510 U
2,6-Dinitrophenol	UG/KG	0	0%		0	0	41	460 U	12/12/06	450 U	0.2	480 U	0.2	480 U	0	450 U	0	450 U	510 U	510 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	41	460 U	12/12/06	450 U	0.2	480 U	0.2	480 U	0	450 U	0	450 U	510 U	510 U
2-Chlorophenol	UG/KG	0	0%		0	0	41	460 U	12/12/06	450 U	0.2	480 U	0.2	480 U	0	450 U	0	450 U	510 U	510 U



TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-B1 SOIL Value (Q)	GR-B2-A SOIL Value (Q)	GR-B2-B SOIL Value (Q)	GR-B3-A SOIL Value (Q)	GR-B3-B SOIL Value (Q)	GR-B4-A SOIL Value (Q)
2-Nitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
3-Nitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
4-Nitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
HMX	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Nitrobenzene	UG/KG	0	0%	500 U	0	0	41	500 U	500 U	500 U	500 U	500 U	500 U
Nitroglycerine	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Pentaerythritol Tetraminate	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
RDX	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Tetryl	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
<b>PCBs</b>													
Aroclor-1016	UG/KG	0	0%	46 U	0	0	41	46 U	45 U	48 U	48 U	45 U	51 U
Aroclor-1221	UG/KG	0	0%	94 U	0	0	41	94 U	92 U	98 U	98 U	91 U	100 U
Aroclor-1232	UG/KG	0	0%	46 U	0	0	41	46 U	45 U	48 U	48 U	45 U	51 U
Aroclor-1242	UG/KG	0	0%	46 U	0	0	41	46 U	45 U	48 U	48 U	45 U	51 U
Aroclor-1248	UG/KG	0	0%	46 U	0	0	41	46 U	45 U	48 U	48 U	45 U	51 U
Aroclor-1254	UG/KG	0	0%	46 U	0	0	41	46 U	45 U	48 U	48 U	45 U	51 U
Aroclor-1260	UG/KG	0	0%	46 U	0	0	41	46 U	45 U	48 U	48 U	45 U	51 U
<b>Pesticides</b>													
4,4'-DDD	UG/KG	0	0%	3.3	0	0	41	4.6 U	4.5 U	4.8 U	4.8 U	4.5 U	5.1 U
4,4'-DDE	UG/KG	0	0%	3.3	0	0	41	4.6 U	4.5 U	4.8 U	4.8 U	4.5 U	5.1 U
4,4'-DDT	UG/KG	0	0%	3.3	0	0	41	4.6 U	4.5 U	4.8 U	4.8 U	4.5 U	5.1 U
Aldrin	UG/KG	0	0%	5	0	0	41	2.4 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Alpha-BHC	UG/KG	0	0%	20	0	0	41	2.4 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Alpha-Chlordane	UG/KG	0	0%	94	0	0	41	2.4 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Beta-BHC	UG/KG	0	0%	36	0	0	41	2.4 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Delta-BHC	UG/KG	0	0%	40	0	0	41	2.4 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Dieldrin	UG/KG	0	0%	5	0	0	41	4.6 U	4.5 U	4.8 U	4.8 U	4.5 U	5.1 U
Endosulfan I	UG/KG	0	0%	2400	0	0	41	2.3 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Endosulfan II	UG/KG	0	0%	2400	0	0	41	2.3 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	41	4.6 U	4.5 U	4.8 U	4.8 U	4.5 U	5.1 U
Endrin	UG/KG	0	0%	14	0	0	41	4.6 U	4.5 U	4.8 U	4.8 U	4.5 U	5.1 U
Endrin aldehyde	UG/KG	0	0%	0	0	0	41	4.6 U	4.5 U	4.8 U	4.8 U	4.5 U	5.1 U
Endrin ketone	UG/KG	0	0%	0	0	0	41	4.6 U	4.5 U	4.8 U	4.8 U	4.5 U	5.1 U
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	41	2.4 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Gamma-Chlordane	UG/KG	0	0%	42	0	0	41	2.4 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Heptachlor	UG/KG	0	0%	0	0	0	41	2.4 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Heptachlor epoxide	UG/KG	0	0%	0	0	0	41	2.4 U	2.3 U	2.5 U	2.5 U	2.3 U	2.6 U
Methoxychlor	UG/KG	0	0%	0	0	0	41	24 U	23 U	25 U	25 U	23 U	26 U
Toxaphene	UG/KG	0	0%	0	0	0	41	46 U	45 U	48 U	48 U	45 U	51 U
<b>Metals</b>													
Aluminum	MG/KG	19600	100%	15800	0	41	15800	15900	16600	14900	14400	19600	0.52 U
Antimony	UG/KG	0	0%	0.49 UJ	0	0	41	0.49 UJ	0.48 UJ	0.49 UJ	0.49 UJ	0.46 UJ	0.52 UJ
Arsenic	UG/KG	9.3	100%	13	0	41	2.6	4.6	3.5	2.6	2.8	3.3	3.4
Barium	MG/KG	180	100%	350	0	41	117	94.4	109	106	98.9	152	152
Beryllium	MG/KG	0.25	59%	7.2	0	40	0.71	0.74	0.81	0.74	0.67 J	0.7	0.91
Cadmium	MG/KG	11100	100%	2.5	0	24	0.07 J	0.05 U	0.1 J	0.05 U	0.07 J	0.18 J	0.18 J
Calcium	MG/KG	27.7	100%	0	0	41	2920	2000	2790	3350	2940	4370	4370
Chromium	MG/KG	23.5	100%	0	0	41	21.7	21.9	23.5	20	20	23.7	23.7
Cobalt	UG/KG	22.2	100%	0	0	41	9.1	11.3	10.2	7.8	7.8	6.8 J	6.8 J
Copper	MG/KG	32300	100%	50	0	41	15	14.4	15	16.1	14.2	16	16
Lead	MG/KG	38.5	100%	63	0	41	20.6	25.2	22.200	20.600	21.100	21.100	21.100
Magnesium	MG/KG	5230	100%	0	0	41	3520	3480	3670	3400	3580	4160	4160
Manganese	MG/KG	1880	100%	1600	1	41	546	647	387	387	387	387	387
Mercury	UG/KG	0.08	100%	0.18	0	41	0.05	0.04	0.05	0.05	0.05	0.05	0.05
Nickel	MG/KG	31.1	100%	30	2	41	20.3	18.7	22.9	18.7	18.7	20.2	20.2
Potassium	MG/KG	2370	100%	0	0	41	1740	1660	2010	1980	1800	2070	2070
Selenium	MG/KG	4.4	100%	3.9	2	41	1.7	2.5	1.9	1.7	1.5	1.4 J	1.4 J
Silver	MG/KG	0	0%	2	0	0	0.16 U	0.16 U	0.16 U	0.16 U	0.15 U	0.17 U	0.17 U

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-B1 SOIL			GR-B2-A SOIL			GR-B2-B SOIL			GR-B3-A SOIL			GR-B3-B SOIL			GR-B4-A SOIL		
								Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA
	MG/KG	54.7	63%		0	26	41	139 U	1.2 U	1.2 U	139 U	1.2 U	1.2 U	147 U	0.43 U	0.43 U	129 U	0.38 U	0.38 U	147 U	0.43 U	0.43 U	147 U	0.43 U	
	MG/KG	0	0%		0	0	41	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	0.43 U	0.43 U	0.38 U	0.38 U	0.38 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	
	MG/KG	33.5	100%	109	0	41	41	29.1	32.3	31.6	31.6	28.1	28.1	28.1	28.1	28.1	27.5	27.5	27.5	28.1	28.1	28.1	27.5	27.5	
	MG/KG	110	100%		1	41	41	82.3	74.2	95.2	95.2	65.8	65.8	65.8	65.8	65.8	76.1	76.1	76.1	65.8	65.8	65.8	95.7	95.7	
<b>Other Analyses</b>																									
Nitrate Nitrogen	MG/KG	9.52	59%		0	24	41	7.17	7.8	9.06	9.06	7.34 U	7.34 U	7.34 U	7.34 U	7.34 U	7.07	7.07	7.07	7.34 U	7.34 U	7.34 U	7.07	7.07	
Percent Solids	%	79.3	100%		0	41	41	71.1	73.1	68.4	68.4	68.1	68.1	68.1	68.1	68.1	73.6	73.6	73.6	68.1	68.1	68.1	73.6	73.6	

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives.  
[http://www.dec.state.ny.us/website/reggs/subpart375\\_6.html](http://www.dec.state.ny.us/website/reggs/subpart375_6.html)  
 (2) Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (Z)	GR B4-B SOIL	GR C2-A SOIL	GR C2-B SOIL	GR C3-A SOIL	GR C3-B SOIL	Value (Q)	Value (Q)	Value (Q)	Value (Q)
<b>Volatile Organic Compounds</b>																
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,1-Dichloroethane	UG/KG	0	0%	270	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,1-Dichloroethene	UG/KG	0	0%	330	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,2-Dichloroethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,2-Dichloroethene	UG/KG	0	0%	20	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,2-Dichloropropane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Acetone	UG/KG	290	98%	50	31	40	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Benzene	UG/KG	0	0%	60	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Bromodichloromethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Bromoform	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Carbon disulfide	UG/KG	0	0%		0	0	41	12 U	16 U	13 U	14 U	19 U	13 U	15 U	15 U	19 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Chlorobromomethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Chloroethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Chloroform	UG/KG	0	0%	370	0	0	41	12 U	16 U	13 U	14 U	19 U	13 U	15 U	15 U	19 U
Cis-1,2-Dichloroethene	UG/KG	0	0%	250	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Dichloroethane	UG/KG	1.5	2%		0	1	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Dichlorodifluoroethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Ethyl benzene	UG/KG	0	0%	1000	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Isopropylbenzene	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Meta-Para Xylene	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Methyl Acetate	UG/KG	11	2%		0	1	41	12 U	16 U	13 U	14 U	19 U	13 U	15 U	15 U	19 U
Methyl Tertbutyl Ether	UG/KG	0	0%	930	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Methyl bromide	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Methyl butyl ketone	UG/KG	8.1	2%		0	1	41	12 U	16 U	13 U	14 U	19 U	13 U	15 U	15 U	19 U
Methyl chloride	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Methyl cyclohexane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Methyl ethyl ketone	UG/KG	63	90%	120	0	37	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Methyl isobutyl ketone	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Methylene chloride	UG/KG	4.6	73%	50	0	30	41	2.1 J	19	6.6 J	4.2 J	9.4 J	6.6 J	4.2 J	9.4 J	6.6 J
Ortho Xylene	UG/KG	0	0%		0	0	41	12 U	16 U	13 U	14 U	19 U	13 U	15 U	15 U	19 U
Styrene	UG/KG	0	0%		0	0	41	1.2 J	1.7 J	1.3 J	1.4 J	2.1 J	1.3 J	1.4 J	2.1 J	1.3 J
Tetrachloroethene	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Toluene	UG/KG	2.4	10%	1300	0	4	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Trans-1,2-Dichloroethene	UG/KG	8.7	27%	700	0	11	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Trans-1,3-Dichloropropene	UG/KG	0	0%	190	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Trichloroethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Trichloroethene	UG/KG	0	0%	470	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Trichlorofluoromethane	UG/KG	0	0%		0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
Vinyl chloride	UG/KG	0	0%	20	0	0	41	5.9 U	7.9 U	6.7 U	7.4 U	9.3 U	6.7 U	7.4 U	7.4 U	9.3 U
<b>Semivolatile Organic Compounds</b>																
1,1'-Biphenyl	UG/KG	0	0%		0	0	41	420 U	480 U	420 U	480 U	470 U	420 U	480 U	480 U	470 U
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	41	420 U	480 U	420 U	480 U	470 U	420 U	480 U	480 U	470 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	41	420 U	480 U	420 U	480 U	470 U	420 U	480 U	480 U	470 U
2,4-Dichlorophenol	UG/KG	0	0%		0	0	41	420 U	480 U	420 U	480 U	470 U	420 U	480 U	480 U	470 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	41	420 U	480 U	420 U	480 U	470 U	420 U	480 U	480 U	470 U
2,4-Dinitrophenol	UG/KG	0	0%		0	0	41	2200 U	2500 U	2100 U	2500 U	2400 U	2100 U	2500 U	2400 U	2100 U
2,4-Dinitrotoluene	UG/KG	430	2%		0	1	41	420 U	480 U	420 U	480 U	470 U	420 U	480 U	480 U	470 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	420 U	480 U	420 U	480 U	470 U	420 U	480 U	480 U	470 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	41	420 U	480 U	420 U	480 U	470 U	420 U	480 U	480 U	470 U
2-Chlorophenol	UG/KG	0	0%		0	0	41	420 U	480 U	420 U	480 U	470 U	420 U	480 U	480 U	470 U



TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (Z)	Value (Q)	GR B4-B SOIL	GR C1 SOIL	GR C2-A SOIL	GR C2-B SOIL	GR C3-A SOIL	GR C3-B SOIL	
2-Nitrotoluene	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
3-Nitrotoluene	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
4-Nitrotoluene	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
HMX	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
Nitrobenzene	UG/KG	0	0%	0	0	0	41	500 U	0	0	0	0	0	0	
Nitroglycerine	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
Pentaerythritol Tetranitrate	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
RDX	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
Tetryl	UG/KG	0	0%	0	0	0	41	2000 U	0	0	0	0	0	0	
<b>PCBs</b>															
Aroclor-1016	UG/KG	0	0%	0	0	0	41	42 U	0	0	45 U	42 U	48 U	47 U	
Aroclor-1221	UG/KG	0	0%	0	0	0	41	86 U	0	97 U	92 U	84 U	98 U	95 U	
Aroclor-1232	UG/KG	0	0%	0	0	0	41	42 U	0	48 U	45 U	42 U	48 U	47 U	
Aroclor-1242	UG/KG	0	0%	0	0	0	41	42 U	0	48 U	45 U	42 U	48 U	47 U	
Aroclor-1248	UG/KG	0	0%	0	0	0	41	42 U	0	48 U	45 U	42 U	48 U	47 U	
Aroclor-1254	UG/KG	0	0%	0	0	0	41	42 U	0	48 U	45 U	42 U	48 U	47 U	
Aroclor-1260	UG/KG	0	0%	0	0	0	41	42 U	0	48 U	45 U	42 U	48 U	47 U	
<b>Pesticides</b>															
4,4'-DDD	UG/KG	0	0%	3.3	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
4,4'-DDE	UG/KG	0	0%	3.3	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
4,4'-DDT	UG/KG	0	0%	3.3	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
Aldrin	UG/KG	0	0%	5	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Alpha-BHC	UG/KG	0	0%	20	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Alpha-Chlordane	UG/KG	0	0%	94	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Ben-BHC	UG/KG	0	0%	36	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Delta-BHC	UG/KG	0	0%	40	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Dieldrin	UG/KG	0	0%	5	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
Endosulfan I	UG/KG	0	0%	2400	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Endosulfan II	UG/KG	0	0%	2400	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
Endrin	UG/KG	0	0%	14	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
Endrin aldehyde	UG/KG	0	0%	0	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
Endrin ketone	UG/KG	0	0%	0	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Gamma-Chlordane	UG/KG	0	0%	0	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Heptachlor	UG/KG	0	0%	42	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Heptachlor epoxide	UG/KG	0	0%	0	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Methoxychlor	UG/KG	0	0%	0	0	0	41	2.2 U	0	2.5 U	2.3 U	2.1 U	2.5 U	2.4 U	
Toxaphene	UG/KG	0	0%	0	0	0	41	4.2 U	0	4.8 U	4.5 U	4.2 U	4.8 U	4.7 U	
<b>Metals</b>															
Aluminum	MG/KG	19600	100%	0	0	41	41	15100	13700	16300	15500	15500	15500	14700	
Antimony	MG/KG	0	0%	0.44 UJ	0	0	41	0.43 UJ	0.46 UJ	0.5 UJ	0.43 UJ	0.52 UJ	0.49 UJ	0.49 UJ	
Arsenic	MG/KG	9.3	100%	13	0	41	41	3	3.5	4	3.6	5	4.4		
Barium	MG/KG	180	100%	350	0	41	41	87.6	74.6	122	111	74.6	95.3		
Beryllium	MG/KG	1.1	98%	7.2	0	40	41	0.68	0.62 J	0.87	0.79	0.62 J	0.77		
Cadmium	MG/KG	0.25	59%	0.04 J	0	24	41	0.04 J	0.05 U	0.08 J	0.08 J	0.05 U	0.05 U		
Calcium	MG/KG	11100	100%	0	0	41	41	3310	1640	11100	3370 J	2430 J	3210 J		
Chromium	MG/KG	27.7	100%	0	0	41	41	21.1	20.6	25	21.1	21.2	22.1		
Cobalt	MG/KG	23.5	100%	0	0	41	41	11.5	10.4	8.9	10.4	8.9	10		
Copper	MG/KG	22.2	100%	50	0	41	41	18.2	19.1	17.3	17.3	17	18.7		
Iron	MG/KG	32300	100%	63	0	41	41	21900	22100	24400	20800	23200	23100		
Lead	MG/KG	38.5	100%	63	0	41	41	19.7	21.3	17.3	17.3	16.7	26.7		
Magnesium	MG/KG	5230	100%	0	0	41	41	3980	3490	5230	3670	3710	4130		
Manganese	MG/KG	1880	100%	1600	1	41	41	665	381	642 J	665	253 J	361 J		
Mercury	MG/KG	0.08	100%	0.18	0	41	41	0.04	0.05	0.06	0.05	0.06	0.05		
Nickel	MG/KG	31.1	100%	30	2	41	41	29.5	21	23.2	20.2	19.7	25		
Potassium	MG/KG	2370	100%	0	0	41	41	1560	1480	1550	1550	1840	1590		
Selenium	MG/KG	4.4	100%	3.9	2	41	41	1.8	3.8	4.1	3.8	3.9	3.9		
Silver	MG/KG	0	0%	2	0	0	41	0.14 U	0.15 U	0.16 U	0.14 U	0.17 U	0.16 U		

TABLE I  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-B4-B SOIL			GR-C1 SOIL			GR-C2-B SOIL			GR-C3-A SOIL			GR-C3-B SOIL		
								Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA
007R011008		0	63%		0	26	41	125 U	0.2	0	0	132 U	0.2	0	0	47.3 J	0.2	0	42.2 J	0.2	0	
007R011014		0	0%		0	0	41	141 U	0.2	0	0	1.2 U	0.2	0	0.43 U	0.2	0	0.81 U	0.2	0		
007R011015		33.5	100%	109	0	41	41	0.36 U	0.2	0	0.38 U	0.2	0	0.38 U	0.2	0	0.43 U	0.2	0	0.81 U	0.2	
007R011016		110	100%		1	41	41	27.3	0.2	0	25	28.6	0.2	0	29.1	28.6	0.2	29.1	28.6	0.2	0	
007R011017		9.52	59%		0	24	41	72	0.2	0	70	69.6	0.2	0	71	69.6	0.2	71	69.6	0.2	0	
007R011018		79.3	100%		0	41	41	6.44 U	0.2	0	8.21	9.08	0.2	0	73.2 U	9.08	0.2	73.2 U	9.08	0.2	0	
	%				0	41	41	77.7	0.2	0	68.8	79.3	0.2	0	68.3	79.3	0.2	68.3	79.3	0.2	0	

Notes:  
 (1) Criteria based on NYSDCE Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)  
 (2) Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
 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 analytical result was rejected during data validation.



TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-D1 SOIL	GR-D2-A SOIL	GR-D2-B SOIL	GR-D3-A SOIL	GR-D3-B SOIL
								007R011026	007R011024	007R011025	007R011021	007R011023
								0	0	0	0	0
								12/13/06	12/13/06	12/13/06	12/13/06	12/13/06
								SA	SA	SA	SA	SA
								RA	RA	RA	RA	RA
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
<b>Volatile Organic Compounds</b>												
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,2-Dichloroethane	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,2-Dichloroethane	UG/KG	0	0%	20	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,2-Dichloropropane	UG/KG	0	0%	2400	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,3-Dichlorobenzene	UG/KG	0	0%	1800	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
1,4-Dichlorobenzene	UG/KG	0	0%	50	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Acetone	UG/KG	290	98%	60	31	40	41	6.5	280	60	59	51
Benzene	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Bromodichloromethane	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Bromoforn	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Carbon disulfide	UG/KG	0	0%	760	0	0	41	15 U	20 U	13 U	15 U	15 U
Carbon tetrachloride	UG/KG	0	0%	1100	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Chlorobenzene	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Chlorobromomethane	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Chloroethane	UG/KG	0	0%		0	0	41	15 U	20 U	13 U	15 U	15 U
Chloroform	UG/KG	0	0%	370	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Cis-1,2-Dichloroethane	UG/KG	0	0%	250	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Cyclohexane	UG/KG	1.5	2%		0	1	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Dichlorodifluoromethane	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Ethyl benzene	UG/KG	0	0%	1000	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Isopropylbenzene	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Meta-Para-Xylene	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Methyl Acetate	UG/KG	1.1	2%		0	1	41	15 U	20 U	13 U	15 U	15 U
Methyl Tertbutyl Ether	UG/KG	0	0%	930	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Methyl bromide	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Methyl butyl ketone	UG/KG	8.1	2%		0	1	41	15 U	20 U	13 U	15 U	15 U
Methyl chloride	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Methyl cyclohexane	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Methyl ethyl ketone	UG/KG	63	90%	120	0	37	41	5.5 J	25	4.8 J	5.9 J	4.8 J
Methyl isobutyl ketone	UG/KG	0	0%		0	0	41	13 U	20 U	13 U	15 U	15 U
Methylene chloride	UG/KG	4.6	73%	50	0	30	41	1.3 J	10 U	1.2 J	1.5 J	1.3 J
Ortho Xylene	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Styrene	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Tetrachloroethane	UG/KG	2.4	10%	1300	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Toluene	UG/KG	8.7	27%	700	0	4	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Trans-1,2-Dichloroethene	UG/KG	0	0%	190	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Trichloroethane	UG/KG	0	0%	470	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Trichlorofluoromethane	UG/KG	0	0%		0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
Vinyl chloride	UG/KG	0	0%	20	0	0	41	7.4 U	10 U	6.3 U	7.7 U	7.7 U
<b>Semivolatile Organic Compounds</b>												
1,1'-Biphenyl	UG/KG	0	0%		0	0	41	470 U	480 U	430 U	490 U	460 U
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	41	470 U	480 U	430 U	490 U	460 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	41	470 U	480 U	430 U	490 U	460 U
2,4-Dichlorophenol	UG/KG	0	0%		0	0	41	470 U	480 U	430 U	490 U	460 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	41	470 U	480 U	430 U	490 U	460 U
2,4-Dinitrophenol	UG/KG	0	0%		0	0	41	2400 UJ	2500 UJ	2200 UJ	2500 UJ	2400 UJ
2,6-Dinitrobenzene	UG/KG	430	2%		0	1	41	470 U	480 U	430 U	490 U	460 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	470 U	480 U	430 U	490 U	460 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	41	470 U	480 U	430 U	490 U	460 U
2-Chlorophenol	UG/KG	0	0%		0	0	41	470 U	480 U	430 U	490 U	460 U

TABLE I  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-D1 SOIL			GR-D2-A SOIL			GR-D2-B SOIL			GR-D3-A SOIL			GR-D3-B SOIL				
								Value (Q)	RA	SA	DU	RA	SA	DU	RA	SA	DU	RA	SA	DU	RA	SA	DU	RA
2-Methylnaphthalene	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
2-Methylphenol	UG/KG	0	0%	330	0	0	41	430 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
2-Nitroaniline	UG/KG	0	0%	0	0	0	41	2400 U	0	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U
3,3'-Dichlorobenzidine	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
3-Nitroaniline	UG/KG	0	0%	0	0	0	41	2400 U	0	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U
4-Bromophenyl phenyl ether	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
4-Chloro-3-methylphenol	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
4-Chloroaniline	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
4-Chlorophenyl phenyl ether	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
4-Methylphenol	UG/KG	0	0%	330	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
4-Nitroaniline	UG/KG	0	0%	0	0	0	41	2400 U	0	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U
4-Nitrophenol	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Acenaphthene	UG/KG	0	0%	20000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Acenaphthylene	UG/KG	0	0%	100000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Acridene	UG/KG	0	0%	100000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Atrazine	UG/KG	420	2%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Benzo(a)anthracene	UG/KG	0	0%	1000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Benzo(b)fluoranthene	UG/KG	0	0%	1000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Benzo(k)fluoranthene	UG/KG	0	0%	1000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Benzo(g)hperylene	UG/KG	0	0%	100000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Benzo(a)fluoranthene	UG/KG	0	0%	800	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Bis(2-Chloroethyl)ether	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Bis(2-Ethoxyethyl)phthalate	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Butylbenzylphthalate	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Caprolactam	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Carbazole	UG/KG	0	0%	1000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Chrysene	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Di-n-butylphthalate	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Di-n-octylphthalate	UG/KG	0	0%	330	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Dibenz(a,h)anthracene	UG/KG	0	0%	7000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Dibenzofuran	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Diethyl phthalate	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Dimethyl phthalate	UG/KG	0	0%	100000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Fluoranthene	UG/KG	0	0%	30000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Fluorene	UG/KG	0	0%	330	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Hexachlorobenzene	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Hexachlorobutadiene	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Hexachlorocyclopentadiene	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Hexachloroethane	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Indeno(1,2,3-cd)pyrene	UG/KG	0	0%	500	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Isophenanthrene	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
N-Nitrosodiphenylamine	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
N-Nitrosodipropylamine	UG/KG	0	0%	0	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Naphthalene	UG/KG	0	0%	12000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Nitrobenzene	UG/KG	0	0%	800	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Pentachlorophenol	UG/KG	0	0%	0	0	0	41	2400 U	0	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U	2200 U	2500 U
Phenanthrene	UG/KG	0	0%	100000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Phenol	UG/KG	0	0%	330	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Pyrene	UG/KG	0	0%	100000	0	0	41	470 U	0	480 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U	430 U	490 U
Explosives	UG/KG	0	0%	0	0	0	41	2000 U	0	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
1,3,5-Trinitrobenzene	UG/KG	0	0%	0	0	0	41	2000 U	0	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
1,3-Dinitrobenzene	UG/KG	0	0%	0	0	0	41	2000 U	0	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
2,4,6-Trinitrotoluene	UG/KG	0	0%	0	0	0	41	2000 U	0	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
2,4-Dinitrotoluene	UG/KG	0	0%	0																				

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (Z)	GR-D1 SOIL	GR-D2-A SOIL	GR-D2-B SOIL	GR-D3-A SOIL	GR-D3-B SOIL	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2-Nitrotoluene	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
3-Nitrotoluene	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
4-Nitrotoluene	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
HMX	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
Nitrobenzene	UG/KG	0	0%		0	0	41	0	0	0	0	0	500 U	500 U	500 U	500 U
Nitroglycerine	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
Pentaerythritol Tetranitrate	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
RDX	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
Tetryl	UG/KG	0	0%		0	0	41	0	0	0	0	0	2000 U	2000 U	2000 U	2000 U
<b>PCBs</b>																
Aroclor-1016	UG/KG	0	0%		0	0	41	47 U	48 U	43 U	49 U	50 U	48 U	49 U	46 U	46 U
Aroclor-1221	UG/KG	0	0%		0	0	41	95 U	98 U	87 U	99 U	100 U	98 U	99 U	94 U	94 U
Aroclor-1222	UG/KG	0	0%		0	0	41	47 U	48 U	43 U	49 U	50 U	48 U	49 U	46 U	46 U
Aroclor-1242	UG/KG	0	0%		0	0	41	47 U	48 U	43 U	49 U	50 U	48 U	49 U	46 U	46 U
Aroclor-1248	UG/KG	0	0%		0	0	41	47 U	48 U	43 U	49 U	50 U	48 U	49 U	46 U	46 U
Aroclor-1254	UG/KG	0	0%		0	0	41	47 U	48 U	43 U	49 U	50 U	48 U	49 U	46 U	46 U
Aroclor-1260	UG/KG	0	0%		0	0	41	47 U	48 U	43 U	49 U	50 U	48 U	49 U	46 U	46 U
<b>Pesticides</b>																
4,4'-DDD	UG/KG	0	0%	3.3	0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
4,4'-DDE	UG/KG	0	0%	3.3	0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
4,4'-DDT	UG/KG	0	0%	3.3	0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
Aldrin	UG/KG	0	0%	5	0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
Alpha-BHC	UG/KG	0	0%	20	0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
Alpha-Chlordane	UG/KG	0	0%	94	0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
Beta-BHC	UG/KG	0	0%	36	0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
Delta-BHC	UG/KG	0	0%	40	0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
Dieldrin	UG/KG	0	0%	5	0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
Endosulfan I	UG/KG	0	0%	2400	0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
Endosulfan II	UG/KG	0	0%	2400	0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
Endrin	UG/KG	0	0%	14	0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
Endrin aldehyde	UG/KG	0	0%		0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
Endrin ketone	UG/KG	0	0%		0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
Gamma-Chlordane	UG/KG	0	0%		0	0	41	4.7 U	4.8 U	4.3 U	4.9 U	5 U	4.8 U	4.9 U	4.6 U	4.6 U
Heptachlor	UG/KG	0	0%	42	0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
Heptachlor epoxide	UG/KG	0	0%		0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
Methoxychlor	UG/KG	0	0%		0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
Toxaphene	UG/KG	0	0%		0	0	41	2.4 U	2.5 U	2.2 U	2.3 U	2.4 U	2.4 U	2.5 U	2.2 U	2.4 U
<b>Metals</b>																
Aluminum	MG/KG	19600	100%		0	41	14800	15400	14000	14000	13100	17200	14600	14000	14000	14600
Antimony	MG/KG	0	0%		0	41	0.49 UJ	0.51 UJ	0.44 UJ	0.51 UJ	0.48 UJ	0.51 UJ	0.48 UJ	0.51 UJ	0.48 UJ	0.51 UJ
Arsenic	MG/KG	9.3	100%	13	0	41	3.2	4.2	3.5	3.7	3.2	3.2	3.5	3.2	3.2	3.5
Barium	MG/KG	180	100%	350	0	41	84.6	93.2	77.1	104	149	77.1	112	77.1	149	112
Beryllium	MG/KG	1.1	98%	7.2	0	40	0.66 J	0.74 J	0.64 J	0.71	0.98 J	0.76 J	0.76 J	0.64 J	0.98 J	0.76 J
Cadmium	MG/KG	0.25	59%	2.5	0	24	0.05 U	0.05 U	0.04 U	0.05 U	0.05 U	0.05 U	0.08 J	0.04 U	0.05 U	0.08 J
Calcium	MG/KG	11100	100%		0	41	2450	3150	1480	2340 J	4520	3410	3410	1480	4520	3410
Chromium	MG/KG	27.7	100%		0	41	21.8	24	20.8	20.1	26.6	21.1	21.1	20.1	26.6	21.1
Cobalt	MG/KG	23.5	100%		0	41	9.3	10.4	10.2	13	10.7	9.2	9.2	10.2	10.7	9.2
Copper	MG/KG	22.2	100%	50	0	41	15.8	16.6	16.6	16.6	16.5	16.5	16.5	16.6	16.5	16.5
Iron	MG/KG	32300	100%		0	41	21600	24200	20300	21000	26800	21500	21500	20300	26800	21500
Lead	MG/KG	38.5	100%	63	0	41	22.8	21.3	21	19.9	22.3	22.3	22.3	21	22.3	22.3
Magnesium	MG/KG	1880	100%		0	41	3890	4500	3540	3290	4820	3920	3920	3540	4820	3920
Manganese	MG/KG	0.08	100%	1600	1	41	398	4500	480	693 J	532	339	339	480	693 J	532
Mercury	MG/KG	31.1	100%	0.18	0	41	0.05	0.05	0.04	0.06	0.05	0.05	0.05	0.04	0.06	0.05
Nickel	MG/KG	2370	100%	30	2	41	23.4	28.4	22.6	21	22.6	23.5	23.5	22.6	21	22.6
Potassium	MG/KG	4.4	100%	3.9	2	41	1710	1410	1410	1410	1410	1410	1410	1410	1410	1410
Selenium	MG/KG	0	0%	2	0	0	1.6 J	3.9	2 J	2 J	2.5 J	2.5 J	2.5 J	2 J	2.5 J	2.5 J
Silver	MG/KG	0	0%	2	0	0	0.16 U	0.17 U	0.14 U	0.16 U	0.17 U	0.16 U	0.16 U	0.14 U	0.17 U	0.16 U

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-D1			GR-D2-A			GR-D2-B			GR-D3-A			GR-D3-B		
								GR SOIL	Value (Q)	RA	GR SOIL	Value (Q)	RA	GR SOIL	Value (Q)	RA	GR SOIL	Value (Q)	RA	GR SOIL	Value (Q)	RA
007R011026		54.7	63%		0	26	41	37.1 J	33.8 J	32.6 J	34.6 J	53.4 J	42.3 J	0	0	0	0	0	0	0	0	
	MG/KG	0	0%		0	0	41	0.41 U	0.85 U	0.37 U	1.2 U	0.42 U	0.4 U									
	MG/KG	33.5	100%		0	41	41	26.2	27.2	24.6	23.9	29.5	26.4									
	MG/KG	110	100%	109	1	41	41	77.4	87.6	69.4	63.9	102	77.1									
<b>Other Analyses</b>																						
Nitrate Nitrogen	MG/KG	9.52	59%		0	24	41	7.08 U	8.2	7.42	7.36 U	10.6	7.04 U									
Percent Solids	%	79.3	100%		0	41	41	70.6	68.3	76.8	67.9	66.1	71									

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/webste/regs/subpart375\\_6.html](http://www.dec.state.ny.us/webste/regs/subpart375_6.html)  
 (2) Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
 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 analytical result was rejected during data validation.

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-D4-A		GR-D4-B		GR-E1		GR-E2-A		GR-E2-B		GR-E3		
								Value (Q)	RA	Value (Q)	SA	Value (Q)	RA	Value (Q)	SA	Value (Q)	RA	Value (Q)	SA	Value (Q)
<b>Volatile Organic Compounds</b>																				
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,1-Dichloroethene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,2-Dibromoethane	UG/KG	0	0%	1100	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,2-Dichlorobenzene	UG/KG	0	0%	20	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,2-Dichloroethane	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,2-Dichloropropane	UG/KG	0	0%	2400	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,3-Dichlorobenzene	UG/KG	0	0%	1800	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
1,4-Dichlorobenzene	UG/KG	0	0%	50	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Acetone	UG/KG	290	98%	60	31	40	41	200	64	100	200	46	72	46	72	46	72	46	72	46
Benzene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Bromodichloromethane	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Bromoform	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Carbon disulfide	UG/KG	0	0%		0	0	41	16 U	14 U	15 U	15 U	17 U	18 U	18 U	17 U	18 U	18 U	17 U	18 U	18 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Chlorobromomethane	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Chloroethane	UG/KG	0	0%		0	0	41	16 U	14 U	15 U	15 U	17 U	18 U	18 U	17 U	18 U	18 U	17 U	18 U	18 U
Chloroform	UG/KG	0	0%	370	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Cis-1,2-Dichloroethene	UG/KG	0	0%	250	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Cyclohexane	UG/KG	1.5	2%		0	1	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Dichlorodifluoromethane	UG/KG	0	0%	1000	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Ethyl benzene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Isopropylbenzene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Meta-Para-Xylene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Methyl Acetate	UG/KG	1.1	2%		0	1	41	16 U	14 U	15 U	15 U	17 U	18 U	18 U	17 U	18 U	18 U	17 U	18 U	18 U
Methyl Tertbutyl Ether	UG/KG	0	0%	930	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Methyl bromide	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Methyl butyl ketone	UG/KG	8.1	2%		0	1	41	16 U	14 U	15 U	15 U	17 U	18 U	18 U	17 U	18 U	18 U	17 U	18 U	18 U
Methyl chloride	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Methyl cyclohexane	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Methyl ethyl ketone	UG/KG	63	90%	120	0	37	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Methyl isobutyl ketone	UG/KG	0	0%		0	0	41	14 U	11 U	11 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U
Methylene chloride	UG/KG	4.6	73%	50	0	30	41	16 U	14 U	15 U	15 U	17 U	18 U	18 U	17 U	18 U	18 U	17 U	18 U	18 U
Ortho-Xylene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Styrene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Tetrachloroethene	UG/KG	2.4	10%	1300	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Toluene	UG/KG	8.7	27%	700	0	4	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Trans-1,2-Dichloroethene	UG/KG	0	0%	190	0	0	41	3.8 U	6.8 U	0.74 U	2 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Trichloroethane	UG/KG	0	0%	470	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Trichlorofluoromethane	UG/KG	0	0%		0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
Vinyl chloride	UG/KG	0	0%	20	0	0	41	8 U	6.8 U	7.7 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U	7.6 U	8.3 U
<b>Semivolatile Organic Compounds</b>																				
1,1'-Biphenyl	UG/KG	0	0%		0	0	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U
2,4-Dichlorophenol	UG/KG	0	0%		0	0	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U
2,4-Dinitrophenol	UG/KG	0	0%		0	0	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U
2,4-Dinitrobenzene	UG/KG	430	2%		0	1	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U
2,6-Dinitrobenzene	UG/KG	0	0%		0	0	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U
2-Chlorophenol	UG/KG	0	0%		0	0	41	460 U	430 U	460 U	480 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U	490 U



TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-D4-A SOIL	GR-D4-B SOIL	GR-EI SOIL	GR-E2-A SOIL	GR-E2-B SOIL	GR-E3 SOIL
Parameter	Units	Maximum Concentration	Frequency of Detection	Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
2-Nitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
3-Nitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
4-Nitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
HMX	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Nitrobenzene	UG/KG	0	0%	500 U	0	0	41	500 U	500 U	500 U	500 U	500 U	500 U
Nitroglycerine	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Pentaerythritol Tetranitrate	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
RDX	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Tetryl	UG/KG	0	0%	2000 U	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
<b>PCBs</b>													
Aroclor-1016	UG/KG	0	0%	46 U	0	0	41	46 U	43 U	46 U	48 U	49 U	49 U
Aroclor-1221	UG/KG	0	0%	94 U	0	0	41	94 U	88 U	93 U	98 U	100 U	99 U
Aroclor-1232	UG/KG	0	0%	46 U	0	0	41	46 U	43 U	46 U	48 U	49 U	49 U
Aroclor-1242	UG/KG	0	0%	46 U	0	0	41	46 U	43 U	46 U	48 U	49 U	49 U
Aroclor-1248	UG/KG	0	0%	46 U	0	0	41	46 U	43 U	46 U	48 U	49 U	49 U
Aroclor-1254	UG/KG	0	0%	46 U	0	0	41	46 U	43 U	46 U	48 U	49 U	49 U
Aroclor-1260	UG/KG	0	0%	46 U	0	0	41	46 U	43 U	46 U	48 U	49 U	49 U
<b>Pesticides</b>													
4,4'-DDD	UG/KG	0	0%	4.6 U	0	0	41	4.6 U	4.3 U	4.6 U	4.8 U	4.9 U	4.9 U
4,4'-DDE	UG/KG	0	0%	4.6 U	0	0	41	4.6 U	4.3 U	4.6 U	4.8 U	4.9 U	4.9 U
4,4'-DDT	UG/KG	0	0%	4.6 U	0	0	41	4.6 U	4.3 U	4.6 U	4.8 U	4.9 U	4.9 U
Aldrin	UG/KG	0	0%	2.4 U	0	0	41	2.4 U	2.2 U	2.4 U	2.5 U	2.5 U	2.5 U
Alpha-BHC	UG/KG	0	0%	2.4 U	0	0	41	2.4 U	2.2 U	2.4 U	2.5 U	2.5 U	2.5 U
Alpha-Chlordane	UG/KG	0	0%	2.4 U	0	0	41	2.4 U	2.2 U	2.4 U	2.5 U	2.5 U	2.5 U
Beta-BHC	UG/KG	0	0%	2.4 U	0	0	41	2.4 U	2.2 U	2.4 U	2.5 U	2.5 U	2.5 U
Delta-BHC	UG/KG	0	0%	2.4 U	0	0	41	2.4 U	2.2 U	2.4 U	2.5 U	2.5 U	2.5 U
Dieldrin	UG/KG	0	0%	4.6 U	0	0	41	4.6 U	4.3 U	4.6 U	4.8 U	4.9 U	4.9 U
Endosulfan I	UG/KG	0	0%	2400 U	0	0	41	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U
Endosulfan II	UG/KG	0	0%	2400 U	0	0	41	2400 U	2400 U	2400 U	2400 U	2400 U	2400 U
Endosulfan sulfate	UG/KG	0	0%	14	0	0	41	14	14	14	14	14	14
Endrin	UG/KG	0	0%	4.6 U	0	0	41	4.6 U	4.3 U	4.6 U	4.8 U	4.9 U	4.9 U
Endrin aldehyde	UG/KG	0	0%	4.6 U	0	0	41	4.6 U	4.3 U	4.6 U	4.8 U	4.9 U	4.9 U
Endrin ketone	UG/KG	0	0%	4.6 U	0	0	41	4.6 U	4.3 U	4.6 U	4.8 U	4.9 U	4.9 U
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	41	100	100	100	100	100	100
Gamma-Chlordane	UG/KG	0	0%	4.2	0	0	41	4.2	4.2	4.2	4.2	4.2	4.2
Heptachlor	UG/KG	0	0%	4.2	0	0	41	4.2	4.2	4.2	4.2	4.2	4.2
Heptachlor epoxide	UG/KG	0	0%	4.2	0	0	41	4.2	4.2	4.2	4.2	4.2	4.2
Methoxychlor	UG/KG	0	0%	4.2	0	0	41	4.2	4.2	4.2	4.2	4.2	4.2
Toxaphene	UG/KG	0	0%	4.2	0	0	41	4.2	4.2	4.2	4.2	4.2	4.2
<b>Metals</b>													
Aluminum	MG/KG	19600	100%	10500	0	41	41	10500	15700	14400	15500	17300	18600
Antimony	UG/KG	0	0%	0.47 UJ	0	0	41	0.47 UJ	0.44 UJ	0.48 UJ	0.5 UJ	0.51 UJ	0.51 UJ
Arsenic	UG/KG	9.3	100%	2.7	0	41	41	2.7	4.9	3.3	3.4	3.8	3.8
Barium	MG/KG	180	100%	61.9	0	41	41	61.9	119	116	118	148	155
Beryllium	UG/KG	1.1	98%	0.45 J	0	40	41	0.45 J	0.83	0.77 J	0.79 J	0.99 J	1.1 J
Cadmium	UG/KG	0.25	59%	0.05 U	0	24	41	0.05 U	0.04 U	0.12 J	0.13 J	0.22 J	0.22 J
Calcium	MG/KG	11100	100%	2130 J	0	41	41	2130 J	2310 J	3360	2340	3250	4240
Chromium	UG/KG	27.7	100%	13.7	0	41	41	13.7	23.3	20.1	22.9	26.3	26.3
Cobalt	UG/KG	23.5	100%	5.2 J	0	41	41	5.2 J	16.2	8.7	10.6	13.6	9.9
Copper	UG/KG	22.2	100%	11.6	0	41	41	11.6	18.7	16.9	21.9	20.5	20.5
Iron	MG/KG	32300	100%	13700	0	41	41	13700	24200	20000	23800	26100	25100
Lead	UG/KG	38.5	100%	13.6	0	41	41	13.6	22.6	21.7	22.6	23.8	26
Magnesium	MG/KG	5230	100%	2370	0	41	41	2370	3760	3590	4280	4260	4440
Manganese	UG/KG	1880	100%	980 J	1	41	41	980 J	412	471	412	672	672
Mercury	UG/KG	0.08	100%	0.18	0	41	41	0.18	0.06	0.06	0.05	0.06	0.08
Nickel	MG/KG	31.1	100%	11.6	2	41	41	11.6	24.8	22.4	28.6	27.2	27.9
Potassium	MG/KG	2370	100%	962	0	41	41	962	1720	2260	2120	2370	2370
Selenium	UG/KG	4.4	100%	3.9	2	41	41	3.9	4.4	4.4	4.4	4.4	4.4
Silver	UG/KG	0	0%	0.15 U	0	0	41	0.15 U	0.15 U	0.16 U	0.16 U	0.17 U	0.17 U

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (L)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (Z)	GR-DA-A			GR-D4-B			GR-E1			GR-E2-A			GR-E2-B			GR-E3		
									Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA	Value (Q)	SA	RA
007R011019	Sodium	MG/KG	54.7	63%		0	26	41	32.6 J			39.2 J			43.4 J			33 J			46.9 J			51.5 J		
	Thallium	MG/KG	0	0%		0	0	41	0.39 U			1.8 U			0.39 U			0.41 U			2.2 U			0.85 U		
	Vanadium	MG/KG	33.5	100%		0	41	41	20.5			28.4			26.1			27.2			32			32.9		
	Zinc	MG/KG	110	100%	109	1	41	41	51			72.4			76.6			90.6			82.1			110		
	Other Analytes																									
	Nitrate Nitrogen	MG/KG	9.52	59%		0	24	41	6.09 U			6.83			7.8			7.3 U			7.44 U			9.01		
	Percent Solids	%	79.3	100%		0	41	41	71.5			76.1			71.8			68.5			67.2			67.7		

Notes:  
(1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/vegs/subpart375\\_6.html](http://www.dec.state.ny.us/website/vegs/subpart375_6.html)  
(2) Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.  
(3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

U = compound was not detected  
J = the reported value is an estimated concentration  
UF = the compound was not detected; the associated reporting limit is approximate  
R = the analytical result was rejected during data validation.



TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	Value (Q)	GR-E4 SOIL	GR-F1 SOIL	GR-F2 SOIL	GR-F3 SOIL	GR-F4 SOIL	GR-G1 SOIL
<b>Volatile Organic Compounds</b>														
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	41	7.1 U	0.2	0	0	0	0	0
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	41	9.6 U	0.2	0	0	0	0	0
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,1-Dichloroethene	UG/KG	0	0%		0	0	41	9.6 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	41	9.6 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,2-Dibromoethane	UG/KG	0	0%	1100	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,2-Dichlorobenzene	UG/KG	0	0%	20	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,2-Dichloroethane	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,2-Dichloroethene	UG/KG	0	0%	2400	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,3-Dichloropropane	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,3-Dichlorobenzene	UG/KG	0	0%	1800	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
1,4-Dichlorobenzene	UG/KG	0	0%	50	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Acetone	UG/KG	290	98%	60	31	40	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Benzene	UG/KG	0	0%	60	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Bromodichloromethane	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Bromoform	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Carbon disulfide	UG/KG	0	0%		0	0	41	14 U	19 U	13 U	18 U	14 U	14 U	14 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Chlorodibromomethane	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Chloroethane	UG/KG	0	0%		0	0	41	14 U	19 U	13 U	18 U	14 U	14 U	14 U
Chloroform	UG/KG	0	0%	370	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Cis-1,2-Dichloroethene	UG/KG	0	0%	250	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Cyclohexane	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Cis-1,3-Dichloropropene	UG/KG	1.5	2%		0	1	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Dichlorodifluoromethane	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Ethyl benzene	UG/KG	0	0%	1000	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Isopropylbenzene	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Methyl Acetate	UG/KG	11	2%		0	1	41	11 U	19 U	13 U	18 U	14 U	14 U	14 U
Methyl Tertiary Ether	UG/KG	0	0%	930	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Methyl bromide	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Methyl butyl ketone	UG/KG	8.1	2%		0	1	41	14 U	8.1 U	13 U	15 U	14 U	14 U	14 U
Methyl chloride	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Methyl cyclohexane	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Methyl ethyl ketone	UG/KG	63	90%	120	0	37	41	12 U	63	13 U	25	13 U	24	24
Methyl isobutyl ketone	UG/KG	4.6	73%	50	0	30	41	14 U	19 U	13 U	18 U	14 U	14 U	14 U
Methylene chloride	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Ortho Xylene	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Styrene	UG/KG	2.4	10%	1300	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Tetrahydroethane	UG/KG	8.7	27%	700	0	4	41	1.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Toluene	UG/KG	0	0%	190	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Trans-1,2-Dichloroethene	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	0.54 U	1.1 U	0.7 U	1.1 U	0.7 U	0.7 U	0.7 U
Trichloroethene	UG/KG	0	0%	470	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Trichlorofluoromethane	UG/KG	0	0%		0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
Vinyl chloride	UG/KG	0	0%	20	0	0	41	7.1 U	9.6 U	6.7 U	7.3 U	7.3 U	7.1 U	7.2 U
<b>Semivolatile Organic Compounds</b>														
1,1'-Biphenyl	UG/KG	0	0%		0	0	41	430 U	500 U	440 U	460 U	460 U	450 U	440 U
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	41	430 U	500 U	440 U	460 U	460 U	450 U	440 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	41	430 U	500 U	440 U	460 U	460 U	450 U	440 U
2,4-Dichlorophenol	UG/KG	0	0%		0	0	41	430 U	500 U	440 U	460 U	460 U	450 U	440 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	41	2200 U	2600 U	2300 U	2400 U	2300 U	2300 U	2300 U
2,4-Dinitrophenol	UG/KG	430	2%		0	1	41	430 U	500 U	440 U	460 U	460 U	450 U	440 U
2,6-Dinitrophenol	UG/KG	0	0%		0	0	41	430 U	500 U	440 U	460 U	460 U	450 U	440 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	41	430 U	500 U	440 U	460 U	460 U	450 U	440 U
2-Chlorophthalene	UG/KG	0	0%		0	0	41	430 U	500 U	440 U	460 U	460 U	450 U	440 U

TABLE I  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestored Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-E4			GR-F1			GR-F2			GR-F3			GR-F4			GR-G1		
									SOIL	RA	SA	RA	SA	RA	SOIL	RA	SA	RA	SOIL	RA	SA	RA	SOIL	RA	SA	RA
	2-Methylanthracene	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	2-Methylphenol	UG/KG	0	0%	330	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	2-Nitroanthiline	UG/KG	0	0%	0	0	0	41	2200 U	2600 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U			
	3,3'-Dichlorobenzidine	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	3-Nitroanthiline	UG/KG	0	0%	0	0	0	41	2200 U	2600 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U			
	4,6-Dinitro-2-methylphenol	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	4-Bromophenyl phenyl ether	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	4-Chloro-3-methylphenol	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	4-Chloroanthiline	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	4-Chlorophenyl phenyl ether	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	4-Methylphenol	UG/KG	0	0%	330	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	4-Nitroanthiline	UG/KG	0	0%	0	0	0	41	2200 U	2600 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U			
	Acenaphthene	UG/KG	0	0%	20000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Acenaphthylene	UG/KG	0	0%	100000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Acetophenone	UG/KG	0	0%	100000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Anthracene	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Atrazine	UG/KG	0	2%	0	1	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	440 U			
	Benzo(a)pyrene	UG/KG	0	0%	1000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Benzo(b)fluoranthene	UG/KG	0	0%	1000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Benzo(g)perylene	UG/KG	0	0%	100000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Benzo(k)fluoranthene	UG/KG	0	0%	800	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Bis(2-Chloroethoxy)methane	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Bis(2-Chloroethyl)ether	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Bis(2-Ethoxyethyl)phthalate	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Bisphenol A	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Carbazole	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Chrysene	UG/KG	0	0%	1000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	D,e-butylphthalate	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	D,e-octylphthalate	UG/KG	0	0%	330	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Dibenz(a,h)anthracene	UG/KG	0	0%	7000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Dibenzofuran	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Diethyl phthalate	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Dimethylphthalate	UG/KG	0	0%	100000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Fluorene	UG/KG	0	0%	30000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Fluoranthene	UG/KG	0	0%	330	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Hexachlorobenzene	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Hexachlorobutadiene	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Hexachlorocyclopentadiene	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Hexachloroethane	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Indene(1,2,3-cd)pyrene	UG/KG	0	0%	500	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Isophthalene	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	N-Nitrosodiphenylamine	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	N-Nitrosodipropylamine	UG/KG	0	0%	0	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Naphthalene	UG/KG	0	0%	12000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Nitrobenzene	UG/KG	0	0%	800	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Pentachlorophenol	UG/KG	0	0%	0	0	0	41	2200 U	2600 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U	2400 U	2300 U			
	Picramanthrene	UG/KG	0	0%	100000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Phenol	UG/KG	0	0%	330	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Pyrene	UG/KG	0	0%	100000	0	0	41	430 U	500 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U	460 U	450 U	440 U			
	Explosives	UG/KG	0	0%	0	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U			
	1,3,5-Trinitrobenzene	UG/KG	0	0%	0	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U			
	1,3-Dinitrobenzene	UG/KG	0	0%	0	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U			
	2,4,6-Trinitrotoluene	UG/KG	0	0%	0	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U			
	2,4-Dinitrotoluene	UG/KG	0	0%	0	0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U			
	2,6-Dinitrotoluene	UG/KG	0	0%	0	0	0	41	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U			

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	Value (Q)	GR-E4 SOIL	GR-E1 SOIL	GR-F2 SOIL	GR-F3 SOIL	GR-F4 SOIL	GR-G1 SOIL
2-Nitrotoluene	UG/KG	0	0%		0	0	41	2000 U	007R011031	007R011033	007R011034	007R011033	007R011032	007R011036
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	2000 U	0	0	0	0	0	0
3-Nitrotoluene	UG/KG	0	0%		0	0	41	2000 U	0	0	0	0	0	0
4-Nitrotoluene	UG/KG	0	0%		0	0	41	2000 U	0	0	0	0	0	0
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	2000 U	0	0	0	0	0	0
BMX	UG/KG	0	0%		0	0	41	2000 U	0	0	0	0	0	0
Nitrobenzene	UG/KG	0	0%		0	0	41	500 U	0	0	0	0	0	0
Nitroglycerine	UG/KG	0	0%		0	0	41	2000 U	0	0	0	0	0	0
Pentaerythritol Tetranitrate	UG/KG	0	0%		0	0	41	2000 U	0	0	0	0	0	0
RDX	UG/KG	0	0%		0	0	41	2000 U	0	0	0	0	0	0
Tetryl	UG/KG	0	0%		0	0	41	2000 U	0	0	0	0	0	0
PCBs														
Aroclor 1016	UG/KG	0	0%		0	0	41	43 UJ	0	0	0	0	0	0
Aroclor 1221	UG/KG	0	0%		0	0	41	88 UJ	0	0	0	0	0	0
Aroclor 1232	UG/KG	0	0%		0	0	41	43 UJ	0	0	0	0	0	0
Aroclor 1242	UG/KG	0	0%		0	0	41	43 UJ	0	0	0	0	0	0
Aroclor 1248	UG/KG	0	0%		0	0	41	43 UJ	0	0	0	0	0	0
Aroclor 1254	UG/KG	0	0%		0	0	41	43 UJ	0	0	0	0	0	0
Aroclor 1260	UG/KG	0	0%		0	0	41	43 UJ	0	0	0	0	0	0
Pesticides														
4,4'-DDD	UG/KG	0	0%	3.3	0	0	41	4.3 U	0	0	0	0	0	0
4,4'-DDE	UG/KG	0	0%	3.3	0	0	41	4.3 U	0	0	0	0	0	0
4,4'-DDT	UG/KG	0	0%	3.3	0	0	41	4.3 U	0	0	0	0	0	0
Aldrin	UG/KG	0	0%	5	0	0	41	2.2 U	0	0	0	0	0	0
Alpha-BHC	UG/KG	0	0%	20	0	0	41	2.2 U	0	0	0	0	0	0
Alpha-Chlordane	UG/KG	0	0%	94	0	0	41	2.2 U	0	0	0	0	0	0
Beta-BHC	UG/KG	0	0%	36	0	0	41	2.2 U	0	0	0	0	0	0
Delta-BHC	UG/KG	0	0%	40	0	0	41	2.2 U	0	0	0	0	0	0
Dieldrin	UG/KG	0	0%	5	0	0	41	4.3 U	0	0	0	0	0	0
Endosulfan I	UG/KG	0	0%	2400	0	0	41	2.2 U	0	0	0	0	0	0
Endosulfan II	UG/KG	0	0%	2400	0	0	41	2.2 U	0	0	0	0	0	0
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	41	4.3 U	0	0	0	0	0	0
Endrin	UG/KG	0	0%	14	0	0	41	4.3 U	0	0	0	0	0	0
Endrin aldehyde	UG/KG	0	0%		0	0	41	4.3 U	0	0	0	0	0	0
Endrin ketone	UG/KG	0	0%		0	0	41	4.3 U	0	0	0	0	0	0
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	41	2.2 U	0	0	0	0	0	0
Gamma-Chlordane	UG/KG	0	0%		0	0	41	2.2 U	0	0	0	0	0	0
Heptachlor	UG/KG	0	0%	42	0	0	41	2.2 U	0	0	0	0	0	0
Heptachlor epoxide	UG/KG	0	0%		0	0	41	2.2 U	0	0	0	0	0	0
Methoxychlor	UG/KG	0	0%		0	0	41	2.2 U	0	0	0	0	0	0
Toxaphene	UG/KG	0	0%		0	0	41	4.3 U	0	0	0	0	0	0
Metals														
Aluminum	MG/KG	19600	100%		0	41	41	16300	0.44 UJ	0.53 UJ	0.46 UJ	0.47 UJ	0.47 UJ	0.46 UJ
Antimony	UG/KG	0	0%		0	0	41	0.44 UJ	0.44 UJ	0.46 UJ	0.46 UJ	0.47 UJ	0.47 UJ	0.46 UJ
Asenic	UG/KG	9.3	100%	13	0	41	41	3.9	3.6	3.9	3.1	3.1	3.1	2.5
Barium	UG/KG	180	100%	350	0	41	41	86.2	110	60.5	128	99.5	87.4	87.4
Beryllium	UG/KG	1.1	98%	7.2	0	40	41	0.68 J	0.75 J	0.6 J	0.81 J	0.6 J	0.71 J	0.68 J
Cadmium	UG/KG	0.25	59%	2.5	0	24	41	0.08 J	0.08 J	0.05 U	0.11 J	0.11 J	0.11 J	0.05 U
Calcium	UG/KG	11100	100%		0	41	41	3580	3580	1900	2900	2130	1900	1800
Chromium	UG/KG	27.7	100%		0	41	41	21.4	22.5	22.4	23.1	19.3	21.4	21.4
Cobalt	UG/KG	23.5	100%		0	41	41	9.4	9.4	8.6	12.1	13.7	8.9	8.9
Copper	UG/KG	22.2	100%	50	0	41	41	17.2	18.4	15.6	13	13	16.4	16.4
Iron	UG/KG	32300	100%		0	41	41	20800	21000	21700	23200	23200	20000	20000
Lead	UG/KG	38.5	100%	63	0	41	41	24.7	22.8	22	22	22	20.7	20.7
Magnesium	UG/KG	5230	100%		0	41	41	3820	3970	3880	3070	3070	3650	3650
Manganese	UG/KG	1880	100%	1600	1	41	41	648	818	553	1180	521	521	521
Mercury	UG/KG	0.08	100%	0.18	0	41	41	0.04	0.06	0.04 J	0.05	0.05	0.05	0.05
Nickel	UG/KG	31.1	100%	30	2	41	41	20.1	24.9	24.2	23.7	22.7	22.7	18
Potassium	UG/KG	2370	100%		0	41	41	1400	1860	1930	1470	1860	1570	1570
Selenium	UG/KG	4.4	100%	3.9	2	41	41	1.5 J	1.9 J	1.7 J	1.7 J	1.6 J	1.6 J	1.6 J
Silver	UG/KG	0	0%	2	0	0	41	0.15 U	0.17 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION LOCATION ID MATRIX SAMPLE ID TOP OF SAMPLE BOTTOM OF SAMPLE SAMPLE DATE QC CODE STUDY ID	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-E4			GR-F1			GR-F2			GR-F3			GR-F4			GR-G1		
								Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA	Value (Q)	RA	SA
Sodium	MG/KG	54.7	63%		0	26	41	36.3 J		41.9 J	35.2 J	45.3 J	40.3 J	39.1 J											
Thallium	MG/KG	0	0%		0	0	41	0.74 U	0.44 U	0.38 U	1.2 U	2 U	0.76 U												
Vanadium	MG/KG	33.5	100%		0	41	41	29.9	26.3	27	29.4	30.5	25.2												
Zinc	MG/KG	110	100%	109	1	41	41	74	94.9	78.1	77	58.7	75.2												
Other Analyses																									
Nitrate Nitrogen	MG/KG	9.52	59%		0	24	41	7.36	7.99	6.66 U	9.27	6.87 U	6.68 U												
Percent Solids	%	79.3	100%		0	41	41	76.1	66.3	75.1	71.2	72.8	74.8												

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives.  
[http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)  
 (2) Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
 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 analytical result was rejected during data validation.

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR-G2 SOIL	GR-G2 SOIL	GR-G3-A SOIL	GR-G3-B SOIL	GR-G4-A SOIL	GR-G4-B SOIL
Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,1-Dichloroethene	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,2-Dibromo-3-chloropropane	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,2-Dichloroethane	UG/KG	0	0%	20	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,2-Dichloropropane	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Acetone	UG/KG	290	98%	50	31	40	41	290 J	75 J	200 J	160 J	150 J	130 J
Benzene	UG/KG	0	0%	60	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Bromochloromethane	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Bromoforn	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Carbon disulfide	UG/KG	0	0%		0	0	41	15 U	14 U	16 U	17 U	13 U	14 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Chlorodibromomethane	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Chloroethane	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Chloroform	UG/KG	0	0%	370	0	0	41	15 U	14 U	16 U	17 U	13 U	14 U
Cis-1,2-Dichloroethene	UG/KG	0	0%	250	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Cyclohexane	UG/KG	1.5	2%		0	1	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Dichlorodifluoromethane	UG/KG	0	0%	1000	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Ethyl benzene	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Isopropylbenzene	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Metha Para Xylene	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Methyl Acetate	UG/KG	1.1	2%		0	1	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Methyl Terbutyl Ether	UG/KG	0	0%	930	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Methyl bromide	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Methyl butyl ketone	UG/KG	8.1	2%		0	1	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Methyl chloride	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Methyl cyclohexane	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Methyl ethyl ketone	UG/KG	63	90%	120	0	37	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Methyl isobutyl ketone	UG/KG	4.6	73%	50	0	30	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Methylene chloride	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Ortho Xylene	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Styrene	UG/KG	2.4	10%	1300	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Tetrachloroethene	UG/KG	8.7	27%	700	0	11	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Toluene	UG/KG	0	0%	190	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Trans-1,2-Dichloroethene	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Trans-1,3-Dichloropropene	UG/KG	0	0%	470	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Trichloroethane	UG/KG	0	0%	20	0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Trichlorofluoromethane	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
Vinyl chloride	UG/KG	0	0%		0	0	41	7.6 U	7.2 U	8.2 U	8.4 U	6.7 U	6.9 U
<b>Semivolatile Organic Compounds</b>													
1,1'-Biphenyl	UG/KG	0	0%		0	0	41	450 U	450 U	470 U	480 U	440 U	450 U
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	41	450 U	450 U	470 U	480 U	440 U	450 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	41	450 U	450 U	470 U	480 U	440 U	450 U
2,4-Dichlorophenol	UG/KG	0	0%		0	0	41	450 U	450 U	470 U	480 U	440 U	450 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	41	450 U	450 U	470 U	480 U	440 U	450 U
2,4-Dinitrophenol	UG/KG	430	2%		0	1	41	430 J	450 U	470 U	480 U	440 U	450 U
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	41	450 U	450 U	470 U	480 U	440 U	450 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	450 U	450 U	470 U	480 U	440 U	450 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	41	450 U	450 U	470 U	480 U	440 U	450 U
2-Chlorophenol	UG/KG	0	0%		0	0	41	450 U	450 U	470 U	480 U	440 U	450 U



TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	GR G2		GR G3-A		GR G3-B		GR G4-A		GR G4-B	
								Value (Q)	Value (O)	Value (Q)	Value (O)	Value (Q)	Value (O)	Value (Q)	Value (O)	Value (Q)	Value (O)
2-Nitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
2-amino-4,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
3-Nitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
4-Nitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
4-amino-2,6-Dinitrotoluene	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
HMX	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Nitrobenzene	UG/KG	0	0%		0	0	41	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
Nitroglycerine	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Pentaerythritol Tetramitrate	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
RDX	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
Tetryl	UG/KG	0	0%		0	0	41	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
<b>PCBs</b>																	
Aroclor-1016	UG/KG	0	0%		0	0	41	45 U	45 U	47 U	47 U	48 U	48 U	44 U	44 U	45 U	45 U
Aroclor-1221	UG/KG	0	0%		0	0	41	91 U	91 U	96 U	96 U	98 U	98 U	90 U	90 U	92 U	92 U
Aroclor-1232	UG/KG	0	0%		0	0	41	45 U	45 U	47 U	47 U	48 U	48 U	44 U	44 U	45 U	45 U
Aroclor-1242	UG/KG	0	0%		0	0	41	45 U	45 U	47 U	47 U	48 U	48 U	44 U	44 U	45 U	45 U
Aroclor-1248	UG/KG	0	0%		0	0	41	45 U	45 U	47 U	47 U	48 U	48 U	44 U	44 U	45 U	45 U
Aroclor-1254	UG/KG	0	0%		0	0	41	45 U	45 U	47 U	47 U	48 U	48 U	44 U	44 U	45 U	45 U
Aroclor-1260	UG/KG	0	0%		0	0	41	45 U	45 U	47 U	47 U	48 U	48 U	44 U	44 U	45 U	45 U
<b>Pesticides</b>																	
4,4'-DDD	UG/KG	0	0%	3.3	0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
4,4'-DDE	UG/KG	0	0%	3.3	0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
4,4'-DDT	UG/KG	0	0%	3.3	0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
Aldrin	UG/KG	0	0%	5	0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Alpha-BHC	UG/KG	0	0%	20	0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Alpha-Chlordane	UG/KG	0	0%	94	0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Beta-BHC	UG/KG	0	0%	36	0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Delta-BHC	UG/KG	0	0%	40	0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Dieldrin	UG/KG	0	0%	5	0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
Endosulfan I	UG/KG	0	0%	2400	0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Endosulfan II	UG/KG	0	0%	2400	0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
Endrin	UG/KG	0	0%	14	0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
Endrin aldehyde	UG/KG	0	0%		0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
Endrin ketone	UG/KG	0	0%		0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
Gamma-Chlordane	UG/KG	0	0%		0	0	41	4.5 U	4.5 U	4.7 U	4.7 U	4.8 U	4.8 U	4.4 U	4.4 U	4.5 U	4.5 U
Heptachlor	UG/KG	0	0%		0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Heptachlor epoxide	UG/KG	0	0%	42	0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Methoxychlor	UG/KG	0	0%		0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
Toxaphene	UG/KG	0	0%		0	0	41	2.3 U	2.3 U	2.4 U	2.4 U	2.5 U	2.5 U	2.3 U	2.3 U	2.3 U	2.3 U
<b>Metals</b>																	
Aluminum	MG/KG	19600	100%		0	41	41	16400	15900	13200	16200	16200	16200	12200	14000	14000	14000
Antimony	MG/KG	0	0%		0	0	41	0.46 UJ	0.48 UJ	0.48 UJ	0.49 UJ	0.49 UJ	0.46 UJ	0.46 UJ	0.46 UJ	0.46 UJ	0.46 UJ
Arsenic	MG/KG	9.3	100%	13	0	41	41	3.6	3.3	3.3	2.8	2.8	3.2	2.8	3	3	3
Barium	MG/KG	180	100%	350	0	41	41	86	84.6	97.6	180	180	84.5	88.2	88.2	88.2	88.2
Beryllium	MG/KG	1.1	98%	7.2	0	40	41	0.76 J	0.75 J	0.76 J	0.75 J	0.75 J	0.58 J	0.69 J	0.55 J	0.69 J	0.55 J
Cadmium	MG/KG	0.25	59%	2.5	0	24	41	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
Calcium	MG/KG	11100	100%		0	41	41	2090	2250	3120	4420	4420	2370	3020	3020	3020	3020
Chromium	MG/KG	27.7	100%		0	41	41	24.4	23.9	16.7	23.1	23.1	15.9	20.2	20.2	20.2	20.2
Cobalt	MG/KG	23.5	100%		0	41	41	13.9	13.7	5 J	9.4	9.4	10.5	8.6	8.6	8.6	8.6
Copper	MG/KG	22.2	100%	50	0	41	41	21.4	21	12.1	20.8	20.8	11.8	15.9	15.9	15.9	15.9
Iron	MG/KG	32300	100%		0	41	41	24100	23800	15900	22400	22400	16400	20900	20900	20900	20900
Lead	MG/KG	38.5	100%	63	0	41	41	27	26.3	18.2	38.5	38.5	17.1	20	20	20	20
Magnesium	MG/KG	5210	100%		0	41	41	4380	4300	2940	3940	3940	2790	3700	3700	3700	3700
Manganese	MG/KG	1880	100%	1600	1	41	41	606	605	133	564	564	563	269	269	269	269
Mercury	MG/KG	0.08	100%	0.18	0	41	41	0.05	0.04 J	0.05	0.08	0.08	0.04	0.05	0.05	0.05	0.05
Nickel	MG/KG	31.1	100%	30	2	41	41	31.1	30.5	13.9	24.9	24.9	14.7	21.7	21.7	21.7	21.7
Potassium	MG/KG	2370	100%		0	41	41	2030	1970	1230	1900	1900	1090	1500	1500	1500	1500
Selenium	MG/KG	4.4	100%	3.9	2	41	41	2 J	1.6 J	1.4 J	2.2 J	2.2 J	1.4 J	1.8 J	1.8 J	1.8 J	1.8 J
Silver	MG/KG	0	0%	2	0	0	41	0.15 U	0.16 U	0.15 U	0.16 U	0.16 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U

TABLE 1  
SEAD-007-R-001 (Grenade Range) SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

SITE LOCATION	GR	GR	GR	GR	GR	GR	GR	GR	GR
LOCATION ID	GR-G2	GR-G2	GR-G2	GR-G3-A	GR-G3-B	GR-G4-A	GR-G4-B	GR-G4-A	GR-G4-B
MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMPLE ID	007R011041	007R011037	007R011038	007R011039	007R011040	007R011042	007R011042	007R011040	007R011042
TOP OF SAMPLE	0	0	0	0	0	0	0	0	0
BOTTOM OF SAMPLE	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
SAMPLE DATE	12/13/06	12/13/06	12/13/06	12/13/06	12/13/06	12/13/06	12/13/06	12/13/06	12/13/06
QC CODE	DU	SA	SA	SA	SA	SA	SA	SA	SA
STUDY ID	RA	RA	RA	RA	RA	RA	RA	RA	RA
Parameter	Units	Maximum Concentration	Frequency of Detection	NYSDEC Unrestricted Use Value (1)	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed (2)	Value (Q)	Value (Q)
Sodium	MG/KG	54.7	61%		0	26	41	32.2 J	46.9 J
Thallium	MG/KG	0	0%		0	0	41	0.77 U	0.4 U
Vanadium	MG/KG	33.5	100%		0	41	41	27.3	24
Zinc	MG/KG	110	100%	109	1	41	41	93	55.4
<b>Other Analytes</b>									
Nitrate Nitrogen	MG/KG	9.52	59%		0	24	41	8.83	8.88
Percent Solids	%	79.3	100%		0	41	41	73.6	69.8
								32.7 J	54.7 J
								46.9 J	1.2 U
								0.4 U	29.2
								26.5	109
								92.8	9.52
								8.34	68.3
								73.1	74.7
								35.6 J	8.08
								1.1 U	73
								0.38 U	
								24.8	
								64.5	

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)  
 (2) Sample-duplicate pairs were averaged and the average results were used in the summary statistics presented in this table.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.



TABLE 2  
 OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-007-R-01 (Grenade Range) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Scenario Time Frame: Current/Future  
 Medium: Soil  
 Exposure Medium: Soil  
 Exposure Point: Grenade Range

CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (mg/kg)	Q	Maximum Detected Concentration <sup>1</sup> (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (mg/kg)	Concentration Used for Screening <sup>2</sup> (mg/kg)	Background Value <sup>3</sup> (mg/kg)	Screening Value <sup>4</sup> (mg/kg)	Potential ARAR/TBC Source	ARAR/TBC Value <sup>5</sup> (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>6</sup>
<b>VOC</b>															
67-64-1	Acetone	0.012	J	0.29	J	GR-G2	41 / 42	0.0296 - 0.0296	0.29		6,100	NYSDEC Subpart 375-6	0.05	NO	BSL
110-82-7	Cyclohexane	0.0015	J	0.0015	J	GR-A2-B	1 / 42	0.0059 - 0.014	0.0015		720			NO	BSL
79-20-9	Methyl Acetate	0.011	J	0.011	J	GR-E4	1 / 42	0.012 - 0.028	0.011		7,800			NO	BSL
96-33-3	Methyl butyl ketone	0.0081	J	0.0081	J	GR-F1	1 / 42	0.013 - 0.019	0.0081		230			NO	BSL
78-91-3	Methyl ethyl ketone	0.0021	J	0.063	J	GR-F1	38 / 42	0.0067 - 0.01	0.0063		2,800	NYSDEC Subpart 375-6	0.12	NO	BSL
75-09-2	Methylene chloride	0.0092	J	0.0046	J	GR-B4-A	31 / 42	0.0059 - 0.014	0.0046		11	NYSDEC Subpart 375-6	0.05	NO	BSL
127-18-4	Tetrachloroethene	0.00055	J	0.0024	J	GR-E1	4 / 42	0.0059 - 0.014	0.0024		0.57	NYSDEC Subpart 375-6	1.3	NO	BSL
108-88-3	Toluene	0.00054	J	0.0087	J	GR-F4	11 / 42	0.0059 - 0.014	0.0087		500	NYSDEC Subpart 375-6	0.7	NO	BSL
<b>SVOCs</b>															
121-14-2	2,4-Dinitrotoluene	0.43	J	0.43	J	GR-G2	1 / 42	0.42 - 0.51	0.43		1.6			NO	BSL
100-52-7	Benzaldehyde	0.42	J	0.42	J	GR-G3-A	1 / 42	0.42 - 0.51	0.42		780			NO	BSL
<b>METALS</b>															
7429-90-5	Aluminum	10,500	J	19,600	J	GR-B4-A	42 / 42	0 - 0	19,600	20,500	7,700	NYSDEC Subpart 375-6	13	YES	ASL
7440-38-2	Arsenic	2.4	J	9.3	J	GR-A4-A	42 / 42	0 - 0	9.3	21.5	0.39	NYSDEC Subpart 375-6	13	YES	ASL
7440-39-3	Barium	60.5	J	180	J	GR-G3-B	42 / 42	0 - 0	180	159	1,500	NYSDEC Subpart 375-6	350	NO	BSL
7440-41-7	Beryllium	0.45	J	1.1	J	GR-E3	41 / 42	0.02 - 0.02	1.1	1.4	16	NYSDEC Subpart 375-6	7.2	NO	BSL
7440-43-9	Cadmium	0.04	J	0.25	J	GR-E2-B	24 / 42	0.04 - 0.05	0.25	2.9	7	NYSDEC Subpart 375-6	2.5	NO	BSL
7440-70-2	Calcium	1,480	J	11,100	J	GR-C1	42 / 42	0 - 0	11,100	293,000				NO	BSL
7440-47-3	Chromium	13.7	J	27.7	J	GR-A2-B	42 / 42	0 - 0	27.7	32.7	280			NO	BSL
7440-48-4	Cobalt	5	J	23.5	J	GR-A2-B	42 / 42	0 - 0	23.5	29.1	2.3			NO	BSL
7440-50-8	Copper	11.6	J	23.1	J	GR-D3-A	42 / 42	0 - 0	23.1	62.8	310	NYSDEC Subpart 375-6	50	YES	ASL
7439-89-6	Iron	13,700	J	32,300	J	GR-A2-B	42 / 42	0 - 0	32,300	38,600	5,500			YES	ASL
7439-92-1	Lead	13.6	J	38.5	J	GR-G3-B	42 / 42	0 - 0	38.5	266	40			NO	BSL
7439-95-4	Magnesium	2,370	J	5,230	J	GR-C1	42 / 42	0 - 0	5,230	29,100				NO	BSL
7439-96-5	Manganese	133	J	1,880	J	GR-A2-B	42 / 42	0 - 0	1,880	2,380	180	NYSDEC Subpart 375-6	1,600	YES	ASL
7439-97-6	Mercury	0.04	J	0.08	J	GR-A4-B	42 / 42	0 - 0	0.08	0.13	0.43			NO	BSL
7440-02-0	Nickel	11.6	J	31.9	J	GR-D3-A	42 / 42	0 - 0	31.9	62.3	150	NYSDEC Subpart 375-6	0.18	NO	BSL
7440-09-7	Potassium	962	J	2370	J	GR-E3	42 / 42	0 - 0	2370	3,160				NO	BSL
7782-49-2	Selenium	1.3	J	4.4	J	GR-D4-B	42 / 42	0 - 0	4.4	1.7	39	NYSDEC Subpart 375-6	3.9	NO	BSL
122-34-9	Sodium	32.2	J	54.7	J	GR-G3-B	27 / 42	125 - 153	54.7	269	4			YES	NUT
7440-62-2	Vanadium	20.5	J	33.5	J	GR-A2-B	42 / 42	0 - 0	33.5	32.7	55			NO	BSL
7440-66-6	Zinc	51	J	110	J	GR-E3	42 / 42	0 - 0	110	126	2,300	NYSDEC Subpart 375-6	109	NO	BSL

Notes:  
 1. Field duplicate pairs were averaged as a discrete sample. Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.  
 2. The maximum detected concentration was used for screening.  
 3. Background value is the maximum Seneca background concentration.  
 4. EPA Regional Screening Levels for residential soil. On-line resources available at <http://www.epa.gov/region9/superfund/prg/index.html>. Last updated April 2009.  
 Region 9 PRGs were derived based on Direct contact exposure (ingestion and dermal contact) and a target Cancer Risk of 1E-6 or a Target Hazard Quotient of 0.1.  
 Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (1500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day for sodium and potassium) from Martlyn Wright (2001) Dietary Reference Intakes.  
 PRG for total chromium (1:6 ratio Cr:V:Cr:III) was used as screening value for chromium.  
 PRG for nickel (soluble salts) was used as screening value for nickel.  
 5. Potential ARAR/TBC values are from NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)  
 6. Rationale codes

Selection Reason:  
 Deletion Reason:  
 COPC = Chemical of Potential Concern  
 ARAR/TBC = Applicable or Relevant and Appropriate Requirement To Be Considered  
 Q = Qualifier  
 J = Estimated Value

Definitions:  
 Above Screening Levels (ASL)  
 Chemicals in the Same Group were retained as COPC (CSG)  
 Essential Nutrient (NUT)  
 Below Screening Level (BSL)



TABLE 3A  
 SOIL EXPOSURE POINT CONCENTRATION SUMMARY FOR SEAD-007-R-01 (Grenade Range)  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	Grenade Range

CAS #	Chemical of Potential Concern	Units	Arithmetic Mean (1)	EPA ProUCL Student-t 95th UCL Value (1, 2)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)		Medium EPC Rationale
								EPA ProUCL Recommended UCL Value	Medium EPC Statistic	
7429-90-5	Aluminum	mg/kg	15,358	15,771	19,600		mg/kg	15,771	95% Student's-t UCL	Normal
7440-38-2	Arsenic	mg/kg	3.66	3.94	9.3		mg/kg	3.94	95% Student's-t UCL	Normal
7440-48-4	Cobalt	mg/kg	10.28	11.07	23.5		mg/kg	11.07	95% Approximate Gamma	Gamma
7439-89-6	Iron	mg/kg	22,314	23,107	32,300		mg/kg	23,107	95% Student's-t UCL	Normal
7439-96-5	Manganese	mg/kg	551.20	631.6	1,880		mg/kg	631.6	95% Approximate Gamma	Gamma

Notes:

- Field duplicates were not averaged and presented as discreet samples. Laboratory duplicates were not included in the assessment. Non-detects were included in the dataset and 95% UCL analysis was performed as 'With ND' in ProUCL.
- The EPCs were calculated using the ProUCL (Version 4.00.02) and the EPCs were selected in accordance with the ProUCL Version 4.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).

Q - qualifier

J = Estimated Value

KM = Kaplan-Meier statistical method



TABLE 3B  
 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR PARK  
 WORKERS, VISITORS, & RESIDENTS AT SEAD-007-R-01 (Grenade Range)  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-007-R-01-(Grenade Range)

Equation for Air EPC from Surface Soil (mg/m <sup>3</sup> ) =	CSsurf x PM10 x CF
Variables:	
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)	
PM10 = Average Measured PM10 Concentration = 41.18 ug/m <sup>3</sup>	
CF = Conversion Factor = 1E-9 kg/ug	

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m <sup>3</sup> )
Aluminum	1.6E+04	6.5E-04
Arsenic	3.9E+00	1.6E-07
Cobalt	1.1E+01	4.6E-07
Iron	2.3E+04	9.5E-04
Manganese	6.3E+02	2.6E-05

TABLE 3C  
 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR  
 CONSTRUCTION WORKER AT SEAD-007-R-01 (Grenade Range)  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-007-R-01-(Grenade Range)

Equation for Air EPC from Total Soils (mg/m <sup>3</sup> ) = CStot x PM10 x CF
Variables:
CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)
PM10 = PM10 Concentration Calculated for Construction Worker= 357 ug/m <sup>3</sup>
CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m <sup>3</sup> )
Aluminum	1.6E+04	6.5E-04
Arsenic	3.9E+00	1.6E-07
Cobalt	1.1E+01	4.6E-07
Iron	2.3E+04	9.5E-04
Manganese	6.3E+02	2.6E-05

TABLE 4  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-007-R-01 (Grenade Range)  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 B = Bioavailability  
 BW = Bodyweight  
 AT = Averaging Time  
 EF = Exposure Frequency  
 ED = Exposure Duration

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor											
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk						
					(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)								
Aluminum	1.00E+00	N/A	1	1.6E+04	1.08E-02	1E-02	1E-02	5.09E-02	1.82E-07	5E-02	8.07E-03	8E-03	8E-03	2E-07								
Arsenic	3.00E-04	1.5E+00	1	3.9E+00	2.70E-06	9E-03	3E-02	1.27E-05	1.82E-07	4E-02	2.01E-06	7E-03	7E-03	2E-07								
Cobalt	3.00E-04	N/A	1	1.1E+01	7.58E-06	3E-02	5E-02	3.57E-05	1.82E-07	1E-01	5.66E-06	2E-02	2E-02	2E-07								
Iron	3.00E-01	N/A	1	2.3E+04	1.58E-02	5E-02	2E-02	7.46E-02	1.82E-07	2E-01	1.18E-02	4E-02	4E-02	2E-07								
Manganese	2.40E-02	N/A	1	6.3E+02	4.33E-04	2E-02	2E-02	2.04E-03	1.82E-07	8E-02	3.23E-04	1E-02	1E-02	2E-07								
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>1E-01</b>	<b>1E-01</b>	<b>1E-06</b>	<b>5E-01</b>	<b>3E-07</b>	<b>9E-02</b>	<b>9E-02</b>	<b>9E-02</b>	<b>2E-07</b>	<b>2E-07</b>								
					Assumptions for Park Worker			Assumptions for Construction Worker			Assumptions for Recreational Child Visitor											
					CF = 1E-06 kg/mg	EPC = EPC Surface Only	BW = 70 kg	IR = 100 mg/day	FI = 1 unitless	EF = 175 days/year	ED = 25 years	AT (Nc) = 9,125 days	AT (Car) = 25,550 days	CF = 1E-06 kg/mg	EPC = EPC Surface and Subsurface	BW = 70 kg	IR = 330 mg/day	FI = 1 unitless	EF = 250 days/year	ED = 1 years	AT (Nc) = 365 days	AT (Car) = 25,550 days
					EPC = EPC Surface Only	BW = 70 kg	IR = 100 mg/day	FI = 1 unitless	EF = 175 days/year	ED = 25 years	AT (Nc) = 9,125 days	AT (Car) = 25,550 days	CF = 1E-06 kg/mg	EPC = EPC Surface Only	BW = 15 kg	IR = 200 mg/day	FI = 1 unitless	EF = 14 days/year	ED = 5 years	AT (Nc) = 1,825 days	AT (Car) = 25,550 days	

TABLE 4  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-007-R-01 (Grenade Range)  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk
					Intake (mg/kg-day) (Nc) (Car)	Hazard Quotient (Cancer Risk)	Intake (mg/kg-day) (Nc) (Car)	Hazard Quotient (Cancer Risk)	
Aluminum	1.00E+00	N/A	1	1.6E+04	2.16E-02	2E-02	2.02E-01	2.0E-01	9E-06
Arsenic	3.00E-04	1.5E+00	1	3.9E+00	5.39E-06	2E-02	5.03E-05	1.7E-01	
Cobalt	3.00E-04	N/A	1	1.1E+01	1.52E-05	5E-02	1.42E-04	4.7E-01	
Iron	3.00E-01	N/A	1	2.3E+04	3.17E-02	1E-01	2.95E-01	9.8E-01	
Manganese	2.40E-02	N/A	1	6.3E+02	8.65E-04	4E-02	8.08E-03	3.4E-01	
<b>Total Hazard Quotient and Cancer Risk:</b>						<b>2E-01</b>		<b>2E+00</b>	<b>6E-06</b>
					Assumptions for Resident (Adult)				
					CF =	1E-06 kg/mg	Assumptions for Resident (Child)		
					EPC =	EPC Surface Only	EPC Surface Only		
					BW =	70 kg	15 kg		
					IR =	100 mg/day	200 mg/day		
					FI =	1 unitless	1 unitless		
					EF =	350 days/year	350 days/year		
					ED =	24 years	6 years		
					AT (Nc) =	8,760 days	2,190 days		
					AT (Car) =	25,550 days	25,550 days		



TABLE 5  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-007-R-01 (Grenade Range) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{B \times W \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor  
 EV = Event Frequency  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RfD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day) <sup>-1</sup>	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor					
						Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk
						(Ne)	(Car)			(Ne)	(Car)			(Ne)	(Car)		
Aluminum	1.00E+00	N/A	1E-03	1.6E+04	1.6E+04	7.13E-05	1.91E-07	7E-05	1.53E-04	2E-04	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.26E-05	
Arsenic	3.00E-04	1.5E+00	3E-02	3.9E+00	3.9E+00	5.34E-07	1.91E-07	2E-03	1.14E-06	4E-03	1.69E-07	1.69E-07	1.69E-07	1.69E-07	1.69E-07	1.69E-07	
Cobalt	3.00E-04	N/A	1E-03	1.1E+01	1.1E+01	5.00E-08	2E-04	2E-04	1.07E-07	4E-04	1.59E-08	1.59E-08	1.59E-08	1.59E-08	1.59E-08	1.59E-08	
Iron	3.00E-01	N/A	1E-03	2.3E+04	2.3E+04	1.04E-04	3E-04	3E-04	2.24E-04	7E-04	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	3.31E-05	
Manganese	9.60E-04	N/A	1E-03	6.3E+02	6.3E+02	2.86E-06	3E-03	3E-03	6.12E-06	6E-03	9.04E-07	9.04E-07	9.04E-07	9.04E-07	9.04E-07	9.04E-07	
<b>Total Hazard Quotient and Cancer Risk:</b>							<b>5E-03</b>	<b>3E-07</b>		<b>1E-02</b>	<b>2E-08</b>		<b>2E-03</b>	<b>2E-08</b>		<b>2E-08</b>	
						<b>Assumptions for Park Worker</b>			<b>Assumptions for Construction Worker</b>			<b>Assumptions for Recreational Child Visitor</b>					
						CF = 1E-06 kg/mg	EPC = 1E-06 kg/mg	CF = 1E-06 kg/mg	EPC = 1E-06 kg/mg	CF = 1E-06 kg/mg	EPC = 1E-06 kg/mg	CF = 1E-06 kg/mg	EPC = 1E-06 kg/mg	CF = 1E-06 kg/mg	EPC = 1E-06 kg/mg	CF = 1E-06 kg/mg	EPC = 1E-06 kg/mg
						CS = EPC Surface Only	EPC = EPC Surface and Subsurface	CS = EPC Surface Only	EPC = EPC Surface and Subsurface	CS = EPC Surface Only	EPC = EPC Surface and Subsurface	CS = EPC Surface Only	EPC = EPC Surface and Subsurface	CS = EPC Surface Only	EPC = EPC Surface and Subsurface	CS = EPC Surface Only	EPC = EPC Surface and Subsurface
						BW = 70 kg	70 kg	BW = 70 kg	70 kg	BW = 70 kg	70 kg	BW = 70 kg	70 kg	BW = 70 kg	70 kg	BW = 70 kg	70 kg
						SA = 3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	SA = 3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	SA = 3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	SA = 3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	SA = 3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>	SA = 3,300 cm <sup>2</sup>	3,300 cm <sup>2</sup>
						AF = 0.2 mg/cm <sup>2</sup> -event	0.2 mg/cm <sup>2</sup> -event	AF = 0.2 mg/cm <sup>2</sup> -event	0.3 mg/cm <sup>2</sup> -event	AF = 0.2 mg/cm <sup>2</sup> -event	0.3 mg/cm <sup>2</sup> -event	AF = 0.2 mg/cm <sup>2</sup> -event	0.3 mg/cm <sup>2</sup> -event	AF = 0.2 mg/cm <sup>2</sup> -event	0.3 mg/cm <sup>2</sup> -event	AF = 0.2 mg/cm <sup>2</sup> -event	0.3 mg/cm <sup>2</sup> -event
						EV = 1 event/day	1 event/day	EV = 1 event/day	1 event/day	EV = 1 event/day	1 event/day	EV = 1 event/day	1 event/day	EV = 1 event/day	1 event/day	EV = 1 event/day	1 event/day
						EF = 175 days/year	175 days/year	EF = 175 days/year	250 days/year	EF = 175 days/year	250 days/year	EF = 175 days/year	250 days/year	EF = 175 days/year	250 days/year	EF = 175 days/year	250 days/year
						ED = 25 years	25 years	ED = 25 years	1 years	ED = 25 years	1 years	ED = 25 years	1 years	ED = 25 years	1 years	ED = 25 years	1 years
						AT (Ne) = 9,125 days	9,125 days	AT (Ne) = 9,125 days	365 days	AT (Ne) = 9,125 days	365 days	AT (Ne) = 9,125 days	365 days	AT (Ne) = 9,125 days	365 days	AT (Ne) = 9,125 days	365 days
						AT (Car) = 25,550 days	25,550 days	AT (Car) = 25,550 days	25,550 days	AT (Car) = 25,550 days	25,550 days	AT (Car) = 25,550 days	25,550 days	AT (Car) = 25,550 days	25,550 days	AT (Car) = 25,550 days	25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA= Information not available.  
 \* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).  
 Absorption factor for VOC was assumed to be 0.01 and metals not presented in the EPA (2004) document, assumed to be 0.001 in accordance with the USEPA Region 4 (2000) document.  
 Supplemental Guidance to RAGS, Region 4 Bulletins, Human Health Risk Assessment Bulletins (<http://www.epa.gov/region4/waste/ots/healthbul.htm>)  
 Absorption factor for pesticides was assumed to be 0.037 in accordance with the average absorption factor of chlordane (0.03), DDT (0.04), and lindane (0.04) in accordance with USEPA Region 4 (2000).

TABLE 5  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-007-R-01 (Grenade Range) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{B \times W \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor  
 EV = Event Frequency  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Resident (Adult)			Resident (Child)			Resident Total Lifetime Cancer Risk	
						Absorbed Dose (mg/kg-day)		Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient		Cancer Risk
						(Ne)	(Car)		(Ne)	(Car)			
Aluminum	1.00E+00	N/A	1E-03	1.6E+04	1.6E+04	8.62E-05	2.21E-07	9E-05	5.65E-04	3.63E-07	5.65E-04	9E-07	
Arsenic	3.00E-04	1.5E+00	3E-02	3.9E+00	3.9E+00	6.46E-07	2.21E-07	2E-03	4.23E-06	3.63E-07	1.41E-02	5.44E-07	
Cobalt	3.00E-04	N/A	1E-03	1.1E+01	1.1E+01	6.05E-08	2E-04	2E-04	3.96E-07	2.76E-03	1.32E-03		
Iron	3.00E-01	N/A	1E-03	2.3E+04	2.3E+04	1.26E-04	3.45E-06	4E-04	8.27E-04	2.76E-03	2.76E-03		
Manganese	9.60E-04	N/A	1E-03	6.3E+02	6.3E+02	3.45E-06	3.45E-06	4E-03	2.26E-05	2.36E-02	2.36E-02		
<b>Total Hazard Quotient and Cancer Risk:</b>								<b>6E-03</b>			<b>4E-02</b>	<b>9E-07</b>	
						Assumptions for Resident (Adult)			Assumptions for Resident (Child)				
						CF =	1E-06 kg/mg		CF =	1E-06 kg/mg			
						EPC =	EPC Surface Only		EPC =	EPC Surface Only			
						BW =	70 kg		BW =	15 kg			
						SA =	5,700 cm <sup>2</sup>		SA =	2,800 cm <sup>2</sup>			
						AF =	0.07 mg/cm <sup>2</sup> -event		AF =	0.2 mg/cm <sup>2</sup> -event			
						EV =	1 event/day		EV =	1 event/day			
						EF =	350 days/year		EF =	350 days/year			
						ED =	24 years		ED =	6 years			
						AT (Ne) =	8,760 days		AT (Ne) =	2,190 days			
						AT (Car) =	25,550 days		AT (Car) =	25,550 days			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

\* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

Absorption factor for VOC was assumed to be 0.01, and metals not presented in the EPA (2004) document,

assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins

(<http://www.epa.gov/region4/waste/ohs/healthbul.htm>).

Absorption factor for pesticides was assumed to be 0.037 in accordance with the average absorption factor of chlordane (0.03), DDT (0.04), and lindane (0.04) in accordance with USEPA Region 4 (2000).

TABLE 6  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-007-R-01 (Grenade Range) SOIL  
 SENECA ARMY DEPOT ACTIVITY

$$\text{Equation for Intake (mg/kg-day)} = \frac{\text{EPC} \times \text{IR} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}}$$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = EPC in Air, mg/m<sup>3</sup>  
 IR = Inhalation Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

$$\text{Equation for Hazard Quotient} = \text{Chronic Daily Intake (Nc)/Reference Dose}$$

$$\text{Equation for Cancer Risk} = \text{Chronic Daily Intake (Car)} \times \text{Slope Factor}$$

Analyte	Inhalation RFD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Air EPC from Surface Soil (mg/m <sup>3</sup> )	Air EPC from Total Soils (mg/m <sup>3</sup> )	Park Worker			Construction Worker			Recreational Child Visitor					
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
					(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Aluminum	1.43E-03	N/A	6.5E-04	6.5E-04	3.56E-05	3.17E-09	2E-02	6.61E-05	2.36E-10	5E-02	1.44E-05	2.58E-10	1E-02	4E-09		
Arsenic	N/A	1.51E+01	1.6E-07	1.6E-07	2.50E-08	8.92E-09	1E-02	4.64E-08	6.63E-10	3E-02	1.01E-08	7.24E-10	6E-03	2E-08		
Cobalt	1.71E-06	3.15E+01	4.6E-07	4.6E-07												
Iron	N/A	N/A	9.5E-04	9.5E-04	1.43E-06		1E-01	2.65E-06		2E-01	5.79E-07		4E-02			
Manganese	1.43E-05	N/A	2.6E-05	2.6E-05												
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>Assumptions for Park Worker</b>			<b>Assumptions for Construction Worker</b>			<b>Assumptions for Recreational Child Visitor</b>					
					CA = EPC Surface Only	CA = EPC Surface and Sub-Surface	CA = EPC Surface Only	CA = EPC Surface Only	CA = EPC Surface and Sub-Surface	CA = EPC Surface Only	CA = EPC Surface Only	CA = EPC Surface Only	CA = EPC Surface Only	CA = EPC Surface Only	CA = EPC Surface Only	
					BW = 70 kg	BW = 70 kg	BW = 70 kg	BW = 15 kg	BW = 70 kg	BW = 15 kg	BW = 15 kg	BW = 15 kg	BW = 15 kg	BW = 15 kg	BW = 15 kg	
					IR = 8 m <sup>3</sup> /day	IR = 10.4 m <sup>3</sup> /day	IR = 8 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day	IR = 10.4 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day	
					EF = 175 days/year	EF = 250 days/year	EF = 175 days/year	EF = 14 days/year	EF = 250 days/year	EF = 14 days/year	EF = 14 days/year	EF = 14 days/year	EF = 14 days/year	EF = 14 days/year	EF = 14 days/year	
					ED = 25 years	ED = 1 year	ED = 25 years	ED = 5 years	ED = 1 year	ED = 5 years	ED = 5 years	ED = 5 years	ED = 5 years	ED = 5 years	ED = 5 years	
					AT (Nc) = 9,125 days	AT (Nc) = 365 days	AT (Nc) = 9,125 days	AT (Nc) = 1,825 days	AT (Nc) = 365 days	AT (Nc) = 1,825 days	AT (Nc) = 1,825 days	AT (Nc) = 1,825 days	AT (Nc) = 1,825 days	AT (Nc) = 1,825 days	AT (Nc) = 1,825 days	
					AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA = Information not available.

TABLE 6  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-007-R-01 (Grenade Range) SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{CA \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 CA = Chemical Concentration in Air from Stockpile Soil, mg/m<sup>3</sup>  
 IR = Inhalation Rate, m<sup>3</sup>/day  
 EF = Exposure Frequency, day/year  
 ED = Exposure Duration, year  
 BW = Bodyweight, kg  
 AT = Averaging Time, day

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	Air EPC (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Resident Total Lifetime Cancer Risk	
				Intake (mg/kg-day)		Intake (mg/kg-day)			Contribution to Lifetime Cancer Risk
				(Nc)	(Car)	(Nc)	(Car)		
Aluminum	1.43E-03	N/A	6.5E-04	1.78E-04	3.61E-04	7.73E-09	3E-01	3E-07	
Arsenic	N/A	1.51E+01	1.6E-07	1.52E-08	2.54E-07	2.17E-08	1E-01	7E-07	
Cobalt	1.71E-06	3.15E+01	4.6E-07	4.28E-08	1.45E-05	1E+00	1E+00	2E-06	
Iron	N/A	N/A	9.5E-04	7.13E-06					
Manganese	1.43E-05	N/A	2.6E-05	5E-01	1.45E-05			2E-06	
<b>Total Hazard Quotient and Cancer Risk:</b>				<b>7E-01</b>		<b>1E+00</b>		<b>8E-07</b>	
				<b>Assumptions for Resident Adult</b>		<b>Assumptions for Resident Child</b>			
				CA = EPC Surface Only	CA = EPC Surface Only				
				BW = 70 kg	BW = 15 kg				
				IR = 20 m <sup>3</sup> /day	IR = 8.7 m <sup>3</sup> /day				
				EF = 350 days/year	EF = 350 days/year				
				ED = 24 years	ED = 6 years				
				AT (Nc) = 8,760 days	AT (Nc) = 2,190 days				
				AT (Car) = 25,550 days	AT (Car) = 25,550 days				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A= Information not available.

TABLE 7  
 CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-007-R-01 (Grenade Range)  
 REASONABLE MAXIMUM EXPOSURE (RME)  
 SENECA ARMY DEPOT ACTIVITY

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent	Cancer Risk	Percent
<u>PARK WORKER</u>	Inhalation of Dust in Ambient Air	1E-01	53%	3E-07	16%
	Ingestion of Soil	1E-01	44%	1E-06	70%
	Dermal Contact to Soil	5E-03	2%	3E-07	14%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>3E-01</i>	100%	<i>2E-06</i>	100%
<u>CONSTRUCTION WORKER</u>	Inhalation of Dust in Ambient Air	3E-01	32%	2E-08	8%
	Ingestion of Soil	5E-01	67%	3E-07	85%
	Dermal Contact to Soil	1E-02	1%	2E-08	8%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>8E-01</i>	100%	<i>3E-07</i>	100%
<u>RECREATIONAL CHILD VISITOR</u>	Inhalation of Dust in Ambient Air	6E-02	39%	3E-08	10%
	Ingestion of Soil	9E-02	60%	2E-07	83%
	Dermal Contact to Soil	2E-03	1%	2E-08	7%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>1E-01</i>	100%	<i>3E-07</i>	100%
<u>RESIDENT (ADULT)</u>	Inhalation of Dust in Ambient Air	7E-01	75%	2E-06	34%
	Ingestion of Soil	2E-01	25%	3E-06	59%
	Dermal Contact to Soil	6E-03	1%	3E-07	7%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>9E-01</i>	100%	<i>5E-06</i>	100%
<u>RESIDENT (CHILD)</u>	Inhalation of Dust in Ambient Air	1E+00	39%	8E-07	10%
	Ingestion of Soil	2E+00	60%	6E-06	83%
	Dermal Contact to Soil	4E-02	1%	5E-07	7%
	<i>TOTAL RECEPTOR RISK (Nc &amp; Car)</i>	<i>4E+00</i>	100%	<i>8E-06</i>	100%
<u>RESIDENT (TOTAL)</u>	Inhalation of Dust in Ambient Air			2E-06	19%
	Ingestion of Soil			9E-06	74%
	Dermal Contact to Soil			9E-07	7%
	<i>TOTAL RECEPTOR CANCER RISK</i>			<i>1E-05</i>	100%

NA - Not Applicable



**Attachment F**

**SEAD-70 – Building 2110 Filled Area**





TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 70EXFL10000		SEAD-70 70EXFL10002		SEAD-70 70EXFL10003		SEAD-70 70EXFL10004		SEAD-70 70EXFL10010		SEAD-70 70EXFL10017		SEAD-70 70EXFL10018		SEAD-70 70EXFL10019		SEAD-70 70EXFL10020				
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
<b>Volatile Organic Compounds</b>																												
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	11																					
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	11																					
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	11																					
1,1-Dichloroethane	UG/KG	0	0%	270	0	0	11																					
1,1-Dichloroethene	UG/KG	0	0%	330	0	0	11																					
1,2-Dichloroethane	UG/KG	0	0%	20	0	0	11																					
1,2-Dichloroethene (total)	UG/KG	0	0%	190	0	0	11																					
1,2-Dichloropropane	UG/KG	0	0%		0	0	11																					
Acetone	UG/KG	79	9%	50	1	1	11																					
Benzene	UG/KG	0	0%	60	0	0	11																					
Bromodichloromethane	UG/KG	0	0%		0	0	11																					
Bromoform	UG/KG	0	0%		0	0	11																					
Carbon disulfide	UG/KG	0	0%		0	0	11																					
Carbon tetrachloride	UG/KG	0	0%	760	0	0	11																					
Chlorobenzene	UG/KG	0	0%	1100	0	0	11																					
Chlorobromomethane	UG/KG	0	0%		0	0	11																					
Chloroethane	UG/KG	0	0%		0	0	11																					
Chloroform	UG/KG	0	0%	370	0	0	11																					
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	11																					
Ethyl benzene	UG/KG	0	0%	1000	0	0	11																					
Methyl bromide	UG/KG	0	0%		0	0	11																					
Methyl butyl ketone	UG/KG	0	0%		0	0	11																					
Methyl chloride	UG/KG	0	0%		0	0	11																					
Methyl ethyl ketone	UG/KG	36	9%	120	0	0	8																					
Methyl isobutyl ketone	UG/KG	0	0%		0	0	11																					
Methylene chloride	UG/KG	0	0%	50	0	0	11																					
Styrene	UG/KG	0	0%		0	0	11																					
Tetrachloroethane	UG/KG	0	0%	1300	0	0	11																					
Toluene	UG/KG	3	9%	700	0	1	11																					
Total Xylenes	UG/KG	0	0%	260	0	0	11																					
Trans-1,3-Dichloropropene	UG/KG	0	0%	470	0	0	11																					
Trichloroethene	UG/KG	0	0%		0	0	11																					
Vinyl chloride	UG/KG	0	0%	20	0	0	11																					
<b>Semivolatile Organic Compounds</b>																												
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	11																					
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	11																					
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	11																					
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	11																					
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0%		0	0	11																					
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	11																					
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	11																					
2,4-Dichlorophenol	UG/KG	0	0%		0	0	11																					
2,4-Dimethylphenol	UG/KG	0	0%		0	0	11																					
2,4-Dinitrophenol	UG/KG	0	0%		0	0	11																					
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	11																					
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	11																					
2-Chlorophenol	UG/KG	0	0%		0	0	11																					
2-Methylphenol	UG/KG	0	0%		0	0	11																					
2-Nitrophenol	UG/KG	0	0%	330	0	0	11																					
2-Nitroaniline	UG/KG	0	0%		0	0	11																					
3-Nitrophenol	UG/KG	0	0%		0	0	11																					
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	11																					
3-Nitroaniline	UG/KG	0	0%		0	0	11																					
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	11																					

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of		Criteria Value 1	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed 2	SEAD-70 70EXFL10000		SEAD-70 70EXFL10002		SEAD-70 70EXFL10003		SEAD-70 70EXFL10004		SEAD-70 70EXFL10010		SEAD-70 70EXFL10017		SEAD-70 70EXFL10018		SEAD-70 70EXFL10019		SEAD-70 70EXFL10020		
			Detection	0%					Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
4-Bromophenyl phenyl ether	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
4-Chloro-3-methylphenol	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
4-Chloroaniline	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
4-Chlorophenyl phenyl ether	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
4-Methylphenol	UG/KG	0	0%	0	330	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
4-Nitroaniline	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
4-Nitrophenol	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Acenaphthene	UG/KG	0	0%	0	20000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Acenaphthylene	UG/KG	0	0%	0	100000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Anthracene	UG/KG	0	0%	0	100000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Benzo(a)anthracene	UG/KG	0	0%	0	1000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Benzo(b)fluoranthene	UG/KG	0	0%	0	1000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Benzo(k)fluoranthene	UG/KG	0	0%	0	100000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Benzo(g)herylene	UG/KG	0	0%	0	800	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Bis(2-Chloroethoxy)methane	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Bis(2-Chloroethyl)ether	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Bis(2-Ethylhexyl)phthalate	UG/KG	610	100%	0	0	0	11	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Butylbenzylphthalate	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Carbazole	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Chrysene	UG/KG	0	0%	0	1000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Di-n-butylphthalate	UG/KG	51	55%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Di-n-octylphthalate	UG/KG	30	9%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Dibenz(a,h)anthracene	UG/KG	0	0%	0	330	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Dibenzofuran	UG/KG	0	0%	0	7000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Diethyl phthalate	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Dimethylphthalate	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Fluoranthene	UG/KG	0	0%	0	100000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Fluorene	UG/KG	0	0%	0	30000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Hexachlorobenzene	UG/KG	0	0%	0	330	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Hexachlorobutadiene	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Hexachlorocyclopentadiene	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Hexachloroethane	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Indeno(1,2,3-cd)pyrene	UG/KG	0	0%	0	500	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Isophorane	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
N-Nitrosodiphenylamine	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
N-Nitrosodipropylamine	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Naphthalene	UG/KG	0	0%	0	12000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Nitrobenzene	UG/KG	0	0%	0	0	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Pentachlorophenol	UG/KG	0	0%	0	800	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Phenanthrene	UG/KG	0	0%	0	100000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Phenol	UG/KG	0	0%	0	330	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Pyrene	UG/KG	0	0%	0	100000	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
<b>Pesticides and PCBs</b>																											
4,4'-DDD	UG/KG	0	0%	0	3.3	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
4,4'-DDE	UG/KG	0	0%	0	3.3	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
4,4'-DDT	UG/KG	0	0%	0	3.3	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Aldrin	UG/KG	0	0%	0	5	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Alpha-BHC	UG/KG	0	0%	0	20	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Alpha-Chlordane	UG/KG	0	0%	0	94	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Atoclor-1016	UG/KG	0	0%	0	100	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5
Atoclor-1121	UG/KG	0	0%	0	100	0	0	11	1	1.2	1	1.5	1	1	3	1	1	1	1	2	2	5	5	6.2	6.4	6.2	4.5

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 70EXFL10000		SEAD-70 70EXFL10003		SEAD-70 70EXFL10004		SEAD-70 70EXFL10010		SEAD-70 70EXFL10017		SEAD-70 70EXFL10018		SEAD-70 70EXFL10019		SEAD-70 70EXFL10020		
								Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value	Value
Aroclor-1232	UG/KG	0	0%	100	0	0	11																	
Aroclor-1242	UG/KG	0	0%	100	0	0	11																	
Aroclor-1248	UG/KG	0	0%	100	0	0	11																	
Aroclor-1254	UG/KG	0	0%	100	0	0	11																	
Aroclor-1260	UG/KG	0	0%	100	0	0	11																	
Beta-BHC	UG/KG	0	0%	36	0	0	11																	
Delta-BHC	UG/KG	0	0%	40	0	0	11																	
Dieldrin	UG/KG	0	0%	5	0	0	11																	
Endosulfan I	UG/KG	0	0%	2400	0	0	11																	
Endosulfan II	UG/KG	0	0%	2400	0	0	11																	
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	11																	
Endrin	UG/KG	0	0%	14	0	0	11																	
Endrin aldehyde	UG/KG	0	0%	14	0	0	11																	
Endrin ketone	UG/KG	0	0%	14	0	0	11																	
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	11																	
Gamma-Chlordane	UG/KG	0	0%	100	0	0	11																	
Heptachlor	UG/KG	0	0%	42	0	0	11																	
Heptachlor epoxide	UG/KG	0	0%	42	0	0	11																	
Methoxychlor	UG/KG	0	0%	42	0	0	11																	
Toxaphene	UG/KG	0	0%	42	0	0	11																	
<b>Metals</b>																								
Aluminum	MG/KG	16600	100%		0	11	11																	
Antimony	MG/KG	0.47	73%		0	8	11																	
Arsenic	MG/KG	15.2	100%	13	2	46	46																	
Barium	MG/KG	170	100%	350	0	11	11																	
Beryllium	MG/KG	0.81	100%	0.8	0	11	11																	
Cadmium	MG/KG	0.8	100%	7.2	0	11	11																	
Calcium	MG/KG	59100	100%	2.5	0	11	11																	
Chromium	MG/KG	26.2	100%	30	0	11	11																	
Cobalt	MG/KG	21	100%	30	0	11	11																	
Copper	MG/KG	35.2	100%	50	0	11	11																	
Cyanide	MG/KG	0	0%	27	0	0	11																	
Iron	MG/KG	32200	100%		0	11	11																	
Lead	MG/KG	22.1	100%	63	0	11	11																	
Magnesium	MG/KG	13600	100%		0	11	11																	
Manganese	MG/KG	1040	100%	1600	0	11	11																	
Mercury	MG/KG	0.1	91%	0.18	0	10	11																	
Nickel	MG/KG	52.4	100%	30	8	11	11																	
Potassium	MG/KG	1750	100%		0	11	11																	
Selenium	MG/KG	1	64%	3.9	0	7	11																	
Silver	MG/KG	0	0%	2	0	0	11																	
Sodium	MG/KG	165	82%		0	9	11																	
Thallium	MG/KG	0	0%		0	0	11																	
Vanadium	MG/KG	26.9	100%		0	11	11																	
Zinc	MG/KG	116	100%	109	1	11	11																	

Notes:  
(1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/web/site/regis/subpart752\\_6.html](http://www.dec.state.ny.us/web/site/regis/subpart752_6.html)  
(2) Sample-duplicate pairs were not averaged. Samples were presented as discreet samples in the summary statistics.  
(3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 70EXFLI0021		SEAD-70 70EXFLI0022		SEAD-70 70EXFLI0021		SEAD-70 70EXFLI0022		SEAD-70 70EXPR10000		SEAD-70 70EXPR10003		SEAD-70 70EXPR10007		SEAD-70 70EXPR10008		SEAD-70 70EXPR10009			
								Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA
<b>Volatile Organic Compounds</b>																											
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	11																				
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	11																				
1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	11																				
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	11																				
1,2-Dichloroethane	UG/KG	0	0%	20	0	0	11																				
1,2-Dichloroethane (total)	UG/KG	0	0%	190	0	0	11																				
1,2-Dichloropropane	UG/KG	0	0%		0	0	11																				
Acetone	UG/KG	79	9%	50	1	1	11																				
Benzene	UG/KG	0	0%	60	0	0	11																				
Bromodichloromethane	UG/KG	0	0%		0	0	11																				
Bromoform	UG/KG	0	0%		0	0	11																				
Carbon disulfide	UG/KG	0	0%		0	0	11																				
Carbon tetrachloride	UG/KG	0	0%	760	0	0	11																				
Chlorobenzene	UG/KG	0	0%	1100	0	0	11																				
Chlorobromomethane	UG/KG	0	0%		0	0	11																				
Chloroethane	UG/KG	0	0%		0	0	11																				
Chloroform	UG/KG	0	0%	370	0	0	11																				
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	11																				
Ethyl benzene	UG/KG	0	0%	1000	0	0	11																				
Methyl bromide	UG/KG	0	0%		0	0	11																				
Methyl butyl ketone	UG/KG	0	0%		0	0	11																				
Methyl chloride	UG/KG	0	0%		0	0	8																				
Methyl ethyl ketone	UG/KG	36	9%	120	0	1	11																				
Methyl isobutyl ketone	UG/KG	0	0%		0	0	11																				
Methylene chloride	UG/KG	0	0%	50	0	0	11																				
Styrene	UG/KG	0	0%		0	0	11																				
Tetrachloroethene	UG/KG	0	0%	1300	0	0	11																				
Toluene	UG/KG	3	9%	700	0	1	11																				
Total Xylenes	UG/KG	0	0%	260	0	0	11																				
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	11																				
Trichloroethane	UG/KG	0	0%	470	0	0	11																				
Vinyl chloride	UG/KG	0	0%	20	0	0	11																				
<b>Semivolatile Organic Compounds</b>																											
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	11																				
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	11																				
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	11																				
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	11																				
2,2'-oxybis(1-Chloropropene)	UG/KG	0	0%		0	0	11																				
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	11																				
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	11																				
2,4-Dichlorophenol	UG/KG	0	0%		0	0	11																				
2,4-Dinitrophenol	UG/KG	0	0%		0	0	11																				
2,4-Dinitrophenol	UG/KG	0	0%		0	0	11																				
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	11																				
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	11																				
2-Chloronaphthalene	UG/KG	0	0%		0	0	11																				
2-Chlorophenol	UG/KG	0	0%		0	0	11																				
2-Methylnaphthalene	UG/KG	0	0%		0	0	11																				
2-Methylphenol	UG/KG	0	0%	330	0	0	11																				
2-Nitroaniline	UG/KG	0	0%		0	0	11																				
2-Nitrophenol	UG/KG	0	0%		0	0	11																				
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	11																				
3-Nitroaniline	UG/KG	0	0%		0	0	11																				
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	11																				

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 70EXFL10021		SEAD-70 70EXFL10022		SEAD-70 70EXFL10021		SEAD-70 70EXFL10022		SEAD-70 70EXPR10000		SEAD-70 70EXPR10003		SEAD-70 70EXPR10007		SEAD-70 70EXPR10008		SEAD-70 70EXPR10009				
								SOIL	Value (Q)	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	11																					
4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	11																					
4-Chloroaniline	UG/KG	0	0%		0	0	11																					
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	11																					
4-Methylphenol	UG/KG	0	0%	330	0	0	11																					
4-Nitroaniline	UG/KG	0	0%		0	0	11																					
4-Nitrophenol	UG/KG	0	0%		0	0	11																					
Acenaphthene	UG/KG	0	0%	20000	0	0	11																					
Acenaphthylene	UG/KG	0	0%	100000	0	0	11																					
Anthracene	UG/KG	0	0%	100000	0	0	11																					
Benzo(a)anthracene	UG/KG	0	0%	1000	0	0	11																					
Benzo(b)fluoranthene	UG/KG	0	0%	1000	0	0	11																					
Benzo(k)fluoranthene	UG/KG	0	0%	1000	0	0	11																					
Benzo(g)herylene	UG/KG	0	0%	100000	0	0	11																					
Benzo(b)fluoranthene	UG/KG	0	0%	800	0	0	11																					
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	11																					
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	11																					
Bis(2-Ethylhexyl)phthalate	UG/KG	610	100%		0	11	11																					
Butylbenzylphthalate	UG/KG	0	0%		0	0	11																					
Carbazole	UG/KG	0	0%		0	0	11																					
Chrysene	UG/KG	0	0%	1000	0	0	11																					
Di-n-butylphthalate	UG/KG	51	55%		0	0	11																					
Di-n-octylphthalate	UG/KG	30	9%		0	6	11																					
Dibenz(a,h)anthracene	UG/KG	0	0%		0	1	11																					
Dibenzofuran	UG/KG	0	0%	330	0	0	11																					
Diethyl phthalate	UG/KG	0	0%	7000	0	0	11																					
Dimethyl phthalate	UG/KG	0	0%		0	0	11																					
Fluorene	UG/KG	0	0%	100000	0	0	11																					
Fluorene	UG/KG	0	0%	30000	0	0	11																					
Hexachlorobenzene	UG/KG	0	0%	330	0	0	11																					
Hexachlorobutadiene	UG/KG	0	0%		0	0	11																					
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	11																					
Hexachloroethane	UG/KG	0	0%		0	0	11																					
Indeno(1,2,3-cd)pyrene	UG/KG	0	0%	500	0	0	11																					
Isophthalene	UG/KG	0	0%		0	0	11																					
N-Nitrosodiphenylamine	UG/KG	0	0%		0	0	11																					
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	11																					
Naphthalene	UG/KG	0	0%	12000	0	0	11																					
Nitrobenzene	UG/KG	0	0%		0	0	11																					
Pentachlorophenol	UG/KG	0	0%	800	0	0	11																					
Phenanthrene	UG/KG	0	0%	100000	0	0	11																					
Phenol	UG/KG	0	0%	330	0	0	11																					
Pyrene	UG/KG	0	0%	100000	0	0	11																					
<b>Pesticides and PCBs</b>																												
4,4'-DDD	UG/KG	0	0%	3.3	0	0	11																					
4,4'-DDE	UG/KG	0	0%	3.3	0	0	11																					
4,4'-DDT	UG/KG	0	0%	3.3	0	0	11																					
Aldrin	UG/KG	0	0%	5	0	0	11																					
Alpha-BHC	UG/KG	0	0%	20	0	0	11																					
Alpha-Chlordane	UG/KG	0	0%	94	0	0	11																					
Arachlor-1016	UG/KG	0	0%	100	0	0	11																					
Arachlor-1221	UG/KG	0	0%	100	0	0	11																					

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 70EXFL0021		SEAD-70 70EXFL0022		SEAD-70 70EXFL0021		SEAD-70 70EXFL0022		SEAD-70 70EXPR10000		SEAD-70 70EXPR10003		SEAD-70 70EXPR10007		SEAD-70 70EXPR10008		SEAD-70 70EXPR10009						
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Arochlor 1232	UG/KG	0	0%	100	0	0	11	9/4/2008	RA	9/4/2008	RA	9/4/2008	RA	9/4/2008	RA	9/4/2008	RA	2/6/2008	SA	2/6/2008	SA	5/22/2008	SA	5/22/2008	SA	5/22/2008	SA	5/22/2008	RA	
Arochlor 1242	UG/KG	0	0%	100	0	0	11																							
Arochlor 1248	UG/KG	0	0%	100	0	0	11																							
Arochlor 1254	UG/KG	0	0%	100	0	0	11																							
Arochlor 1260	UG/KG	0	0%	100	0	0	11																							
Beta-BHC	UG/KG	0	0%	36	0	0	11																							
Delta-BHC	UG/KG	0	0%	40	0	0	11																							
Dieldrin	UG/KG	0	0%	5	0	0	11																							
Endosulfan I	UG/KG	0	0%	2400	0	0	11																							
Endosulfan II	UG/KG	0	0%	2400	0	0	11																							
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	11																							
Endrin	UG/KG	0	0%	14	0	0	11																							
Endrin aldehyde	UG/KG	0	0%		0	0	11																							
Endrin ketone	UG/KG	0	0%		0	0	11																							
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	11																							
Gamma-Chlordane	UG/KG	0	0%		0	0	11																							
Heptachlor	UG/KG	0	0%	42	0	0	11																							
Heptachlor epoxide	UG/KG	0	0%		0	0	11																							
Methoxychlor	UG/KG	0	0%		0	0	11																							
Toxaphene	UG/KG	0	0%		0	0	11																							
<b>Metals</b>																														
Aluminum	MG/KG	16600	100%		0	11	11																							
Antimony	MG/KG	0.47	73%		0	8	11																							
Arsenic	MG/KG	15.2	100%	13	2	46	46	J	5.1 J	6.6 J	6.6 J	6.6 J	6.6 J	6.6 J	6.6 J	6.6 J	5.1 J	5.1 J	5.1 J	5.1 J	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.1	7	
Barium	MG/KG	170	100%	350	0	11	11																							
Beryllium	MG/KG	0.81	100%	7.2	0	11	11																							
Cadmium	MG/KG	0.8	100%	2.5	0	11	11																							
Calcium	MG/KG	59100	100%		0	11	11																							
Chromium	MG/KG	26.2	100%	30	0	11	11																							
Cobalt	MG/KG	21	100%		0	11	11																							
Copper	MG/KG	35.2	100%	50	0	11	11																							
Cyanide	MG/KG	0	0%	27	0	0	11																							
Iron	MG/KG	32200	100%		0	11	11																							
Lead	MG/KG	22.1	100%	63	0	11	11																							
Magnesium	MG/KG	13600	100%		0	11	11																							
Manganese	MG/KG	1040	100%	1600	0	11	11																							
Mercury	MG/KG	0.1	91%	0.18	0	10	11																							
Nickel	MG/KG	52.4	100%	30	8	11	11																							
Potassium	MG/KG	1750	100%		0	11	11																							
Selenium	MG/KG	1	64%	3.9	0	7	11																							
Silver	MG/KG	0	0%	2	0	0	11																							
Sodium	MG/KG	165	82%		0	9	11																							
Thallium	MG/KG	0	0%		0	0	11																							
Vanadium	MG/KG	26.9	100%		0	11	11																							
Zinc	MG/KG	116	100%	109	1	11	11																							

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/webatorregs/subpart375\\_6.html](http://www.dec.state.ny.us/webatorregs/subpart375_6.html)  
 (2) Sample-duplicate pairs were not averaged. Samples were presented as discrete samples in the summary statistics.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

J = compound was not detected  
 J = the reported value is an estimated concentration  
 U = the compound was not detected, the associated reporting limit is approximate  
 R = the analytical result was rejected during data validation.

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 70EXFL10008		SEAD-70 70EXFL10007		SEAD-70 70EXPR10012		SEAD-70 70EXPR10013		SEAD-70 70EXPR10014		SEAD-70 70EXPR10015		SEAD-70 70EXPR10016		SEAD-70 70EXPR10018		
								SOIL	Value (Q)	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA	SA	RA
<b>Volatile Organic Compounds</b>																								
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	11																	
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	11																	
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	11																	
1,1-Dichloroethane	UG/KG	0	0%	270	0	0	11																	
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	11																	
1,2-Dichloroethane	UG/KG	0	0%	20	0	0	11																	
1,2-Dichloroethane (total)	UG/KG	0	0%	190	0	0	11																	
1,2-Dichloropropane	UG/KG	0	0%		0	0	11																	
Acetone	UG/KG	79	9%	50	1	1	11	6/26/2008	RA	6/26/2008	RA	5/22/2008	SA	6/26/2008	RA	0.2	0.2	0.2	0.2	1.7	1.7	1.5	1.5	1.7
Benzene	UG/KG	0	0%	60	0	0	11																	
Bromochloromethane	UG/KG	0	0%		0	0	11																	
Bromoform	UG/KG	0	0%		0	0	11																	
Carbon disulfide	UG/KG	0	0%		0	0	11																	
Carbon tetrachloride	UG/KG	0	0%	760	0	0	11																	
Chlorobenzene	UG/KG	0	0%	1100	0	0	11																	
Chloroethylenes	UG/KG	0	0%		0	0	11																	
Chloroethylenes	UG/KG	0	0%		0	0	11																	
Chloroform	UG/KG	0	0%	370	0	0	11																	
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	11																	
Ethyl benzene	UG/KG	0	0%	1000	0	0	11																	
Methyl bromide	UG/KG	0	0%		0	0	11																	
Methyl butyl ketone	UG/KG	0	0%		0	0	11																	
Methyl chloride	UG/KG	0	0%		0	0	11																	
Methyl ethyl ketone	UG/KG	36	9%	120	0	1	11																	
Methyl isobutyl ketone	UG/KG	0	0%		0	0	11																	
Methylene chloride	UG/KG	0	0%	50	0	0	11																	
Styrene	UG/KG	0	0%		0	0	11																	
Tetrachloroethene	UG/KG	0	0%	1300	0	0	11																	
Toluene	UG/KG	3	9%	700	0	1	11																	
Total Xylenes	UG/KG	0	0%	260	0	0	11																	
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	11																	
Trichloroethane	UG/KG	0	0%	470	0	0	11																	
Vinyl chloride	UG/KG	0	0%	20	0	0	11																	
<b>Semivolatile Organic Compounds</b>																								
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	11																	
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	11																	
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	11																	
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	11																	
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0%		0	0	11																	
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	11																	
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	11																	
2,4-Dichlorophenol	UG/KG	0	0%		0	0	11																	
2,4-Dimethylphenol	UG/KG	0	0%		0	0	11																	
2,4-Dinitrophenol	UG/KG	0	0%		0	0	11																	
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	11																	
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	11																	
2-Chloronaphthalene	UG/KG	0	0%		0	0	11																	
2-Chlorophenol	UG/KG	0	0%		0	0	11																	
2-Methylnaphthalene	UG/KG	0	0%		0	0	11																	
2-Methylphenol	UG/KG	0	0%	330	0	0	11																	
2-Nitroaniline	UG/KG	0	0%		0	0	11																	
2-Nitrophenol	UG/KG	0	0%		0	0	11																	
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	11																	
3-Nitroaniline	UG/KG	0	0%		0	0	11																	
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	11																	

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value 1	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed 2	SEAD-70		SEAD-70		SEAD-70		SEAD-70		SEAD-70			
								70EXFL10008	70EXFL10007	70EXPR10011	70EXPR10012	70EXPR10013	70EXPR10014	70EXPR10015	70EXPR10016	70EXPR10018	70EXFL10008	70EXFL10007	70EXPR10011
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
4-Chloroaniline	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
4-Chlorophenyl phenyl ether	UG/KG	0	0%	330	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
4-Methylphenol	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
4-Nitroaniline	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
4-Nitrophenol	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Acenaphthene	UG/KG	0	0%	20000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Acenaphthylene	UG/KG	0	0%	100000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Anthracene	UG/KG	0	0%	100000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Benz(o)anthracene	UG/KG	0	0%	1000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Benz(o)fluoranthene	UG/KG	0	0%	1000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Benz(o)fluoranthene	UG/KG	0	0%	100000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Benz(o)k)fluoranthene	UG/KG	0	0%	800	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Bis(2-Ethylhexyl)phthalate	UG/KG	610	100%		0	11	11	6/26/2008	SA	6/26/2008	SA	8/20/2008	SA	8/20/2008	SA	8/20/2008	SA	8/20/2008	SA
Butylbenzylphthalate	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Carbazole	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Chrysene	UG/KG	0	0%	1000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
D-n-butylphthalate	UG/KG	51	55%		0	6	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
D-n-octylphthalate	UG/KG	30	9%		0	1	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Dibenz(a,b)anthracene	UG/KG	0	0%	330	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Dibenzofuran	UG/KG	0	0%	7000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Diethyl phthalate	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Dimethylphthalate	UG/KG	0	0%	100000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Fluoranthene	UG/KG	0	0%	30000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Fluorene	UG/KG	0	0%	330	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Hexachlorobenzene	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Hexachlorobutadiene	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Hexachloroethane	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Indene(1,2,3-c)pyrene	UG/KG	0	0%	500	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Isophthene	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
N-Nitrosodiphenylamine	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Naphthalene	UG/KG	0	0%	12000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Nitrobenzene	UG/KG	0	0%	800	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Pentachlorophenol	UG/KG	0	0%	100000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Phenanthrene	UG/KG	0	0%	330	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Pyrene	UG/KG	0	0%	100000	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
<b>Pesticides and PCBs</b>																			
4,4'-DDD	UG/KG	0	0%	3.3	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
4,4'-DDE	UG/KG	0	0%	3.3	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
4,4'-DDT	UG/KG	0	0%	3.3	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Aldrin	UG/KG	0	0%	5	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Alpha-BHC	UG/KG	0	0%	20	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Alpha-Chlordane	UG/KG	0	0%	94	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Aroclor-1016	UG/KG	0	0%	100	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0
Aroclor-1221	UG/KG	0	0%	100	0	0	11	1.5	RA	0.2	RA	0	0	0	0	0	0	0	0



TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 70EXFL10008		SEAD-70 70EXFL10007		SEAD-70 70EXPR10011		SEAD-70 70EXPR10012		SEAD-70 70EXPR10013		SEAD-70 70EXPR10014		SEAD-70 70EXPR10015		SEAD-70 70EXPR10016		SEAD-70 70EXPR10018			
								Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA
Aroclor-1212	UG/KG	0	0%	100	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Aroclor-1242	UG/KG	0	0%	100	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Aroclor-1248	UG/KG	0	0%	100	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Aroclor-1254	UG/KG	0	0%	100	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Aroclor-1260	UG/KG	0	0%	100	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Beta-BHC	UG/KG	0	0%	36	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Delta-BHC	UG/KG	0	0%	40	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Dieldrin	UG/KG	0	0%	5	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Endosulfan I	UG/KG	0	0%	5	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Endosulfan II	UG/KG	0	0%	2400	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Endrin	UG/KG	0	0%	14	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Endrin aldehyde	UG/KG	0	0%	14	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Endrin ketone	UG/KG	0	0%	14	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Endrin ketone	UG/KG	0	0%	14	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Gamma-Chlordane	UG/KG	0	0%	100	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Heptachlor	UG/KG	0	0%	42	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Heptachlor epoxide	UG/KG	0	0%	42	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Methoxychlor	UG/KG	0	0%	0	0	0	11	1.7	RA	1.7	RA	0.8	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
Toxaphene	UG/KG	0	0%	0	0	0	11	1.5	RA	1.5	RA	0.5	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA	0	RA
<b>Metals</b>																											
Aluminum	MG/KG	16600	100%	0	0	11	11	14.9	4.2	4.9	9.4	4	14.9	5.6 J	4.7 J	12.8											
Antimony	MG/KG	0.47	73%	0	0	8	11																				
Arsenic	MG/KG	15.2	100%	13	2	46	46																				
Barium	MG/KG	170	100%	350	0	11	11																				
Beryllium	MG/KG	0.81	100%	7.2	0	11	11																				
Cadmium	MG/KG	0.8	100%	2.5	0	11	11																				
Calcium	MG/KG	59100	100%	0	0	11	11																				
Chromium	MG/KG	26.2	100%	30	0	11	11																				
Cobalt	MG/KG	21	100%	0	0	11	11																				
Copper	MG/KG	35.2	100%	50	0	11	11																				
Cyanide	MG/KG	0	0%	27	0	0	11																				
Iron	MG/KG	32200	100%	0	0	11	11																				
Lead	MG/KG	22.1	100%	63	0	11	11																				
Magnesium	MG/KG	13600	100%	0	0	11	11																				
Manganese	MG/KG	1040	100%	1600	0	11	11																				
Mercury	MG/KG	0.1	91%	0.18	0	10	11																				
Nickel	MG/KG	52.4	100%	30	8	11	11																				
Potassium	MG/KG	1750	100%	0	0	11	11																				
Selenium	MG/KG	1	64%	3.9	0	7	11																				
Silver	MG/KG	0	0%	2	0	0	11																				
Sodium	MG/KG	165	82%	0	0	9	11																				
Thallium	MG/KG	0	0%	0	0	0	11																				
Vanadium	MG/KG	26.9	100%	0	0	11	11																				
Zinc	MG/KG	116	100%	109	1	11	11																				

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regis/subpart375\\_6.html](http://www.dec.state.ny.us/website/regis/subpart375_6.html)  
 (2) Sample-duplicate pairs were not averaged. Samples were presented as discrete samples in the summary statistics.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.  
 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 analytical result was rejected during data validation



TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 70EXPR10044 SOIL	SEAD-70 70EXPR10045 SOIL	SEAD-70 70EXPR10046 SOIL	SEAD-70 70EXPR10047 SOIL	SEAD-70 70EXPR10048 SOIL	SEAD-70 70EXPR10048 SOIL	SEAD-70 70EXPR10048 SOIL	SEAD-70 Location-1
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	11								
4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	11								
4-Chloroaniline	UG/KG	0	0%		0	0	11								
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	11								
4-Methylphenol	UG/KG	0	0%	330	0	0	11								
4-Nitroaniline	UG/KG	0	0%		0	0	11								
4-Nitrophenol	UG/KG	0	0%		0	0	11								
Acenaphthene	UG/KG	0	0%	20000	0	0	11								
Acenaphthylene	UG/KG	0	0%	100000	0	0	11								
Athracene	UG/KG	0	0%	100000	0	0	11								
Benzol(a)anthracene	UG/KG	0	0%	10000	0	0	11								
Benzol(a)pyrene	UG/KG	0	0%	1000	0	0	11								
Benzol(b)fluoranthene	UG/KG	0	0%	1000	0	0	11								
Benzol(g,h)perylene	UG/KG	0	0%	1000	0	0	11								
Benzol(k)fluoranthene	UG/KG	0	0%	100000	0	0	11								
Benzol(k)fluoranthene	UG/KG	0	0%	800	0	0	11								
Bi(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	11								
Bi(2-Chloroethyl)ether	UG/KG	0	0%		0	0	11								
Bi(2-Ethylhexyl)phthalate	UG/KG	610	100%		0	11	11								
Bis(2-Propylhexyl)phthalate	UG/KG	0	0%		0	0	11								
Bis(4-Tolyl)phthalate	UG/KG	0	0%		0	0	11								
Carbazole	UG/KG	0	0%		0	0	11								
Chrysene	UG/KG	0	0%	1000	0	0	11								
Di-n-butylphthalate	UG/KG	51	55%		0	6	11								
Di-n-octylphthalate	UG/KG	30	9%		0	1	11								
Dibenz(a,h)anthracene	UG/KG	0	0%		0	0	11								
Dibenzofuran	UG/KG	0	0%	330	0	0	11								
Diethyl phthalate	UG/KG	0	0%	7000	0	0	11								
Dimethyl phthalate	UG/KG	0	0%		0	0	11								
Fluoranthene	UG/KG	0	0%	100000	0	0	11								
Fluorene	UG/KG	0	0%	30000	0	0	11								
Hexachlorobenzene	UG/KG	0	0%	330	0	0	11								
Hexachlorobutadiene	UG/KG	0	0%		0	0	11								
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	11								
Hexachloroethane	UG/KG	0	0%		0	0	11								
Indeno(1,2,3-cd)pyrene	UG/KG	0	0%	500	0	0	11								
Isophorone	UG/KG	0	0%		0	0	11								
N-Nitrosodiphenylamine	UG/KG	0	0%		0	0	11								
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	11								
Naphthalene	UG/KG	0	0%	12000	0	0	11								
Nitrobenzene	UG/KG	0	0%		0	0	11								
Pentachlorophenol	UG/KG	0	0%	800	0	0	11								
Phenanthrene	UG/KG	0	0%	100000	0	0	11								
Phenol	UG/KG	0	0%	330	0	0	11								
Pyrene	UG/KG	0	0%	100000	0	0	11								
<b>Pesticides and PCBs</b>															
4,4'-DDD	UG/KG	0	0%	3.3	0	0	11								
4,4'-DDE	UG/KG	0	0%	3.3	0	0	11								
4,4'-DDT	UG/KG	0	0%	3.3	0	0	11								
Aldrin	UG/KG	0	0%	5	0	0	11								
Alpha-BHC	UG/KG	0	0%	20	0	0	11								
Alpha-Chlordane	UG/KG	0	0%	94	0	0	11								
Aroclor-1016	UG/KG	0	0%	100	0	0	11								
Aroclor-1221	UG/KG	0	0%	100	0	0	11								

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 70EXPR10044		SEAD-70 70EXPR10045		SEAD-70 70EXPR10046		SEAD-70 70EXPR10047		SEAD-70 70EXPR10048		SEAD-70 70EXPR10049		SEAD-70 70EXPR10048		SEAD-70 70EXPR10025	
								Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA	Value (Q)	RA
Aroclor-1232	UG/KG	0	0%	100	0	0	11	0.2	RA	1.4	RA	1.2	RA	0.2	RA	1.8	RA	0.2	RA	1.8	RA	0.2	RA
Aroclor-1242	UG/KG	0	0%	100	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Aroclor-1248	UG/KG	0	0%	100	0	0	11	0.2	RA	1.4	RA	1.2	RA	0.2	RA	1.8	RA	0.2	RA	1.8	RA	0.2	RA
Aroclor-1254	UG/KG	0	0%	100	0	0	11	0.2	RA	1.4	RA	1.2	RA	0.2	RA	1.8	RA	0.2	RA	1.8	RA	0.2	RA
Aroclor-1260	UG/KG	0	0%	100	0	0	11	0.2	RA	1.4	RA	1.2	RA	0.2	RA	1.8	RA	0.2	RA	1.8	RA	0.2	RA
Beta-BHC	UG/KG	0	0%	36	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Delta-BHC	UG/KG	0	0%	40	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Dieldrin	UG/KG	0	0%	5	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Endosulfan I	UG/KG	0	0%	2400	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Endosulfan II	UG/KG	0	0%	2400	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Endrin	UG/KG	0	0%	14	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Endrin aldehyde	UG/KG	0	0%	0	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Endrin ketone	UG/KG	0	0%	0	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Gamma-Chlordane	UG/KG	0	0%	0	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Hepachlor	UG/KG	0	0%	42	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Hepatocler epoxide	UG/KG	0	0%	0	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Methoxychlor	UG/KG	0	0%	0	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
Toxophene	UG/KG	0	0%	0	0	0	11	0.4	RA	1.6	RA	1.4	RA	0.4	RA	2	RA	0.4	RA	2	RA	0.4	RA
<b>Metals</b>																							
Aluminum	MG/KG	16600	100%		0	11	11	3	J	11	J	15.2	J	2.4	J	7.4	J	9	J	11	J	11	J
Antimony	MG/KG	0.47	73%		0	8	11																
Arsenic	MG/KG	15.2	100%	13	2	46	46																
Barium	MG/KG	170	100%	350	0	11	11																
Beryllium	MG/KG	0.81	100%	7.2	0	11	11																
Cadmium	MG/KG	0.8	100%	2.5	0	11	11																
Calcium	MG/KG	59100	100%		0	11	11																
Chromium	MG/KG	26.2	100%	30	0	11	11																
Chromium	MG/KG	21	100%	30	0	11	11																
Cobalt	MG/KG	35.2	100%	50	0	11	11																
Copper	MG/KG	0	0%	27	0	0	11																
Cyanide	MG/KG	32200	100%	63	0	11	11																
Iron	MG/KG	22.1	100%		0	11	11																
Lead	MG/KG	13600	100%	1600	0	11	11																
Magnesium	MG/KG	1040	100%		0	11	11																
Manganese	MG/KG	0.1	91%	0.18	0	10	11																
Mercury	MG/KG	52.4	100%	30	8	11	11																
Nickel	MG/KG	1750	100%	3.9	0	7	11																
Potassium	MG/KG	1	64%	2	0	0	11																
Selenium	MG/KG	0	0%		0	0	11																
Silver	MG/KG	165	82%		0	9	11																
Sodium	MG/KG	0	0%		0	0	11																
Thallium	MG/KG	26.9	100%	109	0	11	11																
Vanadium	MG/KG	116	100%		1	11	11																
Zinc	MG/KG																						

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/reg/subpart375\\_6.html](http://www.dec.state.ny.us/website/reg/subpart375_6.html)  
 (2) Sample-duplicate pairs were not averaged. Samples were presented as discreet samples in the summary statistics.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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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TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 Locations-1		SEAD-70 Locations-2		SEAD-70 Locations-3		SEAD-70 MW70-1		SEAD-70 MW70-1			
								SOIL	Value (Q)	SOIL	Value (Q)	SOIL	Value (Q)	SOIL	Value (Q)	SOIL	Value (Q)	SOIL	Value (Q)
<b>Volatile Organic Compounds</b>																			
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	11	70EXFL10027	1	70EXPR10027	1	70EXPR10029	0	MW70-1-00	0	MW70-1-02	2	MW70-1-03	4
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	11												
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	11												
1,1-Dichloroethane	UG/KG	0	0%	270	0	0	11												
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	11												
1,2-Dichloroethane	UG/KG	0	0%	20	0	0	11												
1,2-Dichloroethane (total)	UG/KG	0	0%	190	0	0	11												
1,2-Dichloropropane	UG/KG	0	0%		0	0	11												
Acetone	UG/KG	79	9%	50	1	1	8	12/15/2008	2	12/15/2008	2	12/15/2008	0.2	5/11/1994	0.2	5/11/1994	4	5/11/1994	6
Benzene	UG/KG	0	0%	60	0	0	11												
Bromodichloromethane	UG/KG	0	0%		0	0	11												
Bromoform	UG/KG	0	0%		0	0	11												
Carbon disulfide	UG/KG	0	0%		0	0	11												
Carbon tetrachloride	UG/KG	0	0%	760	0	0	11												
Chlorobenzene	UG/KG	0	0%	1100	0	0	11												
Chlorodibromomethane	UG/KG	0	0%		0	0	11												
Chloroethane	UG/KG	0	0%		0	0	11												
Chloroform	UG/KG	0	0%	370	0	0	11												
Cis-1,3-Dichloropropene	UG/KG	0	0%	1000	0	0	11												
Ethyl benzene	UG/KG	0	0%		0	0	11												
Methyl bromide	UG/KG	0	0%		0	0	11												
Methyl butyl ketone	UG/KG	0	0%		0	0	11												
Methyl chloride	UG/KG	0	0%		0	0	11												
Methyl ethyl ketone	UG/KG	36	9%	120	0	1	8	12/15/2008	2	12/15/2008	2	12/15/2008	0.2	5/11/1994	0.2	5/11/1994	4	5/11/1994	6
Methyl isobutyl ketone	UG/KG	0	0%		0	0	11												
Methylene chloride	UG/KG	0	0%	50	0	0	11												
Styrene	UG/KG	0	0%		0	0	11												
Tetrachloroethene	UG/KG	0	0%	1300	0	0	11												
Toluene	UG/KG	3	9%	700	0	1	11												
Total Xylenes	UG/KG	0	0%	260	0	0	11												
Trans-1,3-Dichloropropene	UG/KG	0	0%	470	0	0	11												
Trichloroethene	UG/KG	0	0%	20	0	0	11												
Vinyl chloride	UG/KG	0	0%		0	0	11												
<b>Semivolatile Organic Compounds</b>																			
1,2,4-Trichlorobenzene	UG/KG	0	0%	1100	0	0	11												
1,2-Dichlorobenzene	UG/KG	0	0%	2400	0	0	11												
1,3-Dichlorobenzene	UG/KG	0	0%	1800	0	0	11												
1,4-Dichlorobenzene	UG/KG	0	0%		0	0	11												
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0%		0	0	11												
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	11												
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	11												
2,4-Dichlorophenol	UG/KG	0	0%		0	0	11												
2,4-Dimethylphenol	UG/KG	0	0%		0	0	11												
2,4-Dinitrophenol	UG/KG	0	0%		0	0	11												
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	11												
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	11												
2-Chloronaphthalene	UG/KG	0	0%		0	0	11												
2-Chlorophenol	UG/KG	0	0%		0	0	11												
2-Methylnaphthalene	UG/KG	0	0%		0	0	11												
2-Methylphenol	UG/KG	0	0%	330	0	0	11												
2-Nitroaniline	UG/KG	0	0%		0	0	11												
2-Nitrophenol	UG/KG	0	0%		0	0	11												
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	11												
3-Nitroaniline	UG/KG	0	0%		0	0	11												
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	11												



TABLE 1  
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SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 Location-1		SEAD-70 Location-1		SEAD-70 Location-2		SEAD-70 Location-3		SEAD-70 MW70-1		SEAD-70 MW70-1		SEAD-70 MW70-1		
								SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Aroclor-1232	UG/KG	0	0%	100	0	0	11	0.5	1	0.2	0	0.2	0.2	0	0	0	49 U	40 U	40 U	40 U	40 U	37
Aroclor-1242	UG/KG	0	0%	100	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	49 U	40 U	40 U	40 U	40 U	37
Aroclor-1248	UG/KG	0	0%	100	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	49 U	40 U	40 U	40 U	40 U	37
Aroclor-1254	UG/KG	0	0%	100	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	49 U	40 U	40 U	40 U	40 U	37
Aroclor-1260	UG/KG	0	0%	100	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	49 U	40 U	40 U	40 U	40 U	37
Beta-BHC	UG/KG	0	0%	36	0	0	11	1	1	0.4	0	0.4	0.4	0	0	0	2.5 U	2 U	2 U	2 U	2 U	1.9
Delta-BHC	UG/KG	0	0%	40	0	0	11	1	1	0.4	0	0.4	0.4	0	0	0	2.5 U	2 U	2 U	2 U	2 U	1.9
Dieldrin	UG/KG	0	0%	5	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	2.5 U	2 U	2 U	2 U	2 U	1.9
Endosulfan I	UG/KG	0	0%	2400	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Endosulfan II	UG/KG	0	0%	2400	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Endrin	UG/KG	0	0%	14	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Endrin aldehyde	UG/KG	0	0%	14	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Endrin ketone	UG/KG	0	0%	14	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Endrin ketone	UG/KG	0	0%	14	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Gamma-Chlordane	UG/KG	0	0%	100	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Heptachlor	UG/KG	0	0%	42	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Heptachlor epoxide	UG/KG	0	0%	42	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Methoxychlor	UG/KG	0	0%	42	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
Toxaphene	UG/KG	0	0%	42	0	0	11	1	1	0.2	0	0.2	0.2	0	0	0	4.9 U	4 U	4 U	4 U	4 U	3.7
<b>Metals</b>																						
Aluminum	MG/KG	16600	100%		0	11	11	11.7	10.4 J	9.3	6.1 J	6.4	6.4	6.4	6.4	6.4	12200	9480	11000	11000	11000	11000
Antimony	MG/KG	0.47	73%		0	8	11										0.23 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.19
Arsenic	MG/KG	15.2	100%	13	2	46	46										5.4	5.4	5.4	5.4	5.4	5.7
Barium	MG/KG	170	100%	350	0	11	11										67.5	56.6	79.9	56.6	56.6	57.9
Beryllium	MG/KG	0.81	100%	7.2	0	11	11										0.44 J	0.41 J	0.41 J	0.41 J	0.41 J	0.54
Cadmium	MG/KG	0.8	100%	2.5	0	11	11										0.57 J	0.43 J	0.43 J	0.43 J	0.43 J	0.8
Calcium	MG/KG	59100	100%		0	11	11										3600	51600	48600	48600	48600	48600
Chromium	MG/KG	26.2	100%	30	0	11	11										13.7	14.7	17.8	14.7	14.7	17.8
Cobalt	MG/KG	21	100%		0	11	11										5.5 J	7.1 J	7.1 J	7.1 J	7.1 J	21
Copper	MG/KG	35.2	100%	50	0	11	11										12.4	19.7	19.7	19.7	19.7	33.5
Cyanide	MG/KG	0	0%	27	0	0	11										0.64 U	0.59 U	0.59 U	0.59 U	0.59 U	0.48
Iron	MG/KG	32200	100%		0	11	11										17700	16000	16000	16000	16000	26400
Lead	MG/KG	22.1	100%	63	0	11	11										2830	7980	7980	7980	7980	1040
Magnesium	MG/KG	13600	100%		0	11	11										233	470	470	470	470	1040
Manganese	MG/KG	1040	100%	1600	0	11	11										0.1	0.03 J	0.03 J	0.03 J	0.03 J	0.02
Mercury	MG/KG	0.1	91%	0.18	0	10	11										12.3	17.6	17.6	17.6	17.6	52.3
Nickel	MG/KG	\$2.4	100%	30	8	11	11										98.2 J	1590	1350	1590	1350	52.3
Potassium	MG/KG	1750	100%		0	11	11										0.16 UJ	0.64 J	0.64 J	0.64 J	0.64 J	0.32
Selenium	MG/KG	1	64%	3.9	0	7	11										0.16 UJ	0.14 UJ	0.14 UJ	0.14 UJ	0.14 UJ	0.13
Silver	MG/KG	0	0%	2	0	0	11										36.4 U	126 J	126 J	126 J	126 J	165
Sodium	MG/KG	165	82%		0	9	11										0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.31
Thallium	MG/KG	0	0%		0	11	11										23.3	17.2	17.2	17.2	17.2	17.6
Vanadium	MG/KG	26.9	100%		0	11	11										55.4	42.4	42.4	42.4	42.4	116
Zinc	MG/KG	116	100%	109	1	11	11															

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/web/regs/subpart375\\_6.html](http://www.dec.state.ny.us/web/regs/subpart375_6.html)  
 (2) Sample duplicate pairs were not averaged. Samples were presented as discreet samples in the summary statistics.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-70 SB70-1-01		SEAD-70 SB70-1-02		SEAD-70 SB70-1-03		SEAD-70 SB70-2-05		SEAD-70 SB70-3-01		SEAD-70 SB70-3-03		
								SOIL	ESI	SOIL	ESI	SOIL	ESI	SOIL	ESI	SOIL	ESI	SOIL	ESI	SOIL
<b>Volatiles Organic Compounds</b>																				
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
1,1,2-Trichloroethane	UG/KG	0	0%	270	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
1,1-Dichloroethene	UG/KG	0	0%	20	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
1,2-Dichloroethane	UG/KG	0	0%	190	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
1,2-Dichloroethane (total)	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
1,2-Dichloropropane	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Aceone	UG/KG	79	9%	50	1	1	11	U	U	35 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Benzene	UG/KG	0	0%	60	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Bromochloromethane	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Bromotorm	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Carbon disulfide	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Chlorobromomethane	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Chloroethane	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Chloroform	UG/KG	0	0%	370	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Ethyl benzene	UG/KG	0	0%	1000	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Methyl bromide	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Methyl butyl ketone	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Methyl chloride	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Methyl ethyl ketone	UG/KG	36	9%	120	0	1	11	U	U	36	U	17 U	U	11 U	U	11 U	U	12 U	U	11 U
Methyl isobutyl ketone	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Methylene chloride	UG/KG	0	0%	50	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Styrene	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Tetrachloroethene	UG/KG	0	0%	1300	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Toluene	UG/KG	3	9%	700	0	1	11	U	U	3 J	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Total Xylenes	UG/KG	0	0%	260	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Trichloroethane	UG/KG	0	0%	470	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
Vinyl chloride	UG/KG	0	0%	20	0	0	11	U	U	14 U	U	11 U	U	11 U	U	11 U	U	12 U	U	11 U
<b>Semi-volatile Organic Compounds</b>																				
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2,2'-oxybis(1-Chloropropane)	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	11	U	U	940 U	U	910 U	U	870 U	U	880 U	U	1100 U	U	890 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2,4-Dichlorophenol	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2,4-Dinitrophenol	UG/KG	0	0%		0	0	11	U	U	940 U	U	910 U	U	870 U	U	880 U	U	1100 U	U	890 U
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2-Chlorophenol	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2-Methylnaphthalene	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2-Methylphenol	UG/KG	0	0%	330	0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
2-Nitroaniline	UG/KG	0	0%		0	0	11	U	U	940 U	U	910 U	U	870 U	U	880 U	U	1100 U	U	890 U
2-Nitrophenol	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	11	U	U	390 U	U	370 U	U	400 U	U	360 U	U	430 U	U	370 U
3-Nitroaniline	UG/KG	0	0%		0	0	11	U	U	940 U	U	910 U	U	870 U	U	880 U	U	1100 U	U	890 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	11	U	U	940 U	U	910 U	U	870 U	U	880 U	U	1100 U	U	890 U



TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	SEAD-70 SB70-1 SOIL		SEAD-70 SB70-1 SOIL		SEAD-70 SB70-2 SOIL		SEAD-70 SB70-2 SOIL		SEAD-70 SB70-3 SOIL		SEAD-70 SB70-3 SOIL	
								Value (Q)	ESL	Value (Q)	ESL	Value (Q)	ESL	Value (Q)	ESL	Value (Q)	ESL	Value (Q)	ESL
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
4-Chloroaniline	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
4-Methylphenol	UG/KG	0	0%	330	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
4-Nitroaniline	UG/KG	0	0%		0	0	11	940 U	910 U	960 U	870 U	870 U	870 U	870 U	870 U	880 U	880 U	880 U	890 U
4-Nitrophenol	UG/KG	0	0%		0	0	11	940 U	910 U	960 U	870 U	870 U	870 U	870 U	870 U	880 U	880 U	880 U	890 U
Acenaphthene	UG/KG	0	0%	20000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Acenaphthylene	UG/KG	0	0%	100000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Anthracene	UG/KG	0	0%	100000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Benzo(a)anthracene	UG/KG	0	0%	10000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Benzo(a)pyrene	UG/KG	0	0%	1000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Benzo(b)fluoranthene	UG/KG	0	0%	1000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Benzo(g)herylene	UG/KG	0	0%	100000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Benzo(k)fluoranthene	UG/KG	0	0%	800	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Bis(2-Ethylhexyl)phthalate	UG/KG	610	100%		0	11	21 J	27 J	27 J	43 J	66 J	66 J	66 J	66 J	66 J	89 J	89 J	89 J	89 J
Butybenzylphthalate	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Carbazole	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Chrysene	UG/KG	0	0%	1000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Di-n-butylphthalate	UG/KG	51	55%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Di-n-octylphthalate	UG/KG	30	9%		0	6	11	35 J	28 J	35 J	35 J	35 J	35 J	35 J	35 J	35 J	35 J	35 J	35 J
Dibenz(a,h)anthracene	UG/KG	0	0%	330	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Dibenzofuran	UG/KG	0	0%	7000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Diethyl phthalate	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Dimethylphthalate	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Fluoranthene	UG/KG	0	0%	100000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Fluorene	UG/KG	0	0%	30000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Hexachlorobenzene	UG/KG	0	0%	330	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Hexachlorobutadiene	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Hexachloroethane	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Indene(1,2,3-c)pyrene	UG/KG	0	0%	500	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Isophorone	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
N-Nitrosodiphenylamine	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Naphthalene	UG/KG	0	0%	12000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Nitrobenzene	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Pentachlorophenol	UG/KG	0	0%	800	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Phenanthrene	UG/KG	0	0%	100000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Phenol	UG/KG	0	0%		0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
Pyrene	UG/KG	0	0%	100000	0	0	11	390 U	370 U	400 U	360 U	360 U	360 U	360 U	360 U	370 U	370 U	370 U	370 U
<b>Pesticides and PCBs</b>																			
4,4'-DDD	UG/KG	0	0%	3.3	0	0	11	3.9 U	3.7 U	4 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.7 U
4,4'-DDE	UG/KG	0	0%	3.3	0	0	11	3.9 U	3.7 U	4 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.7 U
4,4'-DDT	UG/KG	0	0%	3.3	0	0	11	3.9 U	3.7 U	4 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.7 U
Aldrin	UG/KG	0	0%	5	0	0	11	2 U	1.9 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.9 U	2.2 U
Alpha-BHC	UG/KG	0	0%	20	0	0	11	2 U	1.9 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.9 U	2.2 U
Alpha-Chlordane	UG/KG	0	0%	94	0	0	11	2 U	1.9 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.9 U	2.2 U
Aroclor-1016	UG/KG	0	0%	100	0	0	11	39 U	37 U	40 U	36 U	36 U	36 U	36 U	36 U	37 U	37 U	37 U	37 U
Aroclor-1221	UG/KG	0	0%	100	0	0	11	79 U	76 U	81 U	73 U	73 U	73 U	73 U	73 U	74 U	74 U	74 U	74 U

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-70 SB70-1-01		SEAD-70 SB70-1-02		SEAD-70 SB70-1-03		SEAD-70 SB70-2-05		SEAD-70 SB70-3-01		SEAD-70 SB70-3-03	
								SOIL	Value (Q)	SOIL	Value (Q)	SOIL	Value (Q)	SOIL	Value (Q)	SOIL	Value (Q)	SOIL	Value (Q)
Aroclor-1232	UG/KG	0	0%	100	0	0	11	U	39 U	37 U	40 U	36 U	36 U	36 U	36 U	43 U	37 U	37 U	37 U
Aroclor-1242	UG/KG	0	0%	100	0	0	11	U	39 U	37 U	40 U	36 U	36 U	36 U	36 U	43 U	37 U	37 U	37 U
Aroclor-1248	UG/KG	0	0%	100	0	0	11	U	39 U	37 U	40 U	36 U	36 U	36 U	36 U	43 U	37 U	37 U	37 U
Aroclor-1254	UG/KG	0	0%	100	0	0	11	U	39 U	37 U	40 U	36 U	36 U	36 U	36 U	43 U	37 U	37 U	37 U
Aroclor-1260	UG/KG	0	0%	100	0	0	11	U	39 U	37 U	40 U	36 U	36 U	36 U	36 U	43 U	37 U	37 U	37 U
Beta-BHC	UG/KG	0	0%	36	0	0	11	U	2 U	1.9 U	2 U	1.8 U	1.8 U	2.2 U	2.2 U	2.2 U	2.2 U	1.9 U	1.9 U
Delta-BHC	UG/KG	0	0%	40	0	0	11	U	2 U	1.9 U	2 U	1.8 U	1.8 U	2.2 U	2.2 U	2.2 U	2.2 U	1.9 U	1.9 U
Dieldrin	UG/KG	0	0%	5	0	0	11	U	3.9 U	3.7 U	4 U	3.6 U	3.6 U	4.4 U	4.4 U	4.4 U	4.4 U	3.7 U	3.7 U
Endosulfan I	UG/KG	0	0%	2400	0	0	11	U	2 U	1.9 U	2 U	1.8 U	1.8 U	2.2 U	2.2 U	2.2 U	2.2 U	1.9 U	1.9 U
Endosulfan II	UG/KG	0	0%	2400	0	0	11	U	2 U	1.9 U	2 U	1.8 U	1.8 U	2.2 U	2.2 U	2.2 U	2.2 U	1.9 U	1.9 U
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	11	U	3.9 U	3.7 U	4 U	3.6 U	3.6 U	4.4 U	4.4 U	4.4 U	4.4 U	3.7 U	3.7 U
Endrin	UG/KG	0	0%	14	0	0	11	U	3.9 U	3.7 U	4 U	3.6 U	3.6 U	4.4 U	4.4 U	4.4 U	4.4 U	3.7 U	3.7 U
Endrin aldehyde	UG/KG	0	0%	100	0	0	11	U	3.9 U	3.7 U	4 U	3.6 U	3.6 U	4.4 U	4.4 U	4.4 U	4.4 U	3.7 U	3.7 U
Endrin ketone	UG/KG	0	0%	100	0	0	11	U	3.9 U	3.7 U	4 U	3.6 U	3.6 U	4.4 U	4.4 U	4.4 U	4.4 U	3.7 U	3.7 U
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	11	U	2 U	1.9 U	2 U	1.8 U	1.8 U	2.2 U	2.2 U	2.2 U	2.2 U	1.9 U	1.9 U
Gamma-Chlordane	UG/KG	0	0%	42	0	0	11	U	2 U	1.9 U	2 U	1.8 U	1.8 U	2.2 U	2.2 U	2.2 U	2.2 U	1.9 U	1.9 U
Hepachlor	UG/KG	0	0%	42	0	0	11	U	2 U	1.9 U	2 U	1.8 U	1.8 U	2.2 U	2.2 U	2.2 U	2.2 U	1.9 U	1.9 U
Hepachlor epoxide	UG/KG	0	0%	42	0	0	11	U	2 U	1.9 U	2 U	1.8 U	1.8 U	2.2 U	2.2 U	2.2 U	2.2 U	1.9 U	1.9 U
Methoxychlor	UG/KG	0	0%	100	0	0	11	U	20 U	19 U	20 U	18 U	18 U	22 U	22 U	22 U	22 U	19 U	19 U
Toxaphene	UG/KG	0	0%	100	0	0	11	U	200 U	190 U	200 U	180 U	180 U	220 U	220 U	220 U	220 U	190 U	190 U
<b>Metals</b>																			
Aluminum	MG/KG	16600	100%		0	11	11	U	12400	15600	16600	11600	11600	12900	9340	11000	11000	11000	11000
Antimony	MG/KG	0.47	73%		0	8	11	U	0.36 J	0.45 J	0.39 J	0.47 J	0.47 J	0.41 J	0.19 J	0.45 J	0.45 J	0.45 J	0.45 J
Arsenic	MG/KG	15.2	100%	13	2	46	46	J	3.5 J	4.8 J	4.5 J	4.5 J	4.5 J	4.5 J	6.9 J	4.5 J	4.5 J	4.5 J	4.5 J
Barium	MG/KG	170	100%	350	0	11	11	J	55.9	91.7	170	42.1	42.1	55.8	40.5	74.8	74.8	74.8	74.8
Beryllium	MG/KG	0.81	100%	7.2	0	11	11	J	0.6 J	0.77 J	0.81 J	0.77 J	0.54 J	0.62 J	0.44 J	0.53 J	0.53 J	0.53 J	0.53 J
Calcium	MG/KG	0.8	100%	2.5	0	11	11	J	0.05 J	0.07 J	0.14 J	0.23 J	0.23 J	0.12 J	0.07 J	0.18 J	0.18 J	0.18 J	0.18 J
Calcium	MG/KG	59100	100%		0	11	11	J	15000	6150	4300	55500	55500	31700	22500	59100	59100	59100	59100
Chromium	MG/KG	26.2	100%	30	0	11	11	J	21.3	26.2	25.3	19	19	21.9	15.3	18	18	18	18
Cobalt	MG/KG	21	100%		0	11	11	J	11.9	15	13.1	10.8	10.8	12.3	8.4	10.5	10.5	10.5	10.5
Copper	MG/KG	35.2	100%	50	0	11	11	J	22.9	35.2	22.5	28.8	28.8	28.7	17.9	24.2	24.2	24.2	24.2
Cyanide	MG/KG	0	0%	27	0	11	11	U	0.58 U	0.56 U	0.6 U	0.53 U	0.53 U	0.51 U	0.64 U	0.55 U	0.55 U	0.55 U	0.55 U
Iron	MG/KG	32200	100%	63	0	11	11	J	26300	32200	30300	23300	23300	26700	18900	22800	22800	22800	22800
Lead	MG/KG	22.1	100%	63	0	11	11	J	17.2 J	22.1 J	11.4 J	9.5 J	9.5 J	4.2 J	8.9 J	8.1 J	8.1 J	8.1 J	8.1 J
Magnesium	MG/KG	13600	100%		0	11	11	J	5070	6150	5580	8760	8760	8360	5490	11000	11000	11000	11000
Manganese	MG/KG	1040	100%	1600	0	11	11	J	465	425	689	439	439	390	299	441	441	441	441
Mercury	MG/KG	0.1	91%	0.18	0	10	11	J	0.04 J	0.04 J	0.04 J	0.02 J	0.02 J	0.02 J	0.02 J	0.02 J	0.02 J	0.02 J	0.02 J
Nickel	MG/KG	52.4	100%	30	8	11	11	J	39.3	47.4	36	30.6	30.6	34	24.6	30.4	30.4	30.4	30.4
Potassium	MG/KG	1750	100%		0	11	11	J	1170	1300	1400	1750	1750	1420	1260	1680	1680	1680	1680
Selenium	MG/KG	1	64%	3.9	0	7	11	U	0.32 J	0.48 J	0.89 J	0.25 U	0.24 U	0.24 U	0.58 J	0.31 U	0.31 U	0.31 U	0.31 U
Silver	MG/KG	0	0%	2	0	0	11	U	0.1 U	0.12 U	0.15 U	0.1 U	0.1 U	0.1 U	0.11 U	0.13 U	0.13 U	0.13 U	0.13 U
Sodium	MG/KG	165	82%		0	9	11	J	30.3 J	34.7 J	34.9 U	81.8 J	81.8 J	89.5 J	47.1 J	84.5 J	84.5 J	84.5 J	84.5 J
Thallium	MG/KG	0	0%		0	0	11	U	0.19 U	0.2 U	0.2 U	0.22 U	0.22 U	0.2 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Vanadium	MG/KG	26.9	100%	109	0	11	11	J	16.4	21.7	26.9	17.3	17.3	13.9	13.9	16.6	16.6	16.6	16.6
Zinc	MG/KG	116	100%	109	1	11	11	J	46.4	78.8	79.2	78.6	78.6	67.1	53.4	67.8	67.8	67.8	67.8

Notes:  
 (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/website/regs/subpart375\\_6.html](http://www.dec.state.ny.us/website/regs/subpart375_6.html)  
 (2) Sample-duplicate pairs were not averaged. Samples were presented as discreet samples in the summary statistics.  
 (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.

TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>1</sup>	Value (Q)
<b>Volatile Organic Compounds</b>								
1,1,1-Trichloroethane	UG/KG	0	0%	680	0	0	11	11 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%		0	0	11	11 U
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	11	11 U
1,1-Dichloroethane	UG/KG	0	0%	270	0	0	11	11 U
1,1-Dichloroethane	UG/KG	0	0%	330	0	0	11	11 U
1,2-Dichloroethane	UG/KG	0	0%	20	0	0	11	11 U
1,2-Dichloroethane (total)	UG/KG	0	0%	190	0	0	11	11 U
1,2-Dichloropropane	UG/KG	0	0%		0	0	11	11 U
Acetone	UG/KG	79	9%	50	1	1	11	11 U
Benzene	UG/KG	0	0%	60	0	0	11	11 U
Bromodichloromethane	UG/KG	0	0%		0	0	11	11 U
Bromoform	UG/KG	0	0%		0	0	11	11 U
Carbon disulfide	UG/KG	0	0%		0	0	11	11 U
Carbon tetrachloride	UG/KG	0	0%	760	0	0	11	11 U
Chlorobenzene	UG/KG	0	0%	1100	0	0	11	11 U
Chlorobromomethane	UG/KG	0	0%		0	0	11	11 U
Chloroethane	UG/KG	0	0%		0	0	11	11 U
Chloroform	UG/KG	0	0%	370	0	0	11	11 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	11	11 U
Ethyl benzene	UG/KG	0	0%	1000	0	0	11	11 U
Methyl bromide	UG/KG	0	0%		0	0	11	11 U
Methyl butyl ketone	UG/KG	0	0%		0	0	11	11 U
Methyl chloride	UG/KG	0	0%		0	0	8	11 U
Methyl ethyl ketone	UG/KG	36	9%	120	0	1	11	11 U
Methyl isobutyl ketone	UG/KG	0	0%		0	0	11	11 U
Methyl/ene chloride	UG/KG	0	0%	50	0	0	11	11 U
Styrene	UG/KG	0	0%		0	0	11	11 U
Tetrachloroethane	UG/KG	0	0%	1300	0	0	11	11 U
Toluene	UG/KG	3	9%	700	0	1	11	11 U
Total Xylenes	UG/KG	0	0%	260	0	0	11	11 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	11	11 U
Trichloroethane	UG/KG	0	0%	470	0	0	11	11 U
Vinyl chloride	UG/KG	0	0%	20	0	0	11	11 U
<b>Semivolatile Organic Compounds</b>								
1,2,4-Trichlorobenzene	UG/KG	0	0%		0	0	11	360 U
1,2-Dichlorobenzene	UG/KG	0	0%	1100	0	0	11	360 U
1,3-Dichlorobenzene	UG/KG	0	0%	2400	0	0	11	360 U
1,4-Dichlorobenzene	UG/KG	0	0%	1800	0	0	11	360 U
2,2-oxybis(1-Chloropropane)	UG/KG	0	0%		0	0	11	360 U
2,4,5-Trichlorophenol	UG/KG	0	0%		0	0	11	880 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	11	360 U
2,4-Dichlorophenol	UG/KG	0	0%		0	0	11	360 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	11	360 U
2,4-Dinitrophenol	UG/KG	0	0%		0	0	11	880 U
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	11	360 U
2,6-Dinitrotoluene	UG/KG	0	0%		0	0	11	360 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	11	360 U
2-Chlorophenol	UG/KG	0	0%		0	0	11	360 U
2-Methylnaphthalene	UG/KG	0	0%		0	0	11	360 U
2-Methylphenol	UG/KG	0	0%	330	0	0	11	360 U
2-Nitroaniline	UG/KG	0	0%		0	0	11	880 U
2-Nitrophenol	UG/KG	0	0%		0	0	11	360 U
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	11	360 U
3-Nitroaniline	UG/KG	0	0%		0	0	11	880 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	11	880 U

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TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value 1	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed 2	Value (Q)
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	11	360 U
4-Chloro-3-methylphenol	UG/KG	0	0%		0	0	11	360 U
4-Chloroaniline	UG/KG	0	0%		0	0	11	360 U
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	11	360 U
4-Methylphenol	UG/KG	0	0%	330	0	0	11	880 U
4-Nitroaniline	UG/KG	0	0%		0	0	11	880 U
4-Nitrophenol	UG/KG	0	0%		0	0	11	880 U
Acetaphilene	UG/KG	0	0%	20000	0	0	11	360 U
Acetaphilene	UG/KG	0	0%	100000	0	0	11	360 U
Acetaphilene	UG/KG	0	0%	1000000	0	0	11	360 U
Anthracene	UG/KG	0	0%	1000	0	0	11	360 U
Benzo(a)anthracene	UG/KG	0	0%	1000	0	0	11	360 U
Benzo(b)fluoranthene	UG/KG	0	0%	10000	0	0	11	360 U
Benzo(k)fluoranthene	UG/KG	0	0%	800	0	0	11	360 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	11	360 U
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	11	360 U
Bis(2-Ethylhexyl)phthalate	UG/KG	610	100%		0	11	48 J	360 U
Butylphenylphthalate	UG/KG	0	0%		0	0	11	360 U
Carbazole	UG/KG	0	0%		0	0	11	360 U
Chrysene	UG/KG	0	0%	1000	0	0	11	360 U
Di-n-butylphthalate	UG/KG	51	55%		0	6	11	25 J
Di-n-octylphthalate	UG/KG	30	9%		0	1	11	360 U
Dibenz(a,h)anthracene	UG/KG	0	0%	330	0	0	11	360 U
Dibenzofuran	UG/KG	0	0%	7000	0	0	11	360 U
Diethyl phthalate	UG/KG	0	0%		0	0	11	360 U
Dimethylphthalate	UG/KG	0	0%		0	0	11	360 U
Fluoranthene	UG/KG	0	0%	100000	0	0	11	360 U
Fluorene	UG/KG	0	0%	30000	0	0	11	360 U
Hexachlorobenzene	UG/KG	0	0%	330	0	0	11	360 U
Hexachlorobutadiene	UG/KG	0	0%		0	0	11	360 U
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	11	360 U
Hexachloroethane	UG/KG	0	0%		0	0	11	360 U
Inden(1,2,3-cd)pyrene	UG/KG	0	0%	500	0	0	11	360 U
Isophorone	UG/KG	0	0%		0	0	11	360 U
N-Nitrosodiphenylamine	UG/KG	0	0%		0	0	11	360 U
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	11	360 U
Naphthalene	UG/KG	0	0%	12000	0	0	11	360 U
Nitrobenzene	UG/KG	0	0%		0	0	11	360 U
Perchlorophenol	UG/KG	0	0%	800	0	0	11	880 U
Phenanthrene	UG/KG	0	0%	100000	0	0	11	360 U
Phenol	UG/KG	0	0%	330	0	0	11	360 U
Pyrene	UG/KG	0	0%	100000	0	0	11	360 U
<b>Pesticides and PCBs</b>								
4,4'-DDD	UG/KG	0	0%	3.3	0	0	11	3.6 U
4,4'-DDE	UG/KG	0	0%	3.3	0	0	11	3.6 U
4,4'-DDT	UG/KG	0	0%	3.3	0	0	11	3.6 U
Aldrin	UG/KG	0	0%	5	0	0	11	1.9 U
Alpha-BHC	UG/KG	0	0%	20	0	0	11	1.9 U
Alpha-Chlorane	UG/KG	0	0%	94	0	0	11	1.9 U
Aroclor-1016	UG/KG	0	0%	100	0	0	11	3.6 U
Aroclor-1221	UG/KG	0	0%	100	0	0	11	7.4 U

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TABLE 1  
SEAD-70 SOIL SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Value <sup>1</sup>	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed <sup>2</sup>	Value (Q)
Avoclor-1232	UG/KG	0	0%	100	0	0	11	36 U
Avoclor-1242	UG/KG	0	0%	100	0	0	11	36 U
Avoclor-1248	UG/KG	0	0%	100	0	0	11	36 U
Avoclor-1254	UG/KG	0	0%	100	0	0	11	36 U
Avoclor-1260	UG/KG	0	0%	100	0	0	11	36 U
Beta-BHC	UG/KG	0	0%	36	0	0	11	1.9 U
Delta-BHC	UG/KG	0	0%	40	0	0	11	1.9 U
Dieldrin	UG/KG	0	0%	5	0	0	11	3.6 U
Endosulfan I	UG/KG	0	0%	2400	0	0	11	1.9 U
Endosulfan II	UG/KG	0	0%	2400	0	0	11	3.6 U
Endosulfan sulfate	UG/KG	0	0%	2400	0	0	11	3.6 U
Endrin	UG/KG	0	0%	14	0	0	11	3.6 U
Endrin aldehyde	UG/KG	0	0%		0	0	11	3.6 U
Endrin ketone	UG/KG	0	0%		0	0	11	3.6 U
Gamma-BHC/Lindane	UG/KG	0	0%	100	0	0	11	3.6 U
Gamma-Chlordane	UG/KG	0	0%		0	0	11	1.9 U
Hepachlor	UG/KG	0	0%	42	0	0	11	1.9 U
Hepachlor epoxide	UG/KG	0	0%		0	0	11	1.9 U
Methoxychlor	UG/KG	0	0%		0	0	11	1.9 U
Toxaphene	UG/KG	0	0%		0	0	11	19 U
<b>Metals</b>								
Aluminum	MG/KG	16600	100%		0	11	11	11400
Antimony	MG/KG	0.47	73%		0	8	11	0.25 J
Arsenic	MG/KG	15.2	100%	13	2	46	46	3.9 J
Barium	MG/KG	170	100%	350	0	11	11	50.4
Beryllium	MG/KG	0.81	100%	7.2	0	11	11	0.55 J
Cadmium	MG/KG	0.8	100%	2.5	0	11	11	0.13 J
Calcium	MG/KG	59100	100%		0	11	11	37300
Chromium	MG/KG	26.2	100%	30	0	11	11	19.7
Cobalt	MG/KG	21	100%		0	11	11	12.1
Copper	MG/KG	35.2	100%	27	0	11	11	17.2
Cyanide	MG/KG	0	0%	50	0	11	11	0.53 U
Iron	MG/KG	32200	100%		0	11	11	24800
Lead	MG/KG	22.1	100%	63	0	11	11	5.3 J
Magnesium	MG/KG	13600	100%		0	11	11	8170
Manganese	MG/KG	1040	100%	1600	0	11	11	414
Mercury	MG/KG	0.1	91%	0.18	0	10	11	0.02 UJ
Nickel	MG/KG	52.4	100%	30	8	11	11	30.8
Potassium	MG/KG	1750	100%		0	11	11	1260
Selenium	MG/KG	1	64%	3.9	0	7	11	0.49 J
Silver	MG/KG	0	0%	2	0	0	11	0.13 U
Sodium	MG/KG	165	82%		0	9	11	89.1 J
Thallium	MG/KG	0	0%		0	0	11	0.21 U
Vanadium	MG/KG	26.9	100%		0	11	11	16
Zinc	MG/KG	116	100%	109	1	11	11	73

Notes:

- (1) Criteria based on NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/websteregs/subpart375\\_6.html](http://www.dec.state.ny.us/websteregs/subpart375_6.html)
- (2) Sample-duplicate pairs were not averaged. Samples were presented as discreet samples in the summary statistics.
- (3) A bolded and outlined cell indicates a concentration that exceeded the criteria.

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 analytical result was rejected during data validation.



TABLE 2  
SEAD-70 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-70		SEAD-70		SEAD-70	
								MW70-1 GW	MW70-2 GW	MW70-3 GW	MW70-4 GW	MW70-1 GW	MW70-2 GW
<b>Volatile Organic Compounds</b>													
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane (total)	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	UG/L	0	0%	1	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	UG/L	11	25%	1	0	1	4	10 U	11	10 U	10 U	10 U	10 U
Benzene	UG/L	0	0%	1	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	UG/L	0	0%	80	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Bromoform	UG/L	0	0%	80	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Carbon disulfide	UG/L	0	0%	80	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Chlorodibromomethane	UG/L	0	0%	80	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Chloroform	UG/L	0	0%	7	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Ethyl benzene	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Methyl butyl ketone	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Methyl bromide	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Methyl ethyl ketone	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Methyl isobutyl ketone	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Methylene chloride	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Total Xylenes	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene	UG/L	0	0%	5	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl chloride	UG/L	0	0%	2	0	0	4	10 U	10 U	10 U	10 U	10 U	10 U
<b>Semivolatile Organic Compounds</b>													
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	4	11 U	10 U	11 U	10 U	10 U	10 U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	4	11 U	10 U	11 U	10 U	10 U	10 U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	4	11 U	10 U	11 U	10 U	10 U	10 U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	4	11 U	10 U	11 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	UG/L	0	0%	0	0	0	4	11 U	10 U	11 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	4	28 U	25 U	28 U	25 U	25 U	25 U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	4	11 U	10 U	11 U	10 U	10 U	10 U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	4	11 U	10 U	11 U	10 U	10 U	10 U

TABLE 2  
SEAD-70 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-70 MW70-1 GW		SEAD-70 MW70-2 GW		SEAD-70 MW70-3 GW		SEAD-70 MW70-4 GW	
								Value (Q)	ESI	Value (Q)	ESI	Value (Q)	ESI	Value (Q)	ESI
2,4-Dimethylphenol	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
2,4-Dinitrophenol	UG/L	0	0%		0	0	4	28 U		25 U		28 U		25 U	
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	4	11 U		10 U		11 U		10 U	
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	4	11 U		10 U		11 U		10 U	
2-Chloronaphthalene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
2-Chlorophenol	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
2-Methylnaphthalene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
2-Methylphenol	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
2-Nitroaniline	UG/L	0	0%	5	0	0	4	28 U		25 U		28 U		25 U	
2-Nitrophenol	UG/L	0	0%	1	0	0	4	11 U		10 U		11 U		10 U	
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	4	11 U		10 U		11 U		10 U	
3-Nitroaniline	UG/L	0	0%	5	0	0	4	28 U		25 U		28 U		25 U	
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	4	28 U		25 U		28 U		25 U	
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	4	11 U		10 U		11 U		10 U	
4-Chloroaniline	UG/L	0	0%	5	0	0	4	11 U		10 U		11 U		10 U	
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
4-Methylphenol	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
4-Nitroaniline	UG/L	0	0%	5	0	0	4	28 U		25 U		28 U		25 U	
4-Nitrophenol	UG/L	0	0%	1	0	0	4	28 U		25 U		28 U		25 U	
Acenaphthene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Acenaphthylene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Anthracene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Benzo(a)anthracene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Benzo(a)pyrene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Benzo(b)fluoranthene	UG/L	0	0%	0	0	0	4	11 U		10 U		11 U		10 U	
Benzo(g,h,i)perylene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Benzo(k)fluoranthene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	4	11 U		10 U		11 U		10 U	
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	4	11 U		10 U		11 U		10 U	
Bis(2-Ethylhexyl)phthalate	UG/L	0	0%	5	0	0	4	16 U		10 U		11 U		10 U	
Butylbenzylphthalate	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Carbazole	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Chrysene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Di-n-butylphthalate	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Di-n-octylphthalate	UG/L	0	0%	50	0	0	4	11 U		10 U		11 U		10 U	
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Dibenzofuran	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Diethyl phthalate	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Dimethyl phthalate	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Fluoranthene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	
Fluorene	UG/L	0	0%		0	0	4	11 U		10 U		11 U		10 U	



TABLE 2  
SEAD-70 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-70				
								MW70-1 GW	MW70-2 GW	MW70-3 GW	MW70-4 GW	
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	4	11 U	10 U	11 U	10 U	
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	4	11 U	10 U	11 U	10 U	
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	4	11 U	10 U	11 U	10 U	
Hexachloroethane	UG/L	0	0%	5	0	0	4	11 U	10 U	11 U	10 U	
Indeno(1,2,3-cd)pyrene	UG/L	0	0%		0	0	4	11 U	10 U	11 U	10 U	
Isophorone	UG/L	0	0%		0	0	4	11 U	10 U	11 U	10 U	
N-Nitrosodiphenylamine	UG/L	0	0%		0	0	4	11 U	10 U	11 U	10 U	
N-Nitrosodipropylamine	UG/L	0	0%		0	0	4	11 U	10 U	11 U	10 U	
Naphthalene	UG/L	0	0%		0	0	4	11 U	10 U	11 U	10 U	
Nitrobenzene	UG/L	0	0%	0.4	0	0	4	11 U	10 U	11 U	10 U	
Pentaachlorophenol	UG/L	0	0%	1	0	0	4	28 U	25 U	28 U	25 U	
Phenanthrene	UG/L	0	0%		0	0	4	11 U	10 U	11 U	10 U	
Phenol	UG/L	0	0%	1	0	0	4	11 U	10 U	11 U	10 U	
Pyrene	UG/L	0	0%		0	0	4	11 U	10 U	11 U	10 U	
<b>Pesticides and PCBs</b>												
4,4'-DDD	UG/L	0	0%	0.3	0	0	4	0.1 U	0.11 U	0.1 U	0.11 U	
4,4'-DDE	UG/L	0	0%	0.2	0	0	4	0.1 U	0.11 U	0.1 U	0.11 U	
4,4'-DDT	UG/L	0	0%	0.2	0	0	4	0.1 U	0.11 U	0.1 U	0.11 U	
Aldrin	UG/L	0	0%	0	0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Alpha-BHC	UG/L	0	0%	0.01	0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Alpha-Chlordane	UG/L	0	0%		0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Aroclor-1016	UG/L	0	0%	0.09	0	0	4	1 U	1.1 U	1 U	1.1 U	
Aroclor-1221	UG/L	0	0%	0.09	0	0	4	2 U	2.1 U	2 U	2.2 U	
Aroclor-1232	UG/L	0	0%	0.09	0	0	4	1 U	1.1 U	1 U	1.1 U	
Aroclor-1242	UG/L	0	0%	0.09	0	0	4	1 U	1.1 U	1 U	1.1 U	
Aroclor-1248	UG/L	0	0%	0.09	0	0	4	1 U	1.1 U	1 U	1.1 U	
Aroclor-1254	UG/L	0	0%	0.09	0	0	4	1 U	1.1 U	1 U	1.1 U	
Aroclor-1260	UG/L	0	0%	0.09	0	0	4	1 U	1.1 U	1 U	1.1 U	
Beta-BHC	UG/L	0	0%	0.04	0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Delta-BHC	UG/L	0	0%	0.04	0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Dieldrin	UG/L	0	0%	0.004	0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Endosulfan I	UG/L	0	0%		0	0	4	0.1 U	0.11 U	0.1 U	0.11 U	
Endosulfan II	UG/L	0	0%		0	0	4	0.1 U	0.11 U	0.1 U	0.11 U	
Endosulfan sulfate	UG/L	0	0%		0	0	4	0.1 U	0.11 U	0.1 U	0.11 U	
Endrin	UG/L	0	0%	0	0	0	4	0.1 U	0.11 U	0.1 U	0.11 U	
Endrin aldehyde	UG/L	0	0%	0	0	0	4	0.1 U	0.11 U	0.1 U	0.11 U	
Endrin ketone	UG/L	0	0%	5	0	0	4	0.1 U	0.11 U	0.1 U	0.11 U	
Gamma-BHC/Lindane	UG/L	0	0%	0.05	0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Gamma-Chlordane	UG/L	0	0%		0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Heptachlor	UG/L	0	0%	0.04	0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Heptachlor epoxide	UG/L	0	0%	0.03	0	0	4	0.051 U	0.054 U	0.052 U	0.054 U	
Methoxychlor	UG/L	0	0%	35	0	0	4	0.51 U	0.54 U	0.52 U	0.54 U	

TABLE 2  
SEAD-70 GROUNDWATER SAMPLE RESULTS  
SENECA ARMY DEPOT ACTIVITY

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level	Number of Exceedances	Number of Times Detected	Number of Samples Analyzed	SEAD-70		SEAD-70		SEAD-70		SEAD-70	
								Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Toxaphene	UG/L	0	0%	0.06	0	0	4	5.1 U	5.4 U	5.2 UJ	5.4 U				
<b>Metals</b>															
Aluminum	UG/L	1260	100%		0	4	4	88.2 J	1260	229	32.1 J				
Antimony	UG/L	0	0%	3	0	0	4	1.3 U	1.3 U	1.3 U	1.3 U				
Arsenic	UG/L	0	0%	10	0	0	4	2 U	2 U	2 U	2 U				
Barium	UG/L	165	100%	1000	0	4	4	86.5 J	165 J	130 J	152 J				
Beryllium	UG/L	0	0%	4	0	0	4	0.1 U	0.1 U	0.1 U	0.1 U				
Cadmium	UG/L	0	0%	5	0	0	4	0.2 U	0.2 U	0.2 U	0.2 U				
Calcium	UG/L	213000	100%		0	4	4	119000	213000	180000	171000				
Chromium	UG/L	2.9	25%	50	0	1	4	0.4 U	2.9 J	0.4 U	0.4 U				
Cobalt	UG/L	1.7	75%		0	3	4	0.5 U	1.7 J	0.79 J	1.6 J				
Copper	UG/L	4.1	25%	200	0	1	4	0.5 U	4.1 J	0.5 U	0.5 U				
Cyanide	UG/L	0	0%		0	0	4	5 U	5 U	5 U	5 U				
Iron	UG/L	2140	100%	300	1	4	4	213	2140	284	78.7 J				
Iron+Manganese	UG/L	2332	100%	500	2	4	4	320	2332	344.2	597.7 J				
Lead	UG/L	0	0%	15	0	0	4	0.9 U	0.9 U	0.9 U	0.89 U				
Magnesium	UG/L	51400	100%		0	4	4	28100	51400	40800	41000				
Manganese	UG/L	519	100%	300	1	4	4	107	192	60.2	519				
Mercury	UG/L	0.09	100%	0.7	0	4	4	0.06 J	0.07 J	0.09 J	0.04 J				
Nickel	UG/L	4.5	100%	100	0	4	4	1.5 J	4.5 J	0.82 J	1.8 J				
Potassium	UG/L	6380	100%		0	4	4	1540 J	2330 J	1250 J	6380				
Selenium	UG/L	0	0%	10	0	0	4	2.7 U	2.7 U	2.7 U	2.7 U				
Silver	UG/L	0	0%	50	0	0	4	0.5 U	0.5 U	0.5 U	0.5 U				
Sodium	UG/L	17800	100%	20000	0	4	4	5220	13700	8700	17800				
Thallium	UG/L	2	25%	2	0	1	4	1.9 U	1.9 U	2 J	1.9 U				
Vanadium	UG/L	2.6	75%		0	3	4	0.5 U	2.6 J	0.73 J	0.6 J				
Zinc	UG/L	16.5	100%		0	4	4	3.5 J	16.5 J	5.6 J	4.2 J				

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)
- (2) Shading indicates a concentration above the groundwater standard.

U = compound was not detected  
J = the reported value is an estimated concentration  
R = the analytical result was rejected during data validation.

TABLE 3A  
 OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-70 SOIL  
 SENECA ARMY DEPOT ACTIVITY

CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (mg/kg)	Q	Maximum Detected Concentration <sup>1</sup> (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (mg/kg)	Concentration Used for Screening <sup>2</sup> (mg/kg)	Background Value <sup>3</sup> (mg/kg)	Screening Value <sup>4</sup> (mg/kg)	Potential ARAR/TBC Source	ARAR/TBC Value <sup>5</sup> (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>6</sup>
<b>VOC</b>															
67-64-1	Acetone	0.079		0.079		SB70-1	1 / 11	0.011 - 0.035	0.079		6,100	NYSDEC Subpart 375-6	0.05	NO	BSL
78-93-3	Methyl ethyl ketone	0.036		0.036		SB70-1	1 / 11	0.011 - 0.017	0.036		2,800	NYSDEC Subpart 375-6	0.12	NO	BSL
108-88-3	Toluene	0.003	J	0.003	J	SB70-1	1 / 11	0.011 - 0.014	0.003		500	NYSDEC Subpart 375-6	0.7	NO	BSL
<b>SVOC</b>															
117-81-7	Bis(2-Ethylhexyl)phthalate	0.021	J	0.61	J	MW70-1	11 / 11	0 - 0	0.61		35				BSL
84-74-2	Di-n-butylphthalate	0.025	J	0.051	J	SB70-3	6 / 11	0.36 - 0.49	0.051		6.0				BSL
117-81-0	Di-n-octylphthalate	0.03	J	0.03	J	SB70-1	1 / 11	0.36 - 0.49	0.03						BSL
<b>Metals</b>															
7429-90-5	Aluminum	9,340		16,600		SB70-1	11 / 11	0 - 0	16,600	20,500	7,700			YES	ASL
7440-36-0	Antimony	0.19	J	0.47	J	SB70-2	8 / 11	0.19 - 0.23	0.47	6.55	3.1			NO	BSL
7440-38-2	Arsenic	2.4	J	15.2	J	70EXPR10046	46 / 46	0 - 0	15.2	21.5	0.39	NYSDEC Subpart 375-6	13	YES	ASL
7440-39-3	Barium	40.5	J	170	J	SB70-1	11 / 11	0 - 0	170	159	1,500	NYSDEC Subpart 375-6	350	NO	BSL
7440-41-7	Beryllium	0.41	J	0.81	J	SB70-1	11 / 11	0 - 0	0.81	1.4	16	NYSDEC Subpart 375-6	7.2	NO	BSL
7440-43-9	Cadmium	0.05	J	0.8	J	MW70-1	11 / 11	0 - 0	0.8	2.9	7	NYSDEC Subpart 375-6	2.5	NO	BSL
7440-70-2	Calcium	3,600		59,100		SB70-3	11 / 11	0 - 0	59,100	293,000					NUT
7440-48-4	Cobalt	13.7		26.2		SB70-1	11 / 11	0 - 0	26.2	32.7	280	NYSDEC Subpart 375-6	30	NO	BSL
7440-50-8	Copper	12.4		21		MW70-1	11 / 11	0 - 0	21	29.1	2.3			YES	ASL
7439-89-6	Iron	16,000		35.2		SB70-1	11 / 11	0 - 0	35.2	62.8	3.0	NYSDEC Subpart 375-6	50	NO	BSL
7439-92-1	Lead	4.2	J	22.1	J	SB70-1	11 / 11	0 - 0	22.1	381,600	5,500			YES	ASL
7439-95-4	Magnesium	2,830		13,600		MW70-1	11 / 11	0 - 0	13,600	29,100	40	NYSDEC Subpart 375-6	63	NO	BSL
7439-96-5	Manganese	233		1,040		MW70-1	11 / 11	0 - 0	1,040	2,380	180	NYSDEC Subpart 375-6	1,600	YES	ASL
7439-97-6	Mercury	0.02	J	0.1	J	MW70-1	10 / 11	0.02 - 0.02	0.1	0.13	0.43			NO	BSL
7440-02-0	Nickel	12.3	J	52.4	J	MW70-1	11 / 11	0 - 0	52.4	62.3	150	NYSDEC Subpart 375-6	0.18	NO	BSL
7440-09-7	Potassium	982	J	1,750	J	SB70-2	11 / 11	0 - 0	1,750	3,160				NO	BSL
7782-49-2	Selenium	0.32	J	165	J	MW70-1	7 / 11	0.24 - 0.32	165	1.7	39	NYSDEC Subpart 375-6	3.9	NO	BSL
1272-34-9	Sodium	30.3	J	26.9	J	SB70-1	9 / 11	34.9 - 36.4	26.9	32.7	4			YES	NUT
7440-62-2	Vanadium	13.9		26.9		SB70-1	11 / 11	0 - 0	26.9	32.7	55			NO	BSL
7440-66-6	Zinc	42.4		116		MW70-1	11 / 11	0 - 0	116	126	2,300	NYSDEC Subpart 375-6	109	NO	BSL

Notes:  
 1. Field duplicate pairs were not averaged and were presented as discrete samples. Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.  
 2. The maximum detected concentration was used for screening.  
 3. Background value is the maximum Seneca background concentration.  
 4. EPA Regional Screening Levels for residential soil. On-line resources available at <http://www.epa.gov/region09/superfund/prg/index.html>. Last updated April 2009.  
 5. Region 9 PRGs were derived based on Direct contact exposure (ingestion and dermal contact) and a target Cancer Risk of 1E-6 or a Target Hazard Quotient of 0.1.  
 6. Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium) from Marilyn Wright (2001) Dietary Reference Intakes. PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.  
 7. PRG for nickel (soluble salts) was used as screening value for nickel.  
 8. Potential ARAR/TBC values are from NYSDEC Brownfield Unrestricted Use Soil Cleanup Objectives, [http://www.dec.state.ny.us/webste/regs/subpart375\\_6.html](http://www.dec.state.ny.us/webste/regs/subpart375_6.html)  
 Selection Reason:  
 Deletion Reason:  
 COPC = Chemical of Potential Concern  
 ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered  
 Q = Qualifier  
 J = Estimated Value

**TABLE 3B  
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SEAD-70 GROUNDWATER  
SENECA ARMY DEPOT ACTIVITY**

Scenario Time frame: Current/Future  
Medium: Groundwater  
Exposure Medium: Groundwater  
Exposure Point: Aquifer -- Tap Water

CAS Number	Chemical	Minimum Detected Concentration <sup>1</sup> (ug/L)	Q	Maximum Detected Concentration <sup>1</sup> (ug/L)	Q	Location of Maximum Concentration	Detection Frequency <sup>1</sup>	Range of Reporting Limits <sup>1</sup> (ug/L)	Concentration Used for Screening <sup>2</sup> (ug/L)	Background Value <sup>3</sup> (ug/L)	Screening Value <sup>4</sup> (ug/L)	Potential ARAR/TBC Value (ug/L)	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection <sup>5</sup>
<b>VOC</b>															
67-64-1	Acetone	11		11		MW70-2	1/4	10 - 10	11		22,000			NO	BSL
<b>Metals</b>															
7429-90-5	Aluminum	32.1	J	1,260		MW70-2	4/4	0 - 0	1,260	2,730	37,000			NO	BSL
7440-39-3	Barium	86.5	J	165	J	MW70-2	4/4	0 - 0	165	78.2	7,300	1,000	GA	NO	BSL
7440-70-2	Calcium	0		213,000		MW70-2	4/4	0 - 0	213,000	116,000				YES	NUT
7440-47-3	Chromium	2.9	J	2.9	J	MW70-2	1/4	0.4 - 0.4	3	4.7	11	50	GA	NO	NSV
7440-48-4	Cobalt	0.79	J	1.7	J	MW70-2	3/4	0.5 - 0.5	2	3.7				NO	BSL
7440-50-8	Copper	4.1	J	4.1	J	MW70-2	4/4	0.5 - 0.5	4	3.3	1,500	200	GA	NO	BSL
7439-92-1	Iron	78.7	J	2,140	J	MW70-2	4/4	0 - 0	2,140	4,480	0	300	GA	YES	ASL
	Iron-Manganese	320		2,332		MW70-2	4/4	0 - 0	2,332			500	GA	YES	NSV
7439-95-4	Magnesium	28,100		51,400		MW70-2	4/4	0 - 0	51,400	28,600				YES	NUT
7439-96-5	Manganese	60.2		519		MW70-4	4/4	0 - 0	519	224	880	300	GA	NO	BSL
7439-97-6	Mercury	0.04	J	0.09	J	MW70-3	4/4	0 - 0	0.09	0.04	0.57	0.7	GA	NO	BSL
7440-02-0	Nickel	0.82	J	4.5	J	MW70-2	4/4	0 - 0	5	7.3	730	100	GA	NO	BSL
7440-09-7	Potassium	1,250	J	6,380	J	MW70-4	4/4	0 - 0	6,380	3,830				YES	NUT
122-34-9	Sodium	5,220		17,800		MW70-4	4/4	0 - 0	17,800	14,600	1	20,000	GA	YES	NUT
7440-28-0	Thallium	2	J	2	J	MW70-3	1/4	1.9 - 1.9	2	2	2	2	MCL	NO	BSL
7440-62-2	Vanadium	0.6	J	2.6	J	MW70-2	3/4	0.5 - 0.5	3	5.2	260			NO	BSL
7440-66-6	Zinc	3.5	J	16.5	J	MW70-2	4/4	0 - 0	16.5	23.1	11,000			NO	BSL

**Notes:**

- Analytical results are from the 1994 ESI sampling event. Laboratory duplicates were not included in the assessment. Range of reporting limits were presented for nondetects only.
  - The maximum detected concentration was used for screening.
  - Background values are average concentrations of background sample results.
  - EPA Regional Screening Levels for tap water. On-line resources available at <http://www.epa.gov/region09/superfund/prg/index.html>. Last updated April 2009.
- Target Cancer Risk = 1E-6; Target Hazard Quotient = 0.1. Ingestion from drinking and inhalation of volatiles during showering are evaluated to derive the PRGs. Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 2L/day water intake and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and minimum requirements for 2-5 yr children (1400 mg/day for potassium) from Marilyn Wright (2001) Dietary Reference Intakes. For sodium, an upper limit intake of 2,400 mg/day (<http://www.meatinformation.com/dailyval.html>) was used.
- PRG for chromium (VI) was used as screening value for chromium.

- Rationale codes  
Selection Reason:  
Deletion Reason:  
Above Screening Levels (ASL)  
Essential Nutrient (NUT)  
Below Screening Level (BSL)  
No Screening Value (NSV)

**Definitions:**

- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- MCL = Federal Maximum Contaminant Level
- GA = New York State Class GA Groundwater Standard (TOGS 1.1.1, June 1998 with updates)
- NA = Not Applicable
- Q = Qualifier
- J = Estimated Value

TABLE 4A  
SEAD-70 SOIL EXPOSURE POINT CONCENTRATION SUMMARY  
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-70

CAS #	Chemical of Potential Concern	Units	Arithmetic Mean (1)	EPA ProUCL Student-t 95th UCL Value (1, 2, 4)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)		
								EPA ProUCL Recommended UCL Value	Medium EPC Statistic	Medium EPC Rationale
117-84-0	Di-n-octylphthalate	mg/kg	0.437	-(3)	0.490	J	mg/kg	0.49	-	-
7429-90-5	Aluminum	mg/kg	11.313	-(3)	12400		mg/kg	12400	-	-
7440-38-2	Arsenic	mg/kg	7.43	8.49	15.2	J	mg/kg	8.49	95% Student's-t UCL	Normal
7440-48-4	Cobalt	mg/kg	8.6	-(3)	12		mg/kg	11.90	-	-
7439-89-6	Iron	mg/kg	20.967	-(3)	26300		mg/kg	26300	-	-
7439-96-5	Manganese	mg/kg	332	-(3)	465		mg/kg	465	-	-

Notes:

- Field duplicates were not averaged and presented as discreet samples. Laboratory duplicates were not included in the assessment. Non-detects were included in the dataset and 95% UCL analysis was performed as 'With ND' in ProUCL.
- The EPCs were calculated using the ProUCL (Version 4.00.02) and the EPCs were selected in accordance with the ProUCL Version 4.0 User Guide (USEPA, 2004) and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).  
Q - qualifier  
J = Estimated Value  
KM = Kaplan-Meier statistical method
- Insufficient number of detects in the dataset to perform 95th UCL analysis in ProUCL. This typical means there was a single detect in the dataset for this compound.

**TABLE 4B**  
**SEAD-70 GROUNDWATER EXPOSURE POINT CONCENTRATION SUMMARY**  
**SENECA ARMY DEPOT ACTIVITY**

Scenario Time frame:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Aquifer--Tap Water

CAS #	Chemical of Potential Concern	Units	Arithmetic Mean	Maximum Detected Concentration (mg/L)	Q	Reasonable Maximum Exposure (2)	
						Medium EPC Value (mg/L)	Medium EPC Statistic
7439-89-6	Iron	mg/L	0.68	2.14		2.1E+00	MDC
							See note

**Notes:**

- Laboratory duplicates were not included in the assessment.  
 Concentrations for nondetects were excluded from the arithmetic mean calculation.
- The maximum detected concentration was used as EPC for the RME scenario.  
 As residential use of groundwater has been based on the assumption that a single private well can be placed anywhere in the contaminated plume, the MDC across several rounds of monitoring was used as the EPC for groundwater as a conservative step for both the RME scenario.

EPC = Exposure Point Concentration  
MDC = Maximum Detected Concentration  
RME = Reasonable Maximum Exposure

TABLE 4C  
 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR PARK  
 WORKERS, VISITORS, & RESIDENTS AT SEAD-70  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-70

Equation for Air EPC from Surface Soil (mg/m <sup>3</sup> ) =	CSsurf x PM10 x CF
Variables:	
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)	
PM10 = Average Measured PM10 Concentration = 32.58 ug/m <sup>3</sup>	
CF = Conversion Factor = 1E-9 kg/ug	

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface Soil	Calculated Air EPC Surface Soil
	(mg/kg)	(mg/m <sup>3</sup> )
Di-n-octylphthalate	4.9E-01	1.6E-08
Aluminum	1.2E+04	4.0E-04
Arsenic	8.5E+00	2.8E-07
Cobalt	1.2E+01	3.9E-07
Iron	2.6E+04	8.6E-04
Manganese	4.7E+02	1.5E-05

TABLE 4D  
 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS FOR  
 CONSTRUCTION WORKER AT SEAD-70  
 SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-70

Equation for Air EPC from Total Soils (mg/m<sup>3</sup>) = CStot x PM10 x CF

Variables:  
 CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)  
 PM10 = PM10 Concentration Calculated for Construction Worker= 282 ug/m<sup>3</sup>  
 CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure	
	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m <sup>3</sup> )
Di-n-octylphthalate	4.9E-01	1.6E-08
Aluminum	1.2E+04	4.0E-04
Arsenic	8.5E+00	2.8E-07
Cobalt	1.2E+01	3.9E-07
Iron	2.6E+04	8.6E-04
Manganese	4.7E+02	1.5E-05



TABLE 4E  
 CALCULATION OF AIR CONCENTRATION IN SHOWER  
 FROM VOLATILIZATION OF GROUNDWATER (DAILY) IN SEAD-70  
 SENECA ARMY DEPOT ACTIVITY

Analyte	Residential Adult		Residential Child		Residential EPC Air	Shower - Fw (L/min)	EPC Groundwater (mg/l)	Flow Rate of Air in Shower-Fa (m <sup>3</sup> /min)	Volume of Bathroom-Bathroom- (m <sup>3</sup> )	Reasonable Maximum Exposure				
	Time of Shower - T <sub>event</sub> (min)	EPC Air (mg/m <sup>3</sup> )	Time of Shower - T <sub>event</sub> (min)	EPC Air (mg/m <sup>3</sup> )						Henry Laws Constant-H (m <sup>3</sup> -atm/mol)	Asymptotic Air Conc.-Cinf (mg/m <sup>3</sup> )	Rate Constant-K (1/min)	Efficiency of Release-E (unitless)	Efficiency of TCE - E-TCE
Iron	35	1.55E+01	60	1.55E+01	19	2.14E+00	2.4	12	1.77E-02	1.69E+01	0.20	1.00E+00	0.6	0.0091
Variables: Concentration in Air (mg/m <sup>3</sup> ) = Cinf[1-(1/(kTs)(exp(-kTs)-1))]														
Assumptions: CA = Chemical Concentration in Air (mg/m <sup>3</sup> ) Ts = Time of Shower (minutes) EPC - Groundwater Data - RME 35 and 60 minutes for adult and child, respectively														
Rate Constant - k (1/min) = Fa/Vb Efficiency of Release - E (unitless) = (E-tce)(H)/(H-tce)														
Fw = Flow Rate of Shower (L/min) Fa = Flow Rate of Air in Shower (m <sup>3</sup> /min) Vb = Volume of Bathroom (m <sup>3</sup> )														
2.4 (Average Air Flow) 12 (Average Bathroom Volume)														

Note:  
 Henry's law constants not available for the inorganic COPC.



TABLE 5  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-70  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bioavailability  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (NC)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RID (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor					
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
					(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Di-n-octylphthalate	N/A	N/A	1	4.9E-01	8.49E-03	2.08E-06	8E-03	4.00E-02	4E-02	6.34E-03	6E-03	6E-03	6E-03	5E-07		
Aluminum	1.00E+00	N/A	1	1.2E+04	5.81E-06	2.08E-06	2E-02	2.74E-05	9E-02	4.34E-06	1E-02	1E-02	1E-02	5E-07		
Arsenic	3.00E-04	1.5E+00	1	8.5E+00	8.15E-06	3E-02	3E-02	3.84E-05	1E-01	6.09E-06	2E-02	2E-02	2E-02	5E-07		
Cobalt	3.00E-01	N/A	1	1.2E+01	1.80E-02	6E-02	6E-02	8.49E-02	3E-01	1.35E-02	4E-02	4E-02	4E-02	5E-07		
Iron	3.00E-01	N/A	1	2.6E+04	1.80E-02	6E-02	6E-02	8.49E-02	3E-01	1.35E-02	4E-02	4E-02	4E-02	5E-07		
Manganese	2.40E-02	N/A	1	4.7E+02	3.18E-04	1E-02	1E-02	1.50E-03	6E-02	2.38E-04	1E-02	1E-02	1E-02	5E-07		
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>1E-01</b>	<b>3E-06</b>	<b>1E-01</b>	<b>6E-01</b>	<b>6E-01</b>	<b>1E-01</b>	<b>5E-07</b>	<b>1E-01</b>	<b>5E-07</b>			
					Assumptions for Park Worker			Assumptions for Construction Worker			Assumptions for Recreational Child Visitor					
					CF = 1E-06 kg/mg EPC = EPC Surface Only BW = 70 kg IR = 100 mg/day FI = 1 unitless EF = 175 days/year ED = 25 years AT (Nc) = 9,125 days AT (Car) = 25,550 days	CF = 1E-06 kg/mg EPC = EPC Surface and Subsurface BW = 70 kg IR = 330 mg/day FI = 1 unitless EF = 250 days/year ED = 1 years AT (Nc) = 365 days AT (Car) = 25,550 days			CF = 1E-06 kg/mg EPC = EPC Surface Only BW = 15 kg IR = 200 mg/day FI = 1 unitless EF = 14 days/year ED = 5 years AT (Nc) = 1,825 days AT (Car) = 25,550 days							

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA = Information not available.

TABLE 5  
 CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-70  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times CF \times FI \times EF \times ED \times B}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Soil, mg/kg  
 IR = Ingestion Rate  
 CF = Conversion Factor  
 FI = Fraction Ingested  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RID (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	Bioavailability (unitless)	EPC Surface Soil (mg/kg)	Resident (Adult)			Resident (Child)			Resident Total Lifetime Cancer Risk	
					Intake (mg/kg-day)		Cancer Risk	Intake (mg/kg-day)		Hazard Quotient		Cancer Risk
					(Nc)	(Car)		(Nc)	(Car)			
Di-n-octylphthalate	N/A	N/A	1	4.9E-01	1.70E-02	3.99E-06	2E-02	1.59E-01	2E-01	2E-05	2E-05	
Aluminum	1.00E+00	N/A	1	1.2E+04	1.16E-05	3.99E-06	4E-02	1.08E-04	4E-01	1E-05	1E-05	
Arsenic	3.00E-04	1.5E+00	1	8.5E+00	1.63E-05	3.99E-06	5E-02	1.52E-04	5E-01	1E-05	1E-05	
Cobalt	3.00E-04	N/A	1	1.2E+01	3.60E-02	3.99E-06	1E-01	3.36E-01	1E+00	1E-05	1E-05	
Iron	3.00E-01	N/A	1	2.6E+04	6.37E-04	3.99E-06	3E-02	5.95E-03	2E-01	1E-05	1E-05	
Manganese	2.40E-02	N/A	1	4.7E+02								
<b>Total Hazard Quotient and Cancer Risk:</b>							<b>3E-01</b>		<b>2E+00</b>	<b>1E-05</b>	<b>2E-05</b>	
					Assumptions for Resident (Adult)			Assumptions for Resident (Child)				
					CF = 1E-06 kg/mg	EPC = 1E-06 kg/mg	BW = 70 kg	IR = 100 mg/day	EF = 350 days/year	ED = 24 years	AT (Nc) = 8,760 days	AT (Car) = 25,550 days
					EPC Surface Only	EPC Surface Only						
					BW = 70 kg	BW = 15 kg						
					IR = 100 mg/day	IR = 200 mg/day						
					FI = 1 unitless	FI = 1 unitless						
					EF = 350 days/year	EF = 350 days/year						
					ED = 24 years	ED = 6 years						
					AT (Nc) = 8,760 days	AT (Nc) = 2,190 days						
					AT (Car) = 25,550 days	AT (Car) = 25,550 days						

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA = Information not available.

TABLE 6  
 CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Groundwater (mg/L)  
 IR = Intake Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RfD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	EPC Groundwater (mg/liter)	Park Worker			Construction Worker			Recreational Child Visitor				
				Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk		
Iron	3.E-01	N/A	2.14	1.5E-02	5.2E-03	5E-02	2.1E-02	3.0E-04	7E-02	8.2E-03	5.9E-04	3E-02	3E-02	
<b>Total Hazard Quotient and Cancer Risk:</b>				Assumptions for Park Worker			Assumptions for Construction Worker			Assumptions for Recreational Child Visitor				
				BW = 70 kg	IR = 1 liters/day	Cancer Risk = 5E-02	BW = 70 kg	IR = 1 liters/day	Cancer Risk = 7E-02	BW = 15 kg	IR = 1.5 liters/day	Cancer Risk = 3E-02		
				EF = 175 days/year	ED = 25 years	AT (Nc) = 9,125 days	EF = 250 days/year	ED = 1 years	AT (Nc) = 365 days	EF = 14 days/year	ED = 5 years	AT (Nc) = 1,825 days		
				AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days			

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A = Information not available.

TABLE 6  
 CALCULATION OF INTAKE AND RISK FROM THE INTAKE OF GROUNDWATER  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-46  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Exposure Point Concentration in Groundwater (mg/L)  
 IR = Intake Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Oral RFD (mg/kg-day)	Carc. Slope Oral (mg/kg-day) <sup>-1</sup>	EPC Groundwater (mg/liter)	Resident (Adult)			Resident (Child)			Resident Total Lifetime Cancer Risk	
				Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk		
Iron	3.E-01	N/A	2.14	5.9E-02	2.0E-02	2E-01	2.1E-01	1.8E-02	7E-01		
<b>Total Hazard Quotient and Cancer Risk:</b>				<b>Assumptions for Resident Adult</b>			<b>Assumptions for Resident Child</b>				
				BW = 70 kg	IR = 2 liters/day	EF = 350 days/year	ED = 24 years	AT (Nc) = 8,760 days	AT (Car) = 25,550 days		
				BW = 15 kg	IR = 1.5 liters/day	EF = 350 days/year	ED = 6 years	AT (Nc) = 2,190 days	AT (Car) = 25,550 days		

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A= Information not available.

TABLE 7  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-70 SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor

EV = Event Frequency  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Ne)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day) <sup>-1</sup>	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Park Worker			Construction Worker			Recreational Child Visitor					
						Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk
						(Ne)	(Car)			(Ne)	(Car)			(Ne)	(Car)		
Di-n-octylphthalate	N/A	N/A	1.0E-01	4.9E-01	4.9E-01	5.61E-05	1.20E-04	1E-04	1.78E-05	1.78E-05	1.78E-05	1.78E-05	1.78E-05	1.78E-05	1.78E-05		
Aluminum	1.00E+00	N/A	1E-03	1.2E+04	1.2E+04	1.15E-06	2.47E-06	8E-03	3.65E-07	3.65E-07	3.65E-07	3.65E-07	3.65E-07	3.65E-07	3.65E-07		
Arsenic	3.00E-04	1.5E+00	3.0E-02	8.5E+00	8.5E+00	5.38E-08	1.15E-07	4E-04	1.70E-08	1.70E-08	1.70E-08	1.70E-08	1.70E-08	1.70E-08	1.70E-08		
Cobalt	3.00E-04	N/A	1.0E-03	1.2E+01	1.2E+01	1.19E-04	2.55E-04	8E-04	3.77E-05	3.77E-05	3.77E-05	3.77E-05	3.77E-05	3.77E-05	3.77E-05		
Iron	3.00E-01	N/A	1.0E-03	2.6E+04	2.6E+04	2.10E-06	4.50E-06	5E-03	6.66E-07	6.66E-07	6.66E-07	6.66E-07	6.66E-07	6.66E-07	6.66E-07		
Manganese	9.60E-04	N/A	1.0E-03	4.7E+02	4.7E+02	2.10E-06	4.50E-06	5E-03	6.66E-07	6.66E-07	6.66E-07	6.66E-07	6.66E-07	6.66E-07	6.66E-07		
<b>Total Hazard Quotient and Cancer Risk:</b>								<b>7E-03</b>	<b>6E-07</b>	<b>6E-07</b>	<b>1E-02</b>	<b>5E-08</b>	<b>1E-02</b>	<b>5E-08</b>	<b>2E-03</b>	<b>4E-08</b>	
						<b>Assumptions for Park Worker</b>			<b>Assumptions for Construction Worker</b>			<b>Assumptions for Recreational Child Visitor</b>					
CF =	1E-06 kg/mg					CF =	1E-06 kg/mg				CF =	1E-06 kg/mg					
CS =	EPC Surface Only					CS =	EPC Surface Only				CS =	EPC Surface Only					
BW =	70 kg					BW =	70 kg				BW =	15 kg					
SA =	3,300 cm <sup>2</sup>					SA =	3,300 cm <sup>2</sup>				SA =	2,800 cm <sup>2</sup>					
AF =	0.2 mg/cm <sup>2</sup> -event					AF =	0.3 mg/cm <sup>2</sup> -event				AF =	0.2 mg/cm <sup>2</sup> -event					
EV =	1 event/day					EV =	1 event/day				EV =	1 event/day					
EF =	175 days/year					EF =	250 days/year				EF =	14 days/year					
ED =	25 years					ED =	1 years				ED =	5 years					
AT (Ne) =	9,125 days					AT (Ne) =	365 days				AT (Ne) =	1,825 days					
AT (Car) =	25,550 days					AT (Car) =	25,550 days				AT (Car) =	25,550 days					

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

\* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).

Absorption factor for VOC was assumed to be 0.01 and metals not presented in the EPA (2004) document, assumed to be 0.001 in accordance with the USEPA Region 4 (2000)

Supplemental Guidance to RAGS; Region 4 Bulletins, Human Health Risk Assessment Bulletins

(<http://www.epa.gov/regions/waste/os/healthbul.htm>).

Absorption factor for pesticides was assumed to be 0.037 in accordance with the average absorption factor

of chlordane (0.03), DDT (0.04), and lindane (0.04) in accordance with USEPA Region 4 (2000).

TABLE 7  
 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-70 SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times CF \times SA \times AF \times ABS \times EV \times EF \times ED}{BW \times AT}$

Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = Chemical Concentration in Soil, mg/kg  
 CF = Conversion Factor  
 SA = Surface Area Contact  
 AF = Adherence Factor  
 ABS = Absorption Factor

Equation for Hazard Quotient = Chronic Daily Intake (NC)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Dermal RfD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Absorption Fraction* (unitless)	EPC Surface Soil (mg/kg)	EPC from Total Soils (mg/kg)	Resident (Adult)		Resident (Child)		Resident Total Lifetime Cancer Risk	
						Absorbed Dose (mg/kg-day) (NC)	Cancer Risk	Absorbed Dose (mg/kg-day) (Car)	Hazard Quotient		Cancer Risk
Di-n-octylphthalate	N/A	N/A	1.0E-01	4.9E-01	4.9E-01	6.78E-05	7E-05	4.44E-04	4.44E-04		
Aluminum	1.00E+00	N/A	1E-03	1.2E+04	1.2E+04	1.39E-06	5E-03	9.11E-06	3.04E-02		
Arsenic	3.00E-04	1.5E+00	3.0E-02	8.5E+00	8.5E+00	6.50E-08	2E-04	4.26E-07	1.42E-03	2E-06	
Cobalt	3.00E-04	N/A	1.0E-03	1.2E+01	1.2E+01	1.44E-04	5E-04	9.42E-04	3.14E-03		
Iron	3.00E-01	N/A	1.0E-03	2.6E+04	2.6E+04	2.54E-06	3E-03	1.66E-05	1.73E-02		
Manganese	9.60E-04	N/A	1.0E-03	4.7E+02	4.7E+02		8E-03		5E-02		
<b>Total Hazard Quotient and Cancer Risk:</b>											
						<b>Assumptions for Resident (Adult)</b>		<b>Assumptions for Resident (Child)</b>			
						CF = 1E-06 kg/mg	CF = 1E-06 kg/mg				
						EPC = EPC Surface Only	EPC = EPC Surface Only				
						BW = 70 kg	BW = 15 kg				
						SA = 5,700 cm <sup>2</sup>	SA = 2,800 cm <sup>2</sup>				
						AF = 0.07 mg/cm <sup>2</sup> -event	AF = 0.2 mg/cm <sup>2</sup> -event				
						EV = 1 event/day	EV = 1 event/day				
						EF = 350 days/year	EF = 350 days/year				
						ED = 24 years	ED = 6 years				
						AT (NC) = 8,760 days	AT (NC) = 2,190 days				
						AT (Car) = 25,550 days	AT (Car) = 25,550 days				

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.  
 \* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).  
 Absorption factor for VOC was assumed to be 0.01 and metals not presented in the EPA (2004) document, assumed to be 0.001 in accordance with the USEPA Region 4 (2000) document.  
 Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (<http://www.epa.gov/region4/waste/os/healthul.htm>).  
 Absorption factor for pesticides was assumed to be 0.037 in accordance with the average absorption factor of chlordane (0.03), DDT (0.04), and lindane (0.04) in accordance with USEPA Region 4 (2000).



TABLE 8  
CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER  
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-70  
SENECA ARMY DEPOT ACTIVITY

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day) <sup>-1</sup>	Permeability Coefficient $K_p$ (cm/hr)	$t_{event}$ (hr/event)	Fraction Absorbed Water	B	$t^*$ (hour)	EPC Ground Water (mg/L)	Absorbed Dose/Event (mg/cm <sup>2</sup> -event)	Park Worker		Construction Worker		Recreational Child Visitor	
										Intake (mg/kg-day) (NG)	Cancer Risk	Intake (mg/kg-day) (NG)	Cancer Risk	Intake (mg/kg-day) (NG)	Hazard Quotient
Iron	3.E-01	N/A	1.00E-03	8.9.E-01	1.00E+00	5.0.E-03	2.1.E+00	2.E+00	3.9.E-06	4.E-05	1E-04	1E-04	0E+00		
<b>Total Hazard Quotient and Cancer Risk:</b>										Assumptions for Construction Worker					
										BW =	70 kg				
										SA =	2,490 cm <sup>2</sup>				
										EV =	1 event/day				
										EF =	100 days/year				
										ED =	1 years				
										$t_{event}$ =	0.5 hr/event				
										AT (NG) =	365 days				
										AT (Car) =	25,550 days				

Equation for Absorbed Dose per Event (DA):  $DA = K_p \times SA \times EF \times ED \times EV / BW \times AT$

For inorganic:  $DA = K_p \times EPC \times t_{event} \times C$

For organics: If  $t_{event} < t^*$ , then:  $DA_{event} = 2 \times FA \times K_p \times EPC \times C \times ((6 \times t_{event} \times t_{event}) / p)^{1/2}$

If  $t_{event} > t^*$ , then:  $DA_{event} = FA \times K_p \times EPC \times C \times [ (t_{event} / (1+B)) + 2 \times t_{event} \times (1 + 3B + 3B^2) / (1+B)^2 ]$

$B =$  Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless)

$FA =$  Fraction absorbed water (dimensionless)

$B = K_p (MW)^{1/2} / 2.6$

If  $B < 0.6$ , then  $t^* = 2.4 \times t_{event}$

If  $B > 0.6$ , then  $t^* = 6 \times t_{event} (b - \text{SQRT}(b^2 - c^2))$

$t_{event}$  is Lag Time per event (hr/event) =  $0.105 \times 10^{(0.668 \times MW)}$

$t^*$  is time to reach steady-state (hr)

$t_{event} =$  duration of event, hr/event

$c = (1 + 3B + 3B^2) / 3(1+B)$

Equation for Hazard Quotient = Chronic Daily Intake (CDI) x Slope Factor

Equation for Cancer Risk = Chronic Daily Intake (CDI) x Slope Factor

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA = Information not available.

$K_p$  value from Exhibit B1 or B-2 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For chemicals that did not have a  $K_p$  value listed in Exhibit B-1 or B-2,  $K_p$  was calculated using:

$K_p = 10^{(-2.80 + 0.66(\log K_{ow}) - 0.0056(MW))}$

TABLE 8  
CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO GROUNDWATER  
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-70  
SENECA ARMY DEPOT ACTIVITY

<p>Equation for Dermal (mg/kg-day) = <math>\frac{DA \times SA \times EF \times ED \times EV}{BW \times AT}</math></p> <p>Variables (Assumptions for Each Receptor are Listed at the Bottom):</p> <p>DA = Absorbed Dose per Event, mg/cm<sup>2</sup>-event SA = Surface Area Contact EF = Exposure Frequency EV = Event Frequency</p> <p>ED = Exposure Duration BW = Bodyweight AT = Averaging Time</p>	<p>Equation for Absorbed Dose per Event (DA):</p> <p><math>K_p</math> = Permeability Coefficient, cm/hr EPC = EPC in Groundwater, mg/L C = Conversion Factor, 10<sup>-3</sup> L/cm<sup>3</sup></p> <p>For inorganic DA = <math>K_p \times EPC \times t_{vent} \times C</math> For organics if <math>t_{vent} &lt; t^*</math>, then: <math>DA_{vent} = 2 \times FA \times K_p \times EPC \times C \times (16 \times t_{vent} \times t_{vent}) / p^{1/2}</math> if <math>t_{vent} &gt; t^*</math>, then: <math>DA_{vent} = FA \times K_p \times EPC \times C \times [ (t_{vent} / 1 + B) + 2 \times t_{vent} \times (1 + 3 \times B + 3 \times B^2) / (1 + B^3) ]</math></p> <p>B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless) FA = Fraction absorbed water (dimensionless) B = <math>K_p \times (MW)^{1/2} / 2.6</math> <math>t_{vent}</math> is Lag Time per event (hr/event) = <math>0.105 \times 10^{(0.0005 \times MW)}</math> <math>t^*</math> is time to reach steady-state (hr) <math>t_{vent}</math> = duration of event, hr/event</p>
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Equation for Hazard Quotient = Chronic Daily Intake (NG)  
Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x  
Slope Factor

Analyte	Dermal RID (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Permeability Coefficient $K_p$ (cm/hr)	$t_{vent}$ (hr/event)	Fraction Absorbed Water	B	$t^*$ (hour)	EPC Ground Water (mg/L)	Absorbed Dose/Event (mg/cm <sup>2</sup> -event)	Resident Adult		Resident Child		Resident	
										Intake (mg/kg-day) (Car)	Hazard Quotient	Cancer Risk	Intake (mg/kg-day) (Car)	Hazard Quotient	Cancer Risk
Iron	3.E-01	N/A	1.00E-03	8.9.E-01	1.00E-00	5.0.E-03	2.1.E-00	2.E-00	5.6.E-06	1E-03	5E-03	2E-03	8E-03	0E+00	0E+00
<b>Total Hazard Quotient and Cancer Risk:</b>															
Assumptions for Resident Adult										Assumptions for Resident Child					
BW = 70 kg SA = 18,000 cm <sup>2</sup> EV = 1 event/day EF = 350 days/year ED = 24 years $t_{vent}$ = 0.58 hr/event AT (Ne) = 8,760 days AT (Car) = 25,550 days										BW = 15 kg SA = 6,600 cm <sup>2</sup> EV = 1 event/day EF = 350 days/year ED = 6 years $t_{vent}$ = 1 hr/event AT (Ne) = 2,190 days AT (Car) = 25,550 days					

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
NA = Information not available.  
Kp value from Exhibit B1 or B-2 of "Supplemental Guidance for Dermal Risk Assessment", Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume 1), August 16, 2004. For chemicals that did not have a Kp value listed in Exhibit B-1 or B-2, Kp was calculated using:  
 $K_p = 10^{-(2.80+0.66(\log Kow)-0.005(MW))}$

TABLE 9  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF GROUNDWATER (WHILE SHOWERING)  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-70  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =	$\frac{EPC \times IR \times I_{\text{event}} \times EV \times EF \times ED}{BW \times AT}$
Variables (Assumptions for Each Receptor are Listed at the Bottom):	
EPC = Exposure Point Concentration in Air (mg/m <sup>3</sup> )	
t <sub>event</sub> = Event Duration	ED = Exposure Duration
IR = Inhalation Rate	EV = Event Frequency
EF = Exposure Frequency	BW = Body Weight
	AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	EPC* Air Adult (mg/m <sup>3</sup> )	EPC* Air Child (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Resident Total Lifetime Cancer Risk	
					Intake (mg/kg-day) (Car)	Hazard Quotient	Contribution to Lifetime Cancer Risk	Intake (mg/kg-day) (Car)		Hazard Quotient
Iron	N/A	N/A	1.55E+01	1.55E+01						
<b>Total Hazard Quotient and Cancer Risk:</b>										
					Assumptions for Future Resident (Adult)					
					Assumptions for Future Resident (Child)					
					BW =	70 kg		15 kg		
					IR =	1.0 m <sup>3</sup> /hr		1.0 m <sup>3</sup> /hr		
					t <sub>event</sub> =	0.58 hr/event		1.0 hr/event		
					EV =	1 event/day		1 event/day		
					EF =	350 days/year		350 days/year		
					ED =	24 years		6 years		
					AT (Nc) =	8,760 days		2,190 days		
					AT (Car) =	25,550 days		25,550 days		

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.

NA= Information not available.

\* EPC air is the concentration of chemical available for inhalation after accounting for partitioning between the air and water in the shower.



TABLE 10  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-70 SOIL  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =  $\frac{EPC \times IR \times EF \times ED}{BW \times AT}$   
 Variables (Assumptions for Each Receptor are Listed at the Bottom):  
 EPC = EPC in Air, mg/m<sup>3</sup>  
 IR = Inhalation Rate  
 EF = Exposure Frequency  
 ED = Exposure Duration  
 BW = Bodyweight  
 AT = Averaging Time

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose  
 Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)-1	Air EPC from Surface Soil (mg/m <sup>3</sup> )	Air EPC from Total Soils (mg/m <sup>3</sup> )	Park Worker		Construction Worker		Recreational Child Visitor			
					Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Cancer Risk	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)
Di-n-octylphthalate	N/A	N/A	1.6E-08	1.6E-08	2.21E-05	5.41E-09	4.11E-05	4.02E-10	8.99E-06	4.39E-10	6E-03	7E-09
Aluminum	1.43E-03	N/A	4.0E-04	4.0E-04	2.12E-08	7.59E-09	3.95E-08	5.64E-10	8.62E-09	6.16E-10	5E-03	2E-08
Arsenic	N/A	1.51E+01	2.8E-07	2.8E-07	2.12E-08	7.59E-09	3.95E-08	5.64E-10	8.62E-09	6.16E-10	5E-03	2E-08
Cobalt	1.71E-06	3.15E+01	3.9E-07	3.9E-07	2.12E-08	7.59E-09	3.95E-08	5.64E-10	8.62E-09	6.16E-10	5E-03	2E-08
Iron	N/A	N/A	8.6E-04	8.6E-04	8.30E-07	8.30E-07	1.54E-06	1.54E-06	3.37E-07	3.37E-07	2E-02	3E-08
Manganese	1.43E-05	N/A	1.5E-05	1.5E-05	8.30E-07	8.30E-07	1.54E-06	1.54E-06	3.37E-07	3.37E-07	2E-02	3E-08
<b>Total Hazard Quotient and Cancer Risk:</b>					<b>9E-02</b>		<b>3E-07</b>		<b>2E-01</b>		<b>2E-08</b>	
					<b>Assumptions for Park Worker</b>		<b>Assumptions for Construction Worker</b>		<b>Assumptions for Recreational Child Visitor</b>			
					CA = EPC Surface Only	CA = EPC Surface and Sub-Surface	CA = EPC Surface Only	CA =	CA =	CA =	EPC Surface Only	
					BW = 70 kg	BW = 70 kg	BW = 70 kg	BW =	BW =	BW =	15 kg	
					IR = 8 m <sup>3</sup> /day	IR = 8 m <sup>3</sup> /day	IR = 10.4 m <sup>3</sup> /day	IR =	IR =	IR =	8.7 m <sup>3</sup> /day	
					EF = 175 days/year	EF = 175 days/year	EF = 250 days/year	EF =	EF =	EF =	14 days/year	
					ED = 25 years	ED = 25 years	ED = 1 year	ED =	ED =	ED =	5 years	
					AT (Nc) = 9,125 days	AT (Nc) = 9,125 days	AT (Nc) = 365 days	AT (Nc) =	AT (Nc) =	AT (Nc) =	1,825 days	
					AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) = 25,550 days	AT (Car) =	AT (Car) =	AT (Car) =	25,550 days	

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 NA= Information not available.

TABLE 10  
 CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR  
 REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-70  
 SENECA ARMY DEPOT ACTIVITY

Equation for Intake (mg/kg-day) =	$\frac{CA \times IR \times EF \times ED}{BW \times AT}$
Variables (Assumptions for Each Receptor are Listed at the Bottom):	
CA = Chemical Concentration in Air from Stockpile Soil, mg/m <sup>3</sup>	ED = Exposure Duration, year
IR = Inhalation Rate, m <sup>3</sup> /day	BW = Bodyweight, kg
EF = Exposure Frequency, day/year	AT = Averaging Time, day

Equation for Hazard Quotient = Chronic Daily Intake (Nc)/Reference Dose

Equation for Cancer Risk = Chronic Daily Intake (Car) x Slope Factor

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day) <sup>-1</sup>	Air-EPC (mg/m <sup>3</sup> )	Resident Adult		Resident Child		Total Lifetime Cancer Risk
				Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	Intake (mg/kg-day) (Nc)	Hazard Quotient (Car)	
Di-n-octylphthalate	N/A	N/A	1.6E-08	1.11E-04	8E-02	2.25E-04	2E-01	
Aluminum	1.43E-03	N/A	4.0E-04	2.60E-08	4E-07	1.32E-08	2E-07	6E-07
Arsenic	N/A	1.51E+01	2.8E-07	3.64E-08	6E-02	2.16E-07	1E-01	2E-06
Cobalt	1.71E-06	3.15E+01	3.9E-07	1.06E-07	1E-06	1.85E-08	6E-07	
Iron	N/A	N/A	8.6E-04	4.15E-06	3E-01	8.43E-06	6E-01	
Manganese	1.43E-05	N/A	1.5E-05		4E-01		9E-01	2E-06
<b>Total Hazard Quotient and Cancer Risk:</b>								
				Assumptions for Resident Adult		Assumptions for Resident Child		
				CA = EPC Surface Only		CA = EPC Surface Only		
				BW = 70 kg		BW = 15 kg		
				IR = 20 m <sup>3</sup> /day		IR = 8.7 m <sup>3</sup> /day		
				EF = 350 days/year		EF = 350 days/year		
				ED = 24 years		ED = 6 years		
				AT (Nc) = 8,760 days		AT (Nc) = 2,190 days		
				AT (Car) = 25,550 days		AT (Car) = 25,550 days		

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.  
 N/A = Information not available.

TABLE 11  
 CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-70  
 REASONABLE MAXIMUM EXPOSURE (RME)  
 SENECA ARMY DEPOT ACTIVITY

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent Contribution	Cancer Risk	Percent Contribution
<u>PARK WORKER</u>	Inhalation of Dust in Ambient Air	9E-02	32%	3E-07	8%
	Ingestion of Soil	1E-01	48%	3E-06	77%
	Intake of Groundwater	5E-02	18%	NA	
	Dermal Contact to Soil	7E-03	2%	6E-07	15%
	Dermal Contact to Groundwater	NA		NA	
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>3E-01</b>	<b>100%</b>	<b>4E-06</b>	<b>100%</b>
<u>CONSTRUCTION WORKER</u>	Inhalation of Dust in Ambient Air	2E-01	19%	2E-08	4%
	Ingestion of Soil	6E-01	71%	6E-07	88%
	Intake of Groundwater	7E-02	8%	NA	
	Dermal Contact to Soil	1E-02	2%	5E-08	8%
	Dermal Contact to Groundwater	1E-04	0%	0E+00	0%
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>8E-01</b>	<b>100%</b>	<b>7E-07</b>	<b>100%</b>
<u>RECREATIONAL CHILD VISITOR</u>	Inhalation of Dust in Ambient Air	3E-02	22%	3E-08	5%
	Ingestion of Soil	1E-01	60%	5E-07	88%
	Intake of Groundwater	3E-02	17%	BA	
	Dermal Contact to Soil	2E-03	1%	4E-08	7%
	Dermal Contact to Groundwater	NA		NA	
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>2E-01</b>	<b>100%</b>	<b>5E-07</b>	<b>100%</b>
<u>RESIDENT (ADULT)</u>	Inhalation of Dust in Ambient Air	4E-01	48%	2E-06	19%
	Ingestion of Soil	3E-01	29%	6E-06	73%
	Intake of Groundwater	2E-01	22%	NA	
	Dermal Contact to Soil	8E-03	1%	7E-07	9%
	Dermal Contact to Groundwater	5E-03	1%	0E+00	0%
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>9E-01</b>	<b>100%</b>	<b>8E-06</b>	<b>100%</b>
<u>RESIDENT (CHILD)</u>	Inhalation of Dust in Ambient Air	9E-01	22%	8E-07	5%
	Ingestion of Soil	2E+00	60%	1E-05	88%
	Intake of Groundwater	7E-01	17%	NA	
	Dermal Contact to Soil	5E-02	1%	1E-06	7%
	Dermal Contact to Groundwater	8E-03	0%	0E+00	0%
	<b>TOTAL RECEPTOR RISK (Nc &amp; Car)</b>	<b>4E+00</b>	<b>100%</b>	<b>2E-05</b>	<b>100%</b>
<u>RESIDENT (TOTAL)</u>	Inhalation of Dust in Ambient Air			2E-06	10%
	Ingestion of Soil			2E-05	83%
	Intake Groundwater			NA	
	Dermal Contact to Soil			2E-06	8%
	Dermal Contact to Groundwater			0E+00	0%
	<b>TOTAL RECEPTOR CANCER RISK</b>			<b>2E-05</b>	<b>100%</b>

NA - Not Applicable





## **Attachment G**



## Derivation of EPC in Air for Construction Worker

The EPC in air was calculated based on the soil EPC and PM<sub>10</sub> concentration. 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.

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 PM in the ambient air and therefore may be exposed to chemicals in site soils via inhalation. A model presented in the USEPA (2002a) Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, which evaluates the fugitive dust emission by truck traffic on unpaved roads during construction was used to estimate the EPC in ambient air during the construction. This model was selected as truck traffic on unpaved road is a common activity and occurs frequently 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 modeled to represent PM<sub>10</sub> produced by the construction activity.

$$EPC_{air} = EPC_{soil} \times \frac{1}{PEF_{sc}}$$

Where:

- EPC<sub>air</sub> = Exposure Point Concentration of chemicals in air associated with fugitive dust (mg/m<sup>3</sup>);
- EPC<sub>soil</sub> = Exposure Point Concentration of chemicals in soil (mg/kg);
- PEF<sub>sc</sub> = 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<sub>sr</sub> = 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<sub>D</sub> = 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>)  
 $A_R = L_R \times W_R \times 0.092903 \text{ m}^2/\text{ft}^2$
- L<sub>R</sub> = Length of road segment (ft), see Attachment H Table 1 for length

- $W_R$  = 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), 150 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  
 $A_s$  = Area extent of site surface soil contamination (acres), see Attachment H Table 1 for individual site areas  
 $B$  = 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 the sites, assuming that the daily unpaved road traffic consists of 10 two-ton cars and 2 twenty-ton trucks, the mean vehicle weight would be:

$$W = [(10cars \times 2tons / car) + (2trucks \times 20tons / truck)] / 12vehicles = 5tons$$

The sum of the fleet vehicle kilometers traveled during construction ( $\Sigma VKT$ ) can be estimated based on the size of the area of soil contamination, assuming the configuration of the unpaved road, and the amount of vehicle traffic on the road. Table 1 in Attachment H presents the assumed area of contaminated soil at the sites. It was assumed that this area would be configured as a square with the unpaved road segment dividing the square evenly, the road length would be equal to the square root of the site area; or based on existing access road within the site. Assuming that each vehicle travels the length of the road once per day, 5 days per week for a total of 3 months, the total fleet vehicle kilometers traveled would be:

$$\Sigma VKT = 12vehicles \times 0.129km / day \times 12wks / yr \times 5days / wk = 93km$$

The  $PM_{10}$  concentration estimated for the construction scenario is based on the above assumptions. The ambient air exposure point concentrations for construction workers are presented in:

- SEAD-46 in Attachment A in Tables 3A and 3B;
- SEAD-57 in Attachment B in Tables 3A and 3B;
- SEAD-002-R-01 (EOD 2) in Attachment C in Tables 2A and 2B;
- SEAD-002-R-01 (EOD 3) in Attachment D in Tables 2A and 2B;
- SEAD-007-R-01 (Grenade Range) in Attachment E in Tables 2A and 2B;
- SEAD-70 in Attachment F in Tables 3A and 3B;

**TABLE 1A  
EXPOSURE FACTOR ASSUMPTIONS FOR PARK WORKER  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Park Worker
Receptor Age:	Adult

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE	CT VALUE	CT RATIONALE	CT REFERENCE
Ingestion of Soil	EPC	Soil EPC	mg/kg	Table 2/3	Surface soils.	Table 2/3	Table ?	Surface soils.	Table ?
	BW	Body Weight	kg	70	Default value for park worker.	USEPA, 2002.	70	Default value for park worker.	USEPA, 2002.
	IR	Ingestion Rate	mg/day	100	Default value for outdoor worker.	USEPA, 2002.	50	Mean adult soil ingestion rate.	USEPA, 1997.
	FI	Fraction Ingested	unitless	1	Assuming 100% ingestion from site.	BPJ.	1	Assuming 100% ingestion from site.	BPJ.
	EF	Exposure Frequency	days/yr	175	Default value for park worker.	USEPA, 2002, 2004.	153	Default value for park worker.	USEPA, 2004.
	ED	Exposure Duration	year	25	Default value for park worker.	USEPA, 2002, 2004.	7	7 years.	USEPA, 2004.
	CF	Conversion Factor	kg/mg	1E-6	25 years.	USEPA, 2002.	1E-6	70 years, default value for park worker.	USEPA, 2004.
	AT(Nc)	Averaging Time - Nc	days	9,125	70 years, default value for park worker.	USEPA, 2002.	2,555	70 years, default value for park worker.	USEPA, 2002.
	AT(Cair)	Averaging Time - Car	days	25,550			25,550		
	Dermal Contact of Soil	EPC	Soil EPC	mg/kg	Table 2/3	Surface soils.	Table 2/3	Table ?	Surface soils.
BW		Body Weight	kg	70	Default value for park worker.	USEPA, 2002.	70	Default value for park worker.	USEPA, 2002.
SA		Skin Contact Surface Area	cm <sup>2</sup>	5,800	Hands, legs, arms, neck, and head exposed, 25% of upper bound body skin area of adult.	USEPA, 1992.	5,000	Hands, legs, arms, neck, and head exposed, 25% of average body skin area of adult.	USEPA, 1992.
AF		Adherence Factor	mg/cm <sup>2</sup> -event	1	Default value for adherence factor.	USEPA, 2002, 2004.	0.2	Default value for adherence factor.	USEPA, 2004.
EV		Event Frequency	events/day	1	Chemical-specific	USEPA, 2004.	1	Chemical-specific	USEPA, 2004.
ED		Exposure Duration	days/yr	175	Default value for park worker.	USEPA, 2004.	153	Default value for park worker.	USEPA, 2002, 2004.
CF		Conversion Factor	kg/mg	25	Default value for park worker.	USEPA, 2002, 2004.	7	Default value for park worker.	USEPA, 2004.
AT(Nc)		Averaging Time - Nc	days	9,125	25 years.	USEPA, 2002.	1E-6	7 years.	USEPA, 2004.
AT(Cair)		Averaging Time - Car	days	25,550	70 years, default value for park worker.	USEPA, 2002.	25,550	70 years, default value for park worker.	USEPA, 2002.

- Source References:
- BPJ: Best Professional Judgement.
  - USEPA, 1992: Dermal Exposure Assessment, Principles and Applications
  - USEPA, 1997: Exposure Factors Handbook
  - USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.
  - USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Notes:

RME = Reasonable Maximum Exposure  
 CT = Central Tendency Exposure

Intake Equations  
 Ingestion:  $DI = EPC \times IR \times EF \times ED \times CF \times FI / (BW \times AT)$   
 Dermal:  $DI = EPC \times SA \times AF \times ABS \times EV \times ED \times CF / (BW \times AT)$

**TABLE 1A  
EXPOSURE FACTOR ASSUMPTIONS FOR PARK WORKER  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Industrial Worker
Receptor Age:	Adult

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE	CT VALUE	CT RATIONALE	CT REFERENCE
Inhalation of Dust in Ambient Air	EPC	Air EPC	mg/m <sup>3</sup>	Table 2/3	Surface soils.	Table 2/3	Table ?	Surface soils.	Table ?
	BW	Body Weight	kg	70	Default value for park worker.	USEPA, 2002.	70	Default value for park worker.	USEPA, 1991.
	IR	Inhalation Rate	m <sup>3</sup> /day	8	Default value for park worker.	USEPA, 2002.	8	Assumes average inhalation rate of 1 m <sup>3</sup> /hr for outdoor worker for 8 hrs/day.	USEPA, 1997 & BPJ.
	EF	Exposure Frequency	days/yr	175	Default value for park worker.	USEPA, 2002, 2004.	153	Default value for park worker.	USEPA, 2004.
	ED	Exposure Duration	year	25	Default value for park worker.	USEPA, 2002, 2004.	7	Default value for park worker.	USEPA, 2004.
	AT(Nc)	Averaging Time - Nc	days	9,125	25 years.	USEPA, 2002, 2004.	2,555	7 years.	USEPA, 2004.
	AT(Cair)	Averaging Time - Car	days	25,550	70 years, default value for park worker.	USEPA, 2002.	25,550	70 years, default value for park worker.	USEPA, 2002.

Source References:

- BPJ: Best Professional Judgement.
- USEPA, 1991: Human Health Evaluation Manual. OSWER Directive 9285.6-03. Jun 25.
- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Notes:  
RME = Reasonable Maximum Exposure  
CT = Central Tendency Exposure

Intake Equation  
Inhalation  $Daily\ Intake\ (DI)\ (mg/kg\text{-}day) = EPC \times IR \times EF \times ED / (BW \times AT)$

**TABLE 1A**  
**EXPOSURE FACTOR ASSUMPTIONS FOR PARK WORKER**  
 Munitions Response  
 Seneca Army Depot Activity

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	SEAD-46 and SEAD-57
Receptor Population:	Park Worker
Receptor Age:	Adult

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE	CT VALUE	CT RATIONALE	CT REFERENCE
Intake of Groundwater	EPC	Groundwater EPC	mg/L	70	Table 3B Default value for park worker.	Table 3B USEPA, 2002.	70	Table ? Default value for park worker.	Table ? USEPA, 1991.
	BW	Body Weight	kg	1	Default intake rate for park worker.	USEPA, 1991.	1	Standard occupational ingestion rate	USEPA, 1997 & BPJ.
	IR	Intake Rate	L/day		Default value for park worker.	USEPA, 2002, 2004.	153	Default value for park worker.	USEPA, 2004.
	EF	Exposure Frequency	days/yr	175	Default value for park worker.	USEPA, 2002, 2004.	7	7 years.	USEPA, 2004.
	ED	Exposure Duration	year	25	25 years.	USEPA, 2002, 2004.	2,555	70 years, default value for park worker.	USEPA, 2004.
	AT(Nc) AT(Cair)	Averaging Time - Nc Averaging Time - Car	days days	9,125 25,550	70 years, default value for park worker.	USEPA, 2002.	25,550	70 years, default value for park worker.	USEPA, 2002.

Source References:

- BPJ: Best Professional Judgement.
- USEPA, 1991: Human Health Evaluation Manual. OSWER Directive 9285.6-03. Jun 25.
- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Notes:  
 RME = Reasonable Maximum Exposure  
 CT = Central Tendency Exposure

Intake Equation:  
 Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED/(BW x AT)





**TABLE 1B  
EXPOSURE FACTOR ASSUMPTIONS FOR CONSTRUCTION WORKER  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Construction Worker
Receptor Age:	Adult

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE
Ingestion of Soil	EPC	Soil EPC	mg/kg	Table 2/3	Surface and subsurface soils. Default value for construction worker. Default value for construction worker. Assuming 100% ingestion from site. Default value for construction worker. Default value for construction worker. 1 year. 70 years, default value for construction worker.	See Table 2/3 USEPA, 2002. USEPA, 2002. BPJ. USEPA, 2002. USEPA, 2002. USEPA, 2002. USEPA, 2002.
	BW	Body Weight	kg	70		
	IR	Ingestion Rate	mg/day	330		
	FI	Fraction Ingested	unitless	1		
	EF	Exposure Frequency	days/yr	250		
	ED	Exposure Duration	year	1		
	CF	Conversion Factor	kg/mg	1E-6		
	AT(Nc)	Averaging Time - Nc	days	365		
	AT(Cair)	Averaging Time - Car	days	25,550		
	Dermal Contact of Soil	EPC	Soil EPC	mg/kg		
BW		Body Weight	kg	70		
SA		Skin Contact Surface Area	cm <sup>2</sup>	3,300		
AF		Soil/Skin Adherence Factor	mg/cm <sup>2</sup> -event	0.3		
ABS		Dermal Absorption Fraction	unitless	1		
EV		Event Frequency	events/day	250		
EF		Exposure Frequency	days/yr	1		
ED		Exposure Duration	year	1E-6		
CF		Conversion Factor	kg/mg	365		
AT(Nc)		Averaging Time - Nc	days	25,550		
AT(Cair)	Averaging Time - Car	days	25,550			

**Notes:**

RME = Reasonable Maximum Exposure

**Intake Equations:**

Ingestion **Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x FI / (BW x AT)**

Dermal **DI (mg/kg-day) = EPC x SA x AF x ABS x EV x EF x ED x CF/(BW x AT)**

**Source References:**

- BPJ: Best Professional Judgement.
- 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.

**TABLE 1B  
EXPOSURE FACTOR ASSUMPTIONS FOR CONSTRUCTION WORKER  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Construction Worker
Receptor Age:	Adult

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE
Inhalation of Dust in Ambient Air	EPC	Air EPC	mg/m <sup>3</sup>	Table 2/3	Surface and subsurface soils. Default value for construction worker.	See Table 2/3 USEPA, 2002. USEPA, 1997.
	BW	Body Weight	kg	70		
	IR	Inhalation Rate	m <sup>3</sup> /day	10.4	Average inhalation rate for outdoor work 1.3 m <sup>3</sup> /hr, 8hr work day	
	EF	Exposure Frequency	days/yr	250	Default value for construction worker.	USEPA, 2002.
	ED	Exposure Duration	year	1	Default value for construction worker.	USEPA, 2002.
	AT(Nc) AT(Cair)	Averaging Time - Nc Averaging Time - Car	days days	365 25,550	1 year. 70 years, default value for construction worker.	USEPA, 2002. USEPA, 2002.

**Notes:**

RME = Reasonable Maximum Exposure

**Intake Equation:**

**Inhalation** Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

**Source References:**

- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites, December.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

TABLE 1B  
EXPOSURE FACTOR ASSUMPTIONS FOR CONSTRUCTION WORKER  
Munitions Response  
Seneca Army Depot Activity

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	SEAD-48 and SEAD-57
Receptor Population:	Construction Worker
Receptor Age:	Adult

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE
Intake of Groundwater	EPC	Groundwater EPC	mg/L	70	Table 3B Default value for park worker.	Table 3B USEPA, 2002.
	BW	Body Weight	kg	1	Default intake rate for park worker.	USEPA, 1991.
	IR	Intake Rate	L/day	250	Default value for park worker.	USEPA, 2002, 2004.
	EF	Exposure Frequency	days/yr	1	25 years.	USEPA, 2002, 2004.
	ED	Exposure Duration	year	365	70 years, default value for park worker.	USEPA, 2002.
Dermal of Groundwater	AT(Nc)	Averaging Time - Nc	days	25,550		
	AT(Cair)	Averaging Time - Cair	days	25,550		
	EPC	Groundwater EPC	mg/L	70	Table 3B Default value for construction worker.	Table 3B USEPA, 2002.
	BW	Body Weight	kg	2,490	Maximum surface area for adult male (including hands and forearms).	USEPA, 1997
	SA	Skin Surface Area	cm <sup>2</sup>	1		
	ED	Exposure Duration	years	100	Default value for construction worker.	USEPA, 2002, 2004
	EF	Exposure Frequency	days/yr	1	Assumes contact with groundwater 2 workdays each week for 50 weeks.	BPJ.
	EV	Event Frequency	events/day	1	Assumption.	BPJ.
	t <sub>event</sub>	Event duration (hr/event)	hr/event	0.5	Assumes half hour to assemble or disassemble a pumping system.	BPJ.
	AT(Nc)	Averaging Time - Nc	days	365	1 year.	
AT(Cair)	Averaging Time - Cair	days	25,550	70 years, default value for construction worker.	USEPA, 2002.	

**Notes:**

RME = Reasonable Maximum Exposure

**Intake Equation:**

Ingestion:  $Daily\ Intake\ (DI)\ (mg/kg\text{-}day) = EPC \times IR \times EF \times ED / (BW \times AT)$

Dermal:  $Dermal\ Absorbed\ Dose\ (DAD)\ (mg/kg\text{-}day) = (DA_{event} \times EV \times ED \times EF \times SA) / (BW \times AT)$

For Inorganics,  $DA_{event} = K_p \times EPC \times t_{event}$

For Organics, if  $t_{event} < t^*$ , then:  $DA_{event} = 2 \times FA \times K_p \times EPC \times (6 \times t_{event} \times t_{event}) / \pi^{1/2}$

if  $t_{event} > t^*$ , then:  $DA_{event} = FA \times K_p \times EPC \times [ (t_{event} / 1 + B) + 2 \times t_{event} \times (1 + 3 \times B \times 3 \times B^2) / (1 + B^2) ]$

Where:

$t^* = Time\ to\ reach\ steady\ state\ (hr)$

$t_{event} = Log\ Time\ per\ event\ (hr\text{-}event)$

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

**Source References:**

- BPJ, Best Professional Judgement
- USEPA, 1991: Human Health Evaluation Manual, OSWER Directive 9285 6-03, Jun 25
- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites, December
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.



**TABLE 1C  
EXPOSURE FACTOR ASSUMPTIONS FOR RECREATIONAL CHILD VISITOR  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Recreational Child Visitor
Receptor Age:	Child (1-10 yr)

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE
Ingestion of Soil	EPC	Soil EPC	mg/kg	Table 2/3	Surface soils.	See Table 2/3
	BW	Body Weight	kg	15	Average weight for child (Exhibit 1-2).	USEPA, 2002.
	IR	Ingestion Rate	mg/day	200	Max soil ingestion rate for child.	USEPA, 2002.
	FI	Fraction Ingested	unitless	1	Assuming 100% ingestion from site.	BPJ.
	EF	Exposure Frequency	days/yr	14	Assumption.	BPJ.
	ED	Exposure Duration	year	5	Assumption.	BPJ.
	CF	Conversion Factor	kg/mg	1.E-06		
	AT(Nc)	Averaging Time - Nc	days	1,825	5 years.	
	AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for human life span.	USEPA, 2002.
	Dermal Contact of Soil	EPC	Soil EPC	mg/kg	Table 2/3	Surface soils.
BW		Body Weight	kg	15	Average weight for child (Exhibit 1-2).	USEPA, 2002.
SA		Skin Contact Surface Area	cm <sup>2</sup>	2,800	Default value for child	USEPA, 2002.
AF		Soil/Skin Adherence Factor	mg/cm <sup>2</sup> -event	0.2	Default value for child.	USEPA, 2002.
ABS		Dermal Absorption Fraction	unitless		Chemical-specific	USEPA, 2004.
EV		Event Frequency	events/day	1	Default value for residential child.	USEPA, 2004.
EF		Exposure Frequency	days/yr	14	Assumption.	BPJ.
ED		Exposure Duration	year	5	Assumption.	BPJ.
CF		Conversion Factor	kg/mg	1E-06		
AT(Nc)		Averaging Time - Nc	days	1,825	5 years.	
AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for human life span.	USEPA, 2002.	

Notes:  
RME = Reasonable Maximum Exposure

Source References:  
· BPJ: Best Professional Judgment.  
· USEPA, 1997: Exposure Factors Handbook  
· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.  
· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equations:  
Ingestion  $DI (mg/kg\text{-}day) = EPC \times IR \times EF \times ED \times CF \times FI / (BW \times AT)$   
Dermal  $DI (mg/kg\text{-}day) = EPC \times SA \times AF \times ABS \times EV \times EF \times ED \times CF / (BW \times AT)$

**TABLE 1C  
EXPOSURE FACTOR ASSUMPTIONS FOR RECREATIONAL CHILD VISITOR  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Recreational Child Visitor
Receptor Age:	Child (1-10 yr)

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE
Inhalation of Dust in Ambient Air	EPC	Air EPC	mg/m <sup>3</sup>	Table 2/3	Surface soils.	See Table 2/3
	BW	Body Weight	kg	15	Average weight for child (Exhibit 1-2).	USEPA, 2002.
	IR	Inhalation Rate	m <sup>3</sup> /day	8.7	Average inhalation rate for child ages 0-12 yr.	USEPA, 1997.
	EF	Exposure Frequency	days/yr	14	Assumption.	BPJ.
	ED	Exposure Duration	year	5	Assumption.	BPJ.
	AT(Nc)	Averaging Time - Nc	days	1,825	6 years.	
	AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for human life span.	USEPA, 2002.

Notes:  
RME = Reasonable Maximum Exposure

Source References:  
· BPJ: Best Professional Judgment.  
· USEPA, 1997: Exposure Factors Handbook  
· USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.  
· USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equation:  
Inhalation      Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

**TABLE 1C  
EXPOSURE FACTOR ASSUMPTIONS FOR RECREATIONAL CHILD VISITOR  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	SEAD-46 and SEAD-57
Receptor Population:	Recreational Child Visitor
Receptor Age:	Child (1-10 yr)

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE
Intake of Groundwater	EPC	Groundwater EPC	mg/L	Table 3B	See Table 3B	See Table 3B
	BW	Body Weight	kg	15	Average weight for child (Exhibit 1-2).	USEPA, 2002.
	IR	Intake Rate	L/day	1.5	95th percentile for children ages 1-10 yr.	USEPA, 1997.
	EF	Exposure Frequency	days/yr	14	Assumption.	BPJ.
	ED	Exposure Duration	year	5	Assumption.	BPJ.
	AT(Nc)	Averaging Time - Nc	days	1,825	5 years.	USEPA, 2002.
	AT(Car)	Averaging Time - Car	days	25,550	70 years, default value for human life span.	USEPA, 2002.
Dermal Contact of Groundwater	EPC	Groundwater EPC	mg/L	Table 3B	See Table 3B	See Table 3B
	Kp	Permeability Constant	cm/hr	15	Chemical-specific.	USEPA, 2004.
	BW	Body Weight	kg	15	Default value for child (ages 0-6r).	USEPA, 2002.
	SA	Skin Contact Surface Area	cm <sup>2</sup>	6,600	Default RME for child showering/bathing.	USEPA, 2004.
	EV	Event Frequency	events/day	1	Default RME for child showering/bathing.	USEPA, 2004.
	t <sub>event</sub>	Event Duration	hr/event	1.0	Default RME for child showering/bathing.	USEPA, 2004.
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.
	ED	Exposure Duration	year	6	Default exposure duration.	USEPA, 2002.
	AT(Nc)	Averaging Time - Nc	days	2,190	6 years.	USEPA, 2002.
	AT(Cair)	Averaging Time - Car	days	25,550	70 years, default value for human life span.	USEPA, 2002.

Notes:  
RME = Reasonable Maximum Exposure

Source References:

- BPJ: Best Professional Judgment.
- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equation:

Intake (DI) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

Dermal (DI) (mg/kg-day) = DA<sub>event</sub> x EV x EF x SA / (BW x AT)

Where: DA<sub>event</sub> = Absorbed dose per event (mg/cm<sup>2</sup>-event)

For organic compounds:

$$If t_{event} \leq t^*, then DA_{event} = 2FAK_p \times EPC \times \sqrt{\frac{6t_{event}}{\pi}}$$

$$If t_{event} > t^*, then DA_{event} = FAK_p \times EPC \left[ \frac{t_{event}}{1+B} + 2t^* \sqrt{\frac{1+B}{(1+B)^2}} \right]$$

Where: t\* = Time to reach steady-state (hr)

$$t_{event} = Lag Time per event (hr / event)$$

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative

**TABLE 1C**  
**EXPOSURE FACTOR ASSUMPTIONS FOR RECREATIONAL CHILD VISITOR**  
**Munitions Response**  
**Seneca Army Depot Activity**

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	SEAD-46 and SEAD-57
Receptor Population:	Recreational Child Visitor
Receptor Age:	Child (1-10 yr)

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE
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to its permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

For inorganic compounds:  $DA_{event} = K_p \times EPC \times t_{event}$

DI (mg/kg-day) =  $EPC \times IR \times t_{event} \times EV \times EF \times ED / (BW \times AT)$

Inhalation



**TABLE 1D  
EXPOSURE FACTOR ASSUMPTIONS FOR RESIDENTIAL ADULT  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Residential Adult
Receptor Age:	Adult

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE	CT VALUE	CT RATIONALE	CT REFERENCE
Ingestion of Soil	EPC	Soil EPC	mg/kg	Table 2/3	See Table 2/3	See Table 2/3	Table ?	See Table ?	See Table ?
	BW	Body Weight	kg	70	Default value for adult.	USEPA, 2002.	70	Default value for adult.	USEPA, 2002.
	IR	Ingestion Rate	mg/day	100	Default soil ingestion rate for residential adult.	USEPA, 2002.	50	Central estimate of adult soil ingestion.	USEPA, 1997.
	FI	Fraction Ingested	unitless	1	Assuming 100% ingestion from site.	BPJ.	1	Assuming 100% ingestion from site.	BPJ.
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for residential receptor.	USEPA, 2002, 2004.
	ED	Exposure Duration	year	24	Default RME exposure duration.	USEPA, 2002.	9	Default CT exposure duration.	USEPA, 2004.
	CF	Conversion Factor	kg/mg	1E-6	24 years.		1E-6	9 years.	
	AT(Nc)	Averaging Time - Nc	days	8,760	70 years, default value for human life span.	USEPA, 2002.	3,285	70 years, default value for human life span.	USEPA, 2002.
	AT(Cair)	Averaging Time - Cair	days	25,550			25,550		
	Dermal Contact of Soil	EPC	Soil EPC	mg/kg	Table 2/3	See Table 2/3	See Table 2/3	Table ?	See Table ?
BW		Body Weight	kg	70	Default value for adult.	USEPA, 2002.	70	Default value for adult.	USEPA, 2002.
SA		Skin Contact Surface Area	cm <sup>2</sup>	5,700	Default value for adult.	USEPA, 2004.	5,700	Default value for adult.	USEPA, 2004.
AF		Soil/Skin Adherence Factor	mg/cm <sup>2</sup> -event	0.07	Default RME for adult.	USEPA, 2004.	0.01	Default CT value for adult.	USEPA, 2004.
ABS		Dermal Absorption Fraction	unitless	1	Chemical-specific	USEPA, 2004.	1	Chemical-specific	USEPA, 2004.
EV		Event Frequency	events/day	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.
EF		Exposure Frequency	days/yr	350	Default RME exposure duration.	USEPA, 2004.	9	Default CT exposure duration.	USEPA, 2004.
ED		Exposure Duration	year	24	24 years.		1E-6	9 years.	
CF		Conversion Factor	kg/mg	1E-6	70 years, default value for human life span.	USEPA, 2002.	3,285	70 years, default value for human life span.	USEPA, 2002.
AT(Nc)		Averaging Time - Nc	days	8,760			25,550		
AT(Cair)	Averaging Time - Cair	days	25,550						

**Source References:**

- BPJ: Best Professional Judgment.
- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

- Notes:**
- RME = Reasonable Maximum Exposure
  - CT = Central Tendency Exposure

**Intake Equations:**

Ingestion  

$$\text{Daily Intake (DI)} (\text{mg/kg-day}) = \text{EPC} \times \text{IR} \times \text{EF} \times \text{ED} \times \text{CF} \times \text{FI} / (\text{BW} \times \text{AT})$$
Dermal  

$$\text{DI} (\text{mg/kg-day}) = \text{EPC} \times \text{SA} \times \text{AF} \times \text{ABS} \times \text{EV} \times \text{EF} \times \text{ED} \times \text{CF} / (\text{BW} \times \text{AT})$$

**TABLE 1D**  
**EXPOSURE FACTOR ASSUMPTIONS FOR RESIDENTIAL ADULT**  
**Munitions Response**  
**Seneca Army Depot Activity**

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Residential Adult
Receptor Age:	Adult

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE	CT VALUE	CT RATIONALE	CT REFERENCE
Inhalation of Dust in Ambient Air	EPC	Air EPC	mg/m <sup>3</sup>	Table 2/3	See Table 2/3	See Table 2/3	Table ?	See Table ?	See Table ?
	BW	Body Weight	kg	70	Default value for adult.	USEPA, 2002.	70	Default value for adult.	USEPA, 2002.
	IR	Inhalation Rate	m <sup>3</sup> /day	20	Default value for adult.	USEPA, 1997.	13.25	Average long term exposure for men and women.	USEPA, 1997.
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default value for residential receptor.	USEPA, 2002, 2004.
	ED	Exposure Duration	year	24	Default RME exposure duration.	USEPA, 2002.	9	Default CT exposure duration.	USEPA, 2004.
	AT(Nc)	Averaging Time - Nc	days	8,760	24 years.		3,285	9 years.	
	AT(Cair)	Averaging Time - Car	days	25,550	70 years, default value for human life span.	USEPA, 2002.	25,550	70 years, default value for human life span.	USEPA, 2002.

Source References:

- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites, December.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Notes:  
RME = Reasonable Maximum Exposure  
CT = Central Tendency Exposure

Intake Equation

$$\text{Inhalation} \quad \text{Daily Intake (DI)} \text{ (mg/kg-day)} = \text{EPC} \times \text{IR} \times \text{EF} \times \text{ED} / (\text{BW} \times \text{AT})$$

**TABLE 1D  
EXPOSURE FACTOR ASSUMPTIONS FOR RESIDENTIAL ADULT  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	SEAD-46 and SEAD-57
Receptor Population:	Residential Adult
Receptor Age:	Adult

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE	CT VALUE	CT RATIONALE	CT REFERENCE
Intake of Groundwater	EPC	Groundwater EPC	mg/L	Table 3B	See Table 3B	See Table 3B	Table ?	See Table ?	See Table ?
	BW	Body Weight	kg	70	Default value for adult.	USEPA, 2002.	70	Default value for adult.	USEPA, 2002.
	IR	Intake Rate	L/day	2	Default value for adult.	USEPA, 2002.	1.41	Recommended average tapwater intake.	USEPA, 1997.
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.
	ED	Exposure Duration	year	24	Default RME exposure duration.	USEPA, 2002.	9	Default CT exposure duration.	USEPA, 2002.
	AT(Nc) AT(Cair)	Averaging Time - Nc Averaging Time - Car	days days	8,760 25,550	24 years. 70 years, default value for human life span.	USEPA, 2002.	3,285 25,550	9 years. 70 years, default value for human life span.	USEPA, 2002. USEPA, 2002.
Dermal Contact of Groundwater	EPC	Groundwater EPC	mg/L	Table 3B	See Table 3B	See Table 3B	Table ?	See Table ?	See Table ?
	Kp	Permeability Constant	cm/hr		Chemical-specific.	USEPA, 2004.		Chemical-specific.	USEPA, 2004.
	BW	Body Weight	kg	70	Default value for adult.	USEPA, 2002.	70	Default value for adult.	USEPA, 2002.
	SA	Skin Contact Surface Area	cm <sup>2</sup>	18,000	Default RME for adult showering/bathing.	USEPA, 2004.	18,000	Default CT for adult showering/bathing.	USEPA, 2004.
	EV	Event Frequency	events/day	1	Default RME for adult showering/bathing.	USEPA, 2004.	1	Default CT for adult showering/bathing.	USEPA, 2004.
	t <sub>event</sub>	Event Duration	hr/event	0.58	Default RME for adult showering/bathing.	USEPA, 2004.	0.25	Default CT for adult showering/bathing.	USEPA, 2004.
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.
	ED	Exposure Duration	year	24	Default RME exposure duration.	USEPA, 2002.	9	Default CT exposure duration.	USEPA, 2002.
	AT(Nc) AT(Cair)	Averaging Time - Nc Averaging Time - Car	days days	8,760 25,550	24 years. 70 years, default value for human life span.	USEPA, 2002.	3,285 25,550	9 years. 70 years, default value for human life span.	USEPA, 2002. USEPA, 2002.
	Inhalation of Groundwater	EPC	Air EPC	mg/m <sup>3</sup>	Table 3B	See Table 3B	See Table 3B	Table ?	See Table ?
BW		Body Weight	kg	70	Default value for adult.	USEPA, 2002.	70	Default value for adult.	USEPA, 2002.
IR		Inhalation Rate	m <sup>3</sup> /hr	1.0	Average rate for light activities.	USEPA, 1997.	1.0	Average rate for light activities.	USEPA, 1997.
EV		Event Frequency	event/day	1	Default RME for adult showering/bathing.	USEPA, 2004.	1	Default CT for adult showering/bathing.	USEPA, 2004.
t <sub>event</sub>		Event Duration	hr/event	0.58	Default RME for adult showering/bathing.	USEPA, 2004.	0.25	Default CT for adult showering/bathing.	USEPA, 2004.
EF		Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.
ED	Exposure Duration	year	24	Default RME exposure duration.	USEPA, 2002.	9	Default CT exposure duration.	USEPA, 2002.	
AT(Nc) AT(Cair)	Averaging Time - Nc Averaging Time - Car	days days	8,760 25,550	24 years. 70 years, default value for human life span.	USEPA, 2002.	3,285 25,550	9 years. 70 years, default value for human life span.	USEPA, 2002. USEPA, 2002.	

**TABLE 1D  
EXPOSURE FACTOR ASSUMPTIONS FOR RESIDENTIAL ADULT  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	SEAD-46 and SEAD-57
Receptor Population:	Residential Adult
Receptor Age:	Adult

**Source References:**

- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites, December.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

**Notes:**  
RME = Reasonable Maximum Exposure  
CT = Central Tendency Exposure

**Intake Equations:**

**Intake** Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

**Dermal** DI (mg/kg-day) = DA<sub>event</sub> x EV x EF x ED x SA / (BW x AT)

Where: DA<sub>event</sub> = Absorbed dose per event (mg/cm<sup>2</sup>-event)

For organic compounds:

$$\text{If } t_{event} \leq t^*, \text{ then } DA_{event} = 2FAK_p \times EPC \left[ \frac{C_{event} \times t_{event}}{\pi} \right]$$

$$\text{If } t_{event} > t^*, \text{ then } DA_{event} = FAK_p \times EPC \left[ \frac{t_{event}}{1+B} + 2t_{event} \sqrt{\frac{1-3B+3B^2}{(1+B)^2}} \right]$$

Where:

t\* = Time to reach steady - state (hr)

t<sub>event</sub> = Lag Time per event (hr/event)

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

For inorganic compounds: DA<sub>event</sub> = K<sub>p</sub> x EPC x t<sub>event</sub>

DI (mg/kg-day) = EPC x IR x t<sub>event</sub> x EV x EF x ED / ( BW x AT)

Inhalation

**TABLE 1E  
EXPOSURE FACTOR ASSUMPTIONS FOR RESIDENTIAL CHILD  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Residential Child
Receptor Age:	Child (0-6 yr)

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE	CT VALUE	CT RATIONALE	CT REFERENCE
Ingestion of Soil	EPC	Soil EPC	mg/kg	Table 2/3	See Table 2/3	See Table 2/3	Table ?	See Table ?	Table ?
	BW	Body Weight	kg	15	Default value for child (ages 0-6yr).	USEPA, 2002.	15	Default value for child.	USEPA, 2002.
	IR	Ingestion Rate	mg/day	200	Default soil ingestion rate for child.	USEPA, 2002.	100	Mean soil ingestion rate for child.	USEPA, 1997.
	FI	Fraction Ingested	unitless	1	Assuming 100% ingestion from site.	BPJ.	1	Assuming 100% ingestion from site.	BPJ.
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for residential receptor.	USEPA, 2002, 2004.
	ED	Exposure Duration	year	6	Default exposure duration.	USEPA, 2002.	6	Default exposure duration.	USEPA, 2002.
	CF	Conversion Factor	kg/mg	1E-6			1E-6		
	AT(Nc)	Averaging Time - Nc	days	2,190	6 years.	USEPA, 2002.	2,190	6 years.	
	AT(Cair)	Averaging Time - Car	days	25,550	70 years, default value for human life span.		25,550	70 years, default value for human life span.	USEPA, 2002.
	Dermal Contact of Soil	EPC	Soil EPC	mg/kg	Table 2/3	See Table 2/3	See Table 2/3	Table ?	See Table ?
BW		Body Weight	kg	15	Default value for child.	USEPA, 2002.	15	Default value for child.	USEPA, 2002.
SA		Skin Contact Surface Area	cm <sup>2</sup>	2,800	Default value for child.	USEPA, 2002, 2004.	2,800	Default value for child.	USEPA, 2004.
AF		Soil/Skin Adherence Factor	mg/cm <sup>2</sup> -event	0.2	Default RME value for child.	USEPA, 2002, 2004.	0.04	Default CT value for child.	USEPA, 2004.
ABS		Dermal Absorption Fraction	unitless		Chemical-specific	USEPA, 2004.		Chemical-specific	USEPA, 2004.
EV		Event Frequency	events/day	1	Default value for residential child.	USEPA, 2004, 2002.	1	Default value for residential child.	USEPA, 2004
EF		Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for residential receptor.	USEPA, 2002, 2004.
ED		Exposure Duration	year	6	Default exposure duration.	USEPA, 2002.	6	Default exposure duration.	USEPA, 2002.
CF		Conversion Factor	kg/mg	1E-6			1E-6		
AT(Nc)		Averaging Time - Nc	days	2,190	6 year.		2,190	6 years.	
AT(Cair)	Averaging Time - Car	days	25,550	70 years, default value for human life span.		25,550	70 years, default value for human life span.	USEPA, 2002.	

Notes:  
RME = Reasonable Maximum Exposure  
CT = Central Tendency Exposure

Source References:  
- BPJ: Best Professional Judgment.  
- USEPA, 1997: Exposure Factors Handbook  
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites, December.  
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Intake Equations:  
Ingestion Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED x CF x FI / (BW x AT)  
Dermal DI (mg/kg-day) = EPC x SA x AF x ABS x EV x EF x ED x CF/(BW x AT)

**TABLE 1E  
EXPOSURE FACTOR ASSUMPTIONS FOR RESIDENTIAL CHILD  
Munitions Response  
Seneca Army Depot Activity**

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-46/57/EOD2/EOD3/Grenade Range
Receptor Population:	Residential Child
Receptor Age:	Child (0-6 yr)

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE	CT VALUE	CT RATIONALE	CT REFERENCE
Inhalation of Dust in Ambient Air	EPC	Air EPC	mg/m <sup>3</sup>	Table 2/3 15	See Table 2/3 Default value for child (ages 0-6yr).	Table 2/3 USEPA, 2002.	Table ? 15	See Table ? Default value for child ages 0-6yr.	See Table ? USEPA, 2002.
	BW	Body Weight	kg	8.7	Average inhalation rate for child ages 0-12 yr.	USEPA, 1997.	8.7	Average inhalation rate for child ages 0-12.	USEPA, 1997.
	IR	Inhalation Rate	m <sup>3</sup> /day						
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential child.	USEPA, 2004, 2002.	350	Default value for residential child.	USEPA, 2002, 2004.
	ED	Exposure Duration	year	6	Default value for exposure duration.	USEPA, 2002.	6	Default value for exposure duration.	USEPA, 2002.
	AT(Nc)	Averaging Time - Nc	days	2,190	6 years.		2,190	6 years.	
	AT(Cair)	Averaging Time - Car	days	25,550	70 years, default value for human life span.	USEPA, 2002.	25,550	70 years, default value for human life span.	USEPA, 2002.

**Source References:**

- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites. December.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Notes:  
RME = Reasonable Maximum Exposure  
CT = Central Tendency Exposure

Intake Equation:  
Inhalation      Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

**TABLE 1E  
EXPOSURE FACTOR ASSUMPTIONS FOR RESIDENTIAL CHILD  
Munitions Response  
Seneca Army Depot Activity**

Scenario	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	SEAD-46 and SEAD-57
Receptor Population:	Residential Child
Receptor Age:	Child

EXPOSURE ROUTE	PARAMETER CODE	PARAMETER DEFINITION	UNITS	RME VALUE	RME RATIONALE	RME REFERENCE	CT VALUE	CT RATIONALE	CT REFERENCE
Intake of Groundwater	EPC	Groundwater EPC	mg/L	Table 3B	See Table 3B	See Table 3B	Table ?	See Table ?.	See Table ?.
	BW	Body Weight	kg	15	Default value for child (ages 0-6yr).	USEPA, 2002.	15	Default value for child ages (0-6yr).	USEPA, 2002.
	IR	Intake Rate	L/day	1.5	95th percentile for children ages 1-10 yr.	USEPA, 1997.	0.74	Average for children ages 1-10 yr.	USEPA, 1997.
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for residential receptor.	USEPA, 2002.
	ED	Exposure Duration	year	6	Default exposure duration.	USEPA, 2002.	6	Default exposure duration.	USEPA, 2002.
	AT(Nc) AT(Cair)	Averaging Time - Nc Averaging Time - Car	days days	2,190 25,550	6 years. 70 years, default value for human life span.	USEPA, 2002.	2,190 25,550	6 years. 70 years, default value for human life span.	USEPA, 2002. USEPA, 2002.
Dermal Contact of Groundwater	EPC	Groundwater EPC	mg/L	Table 3B	See Table 3B	See Table 3B	Table ?	See Table ?.	See Table ?.
	Kp	Permeability Constant	cm/hr	15	Chemical-specific.	USEPA, 2004.	15	Chemical-specific.	USEPA, 2004.
	BW	Body Weight	kg	6,600	Default value for child (ages 0-6yr).	USEPA, 2002.	6,600	Default value for child ages (0-6yr).	USEPA, 2002.
	SA	Skin Contact Surface Area	cm <sup>2</sup>	1	Default RME for child showering/bathing.	USEPA, 2004.	1	Default CT for child showering/bathing.	USEPA, 2004.
	EV	Event Frequency	events/day	1	Default RME for child showering/bathing.	USEPA, 2004.	0.33	Default CT for child showering/bathing.	USEPA, 2004.
	t <sub>event</sub>	Event Duration	hr/event	1.0	Default RME for child showering/bathing.	USEPA, 2004.	350	Default exposure frequency for residential receptor.	USEPA, 2002.
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for residential receptor.	USEPA, 2002.
	ED	Exposure Duration	year	6	Default exposure duration.	USEPA, 2002.	6	Default exposure duration.	USEPA, 2002.
	AT(Nc)	Averaging Time - Nc	days	2,190	6 years.	USEPA, 2002.	2,190	6 years.	USEPA, 2002.
	AT(Cair)	Averaging Time - Car	days	25,550	70 years, default value for human life span.	USEPA, 2002.	25,550	70 years, default value for human life span.	USEPA, 2002.
Inhalation of Groundwater	EPC	Air EPC	mg/m <sup>3</sup>	Table 3B	See Table 3B	See Table 3B	Table ?	See Table ?.	See Table ?.
	BW	Body Weight	kg	15	Default value for child ages 0-6yr.	USEPA, 2002.	15	Default value for child ages 0-6yr.	USEPA, 2002.
	IR	Inhalation Rate	m <sup>3</sup> /hr	1.0	Average inhalation rate for children with light activities.	USEPA, 1997.	1.0	Average inhalation rate for children with light activities.	USEPA, 1997.
	EV	Event Frequency	event/day	1	Default RME for child showering/bathing.	USEPA, 2004.	1	Default CT value for child showering/bathing.	USEPA, 2004.
	t <sub>event</sub>	Event Duration	hr/event	1.0	Default RME for child showering/bathing.	USEPA, 2004.	0.33	Default CT value for child showering/bathing.	USEPA, 2004.
	EF	Exposure Frequency	days/yr	350	Default exposure frequency for residential receptor.	USEPA, 2004, 2002.	350	Default exposure frequency for child showering/bathing.	USEPA, 2004, 2002.
	ED	Exposure Duration	year	6	Default exposure duration.	USEPA, 2002.	6	Default exposure frequency for residential receptor.	USEPA, 2002.
	AT(Nc) AT(Cair)	Averaging Time - Nc Averaging Time - Car	days days	2,190 25,550	6 years. 70 years, default value for human life span.	USEPA, 2002.	2,190 25,550	6 years. 70 years, default value for human life span.	USEPA, 2002. USEPA, 2002.

TABLE 1E  
**EXPOSURE FACTOR ASSUMPTIONS FOR RESIDENTIAL CHILD**  
**Munitions Response**  
**Seneca Army Depot Activity**

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	SEAD-46 and SEAD-57
Receptor Population:	Residential Child
Receptor Age:	Child

Source References:

- USEPA, 1997: Exposure Factors Handbook
- USEPA, 2002: Supplemental Guidance For Developing Soil Screening Levels For Superfund Sites: December.
- USEPA, 2004: Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final.

Notes:  
 RME = Reasonable Maximum Exposure  
 CT = Central Tendency Exposure

Intake Equations:

Daily Intake (DI) (mg/kg-day) = EPC x IR x EF x ED / (BW x AT)

DI (mg/kg-day) = DA<sub>event</sub> x EV x EF x ED x SA / (BW<sup>2</sup> x AT)

Where: DA<sub>event</sub> = Absorbed dose per event (mg/cm<sup>2</sup>-event)

For organic compounds:

$$\text{If } t_{\text{event}} < t^*, \text{ then } DA_{\text{event}} = 2FAK_p \times EPC \left[ \frac{6t_{\text{event}}^2 \times t_{\text{event}}}{\pi} \right]$$

$$\text{If } t_{\text{event}} > t^*, \text{ then } DA_{\text{event}} = FAK_p \times EPC \left[ \frac{1+3B+3B^2}{1+B} + 2t_{\text{event}} \sqrt{\frac{1+3B+3B^2}{1+B^2}} \right]$$

$t^*$  = Time to reach steady-state (hr)

$t_{\text{event}}$  = Lag Time per event (hr / event)

B = Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (ve) (dimensionless)

FA = Fraction absorbed water (dimensionless)

For inorganic compounds: DA<sub>event</sub> = K<sub>p</sub> x EPC x t<sub>event</sub>

DI (mg/kg-day) = EPC x IR x t<sub>event</sub> x EV x EF x ED / ( BW x AT)

Inhalation



TABLE 2A  
NON-CANCER TOXICITY DATA -- ORAL/DERMAL  
MUNITIONS RESPONSE

Chemical of Potential Concern	CAS Number	Chronic/Subchronic	Oral RfD Value	Oral RfD Units	Oral to Dermal 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)
Methyl cyclohexane	108-87-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzof(a)anthracene	56-55-3	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Benzof(a)pyrene	50-32-8	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Benzof(b)fluoranthene	205-99-2	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Benzof(ghi)perylene	191-24-2	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Benzof(k)fluoranthene	207-08-9	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-Ethylhexyl)phthalate	117-81-7	Chronic	2.00E-02	mg/kg-day	1	2.0E-02	mg/kg-day	Liver	1000	IRIS	7/30/2009
Chrysene	218-01-9	N/A	3.E-04	mg/kg-day	1	3.0E-04	mg/kg-day	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	53-70-3	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	132-64-9	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Di-n-octylphthalate	117-84-0	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	193-39-5	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Phenanthrene	85-01-2	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Phenol	108-95-2	Chronic	3E-01	mg/kg-day	1	3.0E-01	mg/kg-day	Developmental	300	IRIS	7/21/2009
Dieldrin	60-57-1	Chronic	5.E-05	mg/kg-day	1	5.0E-05	mg/kg-day	Liver	100	IRIS	7/21/2009
Endosulfan I	115-29-7	Chronic	6.00E-03	mg/kg-day	1	6.0E-03	mg/kg-day	Body weight	100	IRIS	7/21/2009
Endosulfan II	891-86-1	Chronic	6.00E-03	mg/kg-day	1	6.0E-03	mg/kg-day	Body weight	100	IRIS	7/21/2009
Endrin aldehyde	7421-93-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin Ketone	53494-70-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor	76-44-8	Chronic	5.00E-04	mg/kg-day	1	5.0E-04	mg/kg-day	Liver	300	IRIS	7/21/2009
Heptachlor Epoxide	1024-57-3	Chronic	1.30E-05	mg/kg-day	1	1.3E-05	mg/kg-day	Liver	1000	IRIS	7/21/2009
Aluminum	7429-90-5	Chronic	1.0E+00	mg/kg-day	1	1.0E+00	mg/kg-day	N/A	N/A	NCEA	8/26/1996
Antimony	7440-36-0	Chronic	4E-04	mg/kg-day	0.15	6E-05	mg/kg-day	Whole Body Blood	1000	IRIS	8/16/2007
Arsenic	7440-38-2	Chronic	3E-04	mg/kg-day	1	3E-04	mg/kg-day	Skin	3	IRIS	8/16/2007
Cadmium	7440-43-9	Chronic	5E-04	mg/kg-day	0.025	5.0E-04	mg/kg-day	Kidney	10	IRIS	7/21/2009
Cadmium (food)	7440-43-9	Chronic	1E-03	mg/kg-day	0.025	1.0E-03	mg/kg-day	Kidney	N/A	N/A	N/A
Chromium (VI)	18540-29-9	Chronic	3E-03	mg/kg-day	0.025	8E-05	mg/kg-day	Weight, Blood, and Other Tissues	900	IRIS	8/16/2007
Cobalt	7440-48-4	Chronic	3E-04	mg/kg-day	1	3.0E-04	mg/kg-day	N/A	N/A	NCEA	4E+04
Copper	7440-50-8	Chronic	4E-02	mg/kg-day	1	4E-02	mg/kg-day	Liver, Kidney	N/A	USEPA MCL	2/28/2007
Iron	7439-89-6	Chronic	3E-01	mg/kg-day	1	3E-01	mg/kg-day	N/A	1	NCEA	07/23/96
Lead	7439-92-1	N/A	N/A	N/A	0.15	N/A	N/A	N/A	N/A	N/A	N/A
Magnesium	7439-95-4	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	7439-96-5	Chronic	2.4E-02	mg/kg-day	0.04	1E-03	mg/kg-day	Central Nervous System	3	IRIS	8/16/2007

TABLE 2A  
NON-CANCER TOXICITY DATA -- ORAL/DERMAL  
MUNITIONS RESPONSE

Chemical of Potential Concern	CAS Number	Chronic/Subchronic	Oral RfD Value	Oral RfD Units	Oral to Dermal 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)
Selenium	7782-49-2	Chronic	5.0E-03	mg/kg-day	1	5E-03	mg/kg-day	Hair/Nail	3	IRIS	7/30/2009
Silver	7440-22-4	Chronic	5.0E-03	mg/kg-day	1	5E-03	mg/kg-day	Skin	3	IRIS	7/30/2009
Thallium	7440-28-0	Chronic	6E-04	mg/kg-day	1	6E-04	mg/kg-day	Liver, Blood, Hair	3000	IRIS	8/16/2007
Vanadium	7440-62-2	Chronic	1.0E-03	mg/kg-day	0.026	3E-05	mg/kg-day	N/A	N/A	NCEA, quoted in Region 3 and Region 9	4/6/2007

N/A = Not Applicable

NCEA = National Center for Environmental Assessment

IRIS = Integrated Risk Information System

PPRTV = EPA's Provisional Peer Reviewed Toxicity Values

- (1) Source: Supplemental Guidance for Dermal Risk Assessment. Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I). Final. USEPA. 2004.  
A default value of 1 was used if no value was available in the USEPA (2004) document.

- (2) Dermal RfD = Oral RfD x Adjustment Factor

- (3) For IRIS values, the date was the last time IRIS was checked.

For NCEA values, the date was the date of the article provided by NCEA.

For PPRTV values, the date was the date of the Region III RBC table, where the PPRTV was cited from.

- (4) The chronic oral RfD for manganese was adjusted by using a modifying factor of 3 in accordance with the IRIS recommendation.

In addition, dietary exposure (assumed 5 mg/day) was subtracted. Thus, the RfD used in this risk assessment is 1/6 of the value listed in the IRIS.

- (5) The chronic oral RfD for thallium was based on the chronic oral RfD of thallium sulfate adjusted for molecular weight differences.

TABLE 2B  
NON-CANCER TOXICITY DATA -- INHALATION  
MUNITIONS RESPONSE

Chemical of Potential Concern	CAS Number	Chronic/ Subchronic	Value Inhalation RfC	Units	Adjusted Inhalation RfD (1)	Units	Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfC, RfD, Target Organ	Dates (2) (MM/DD/YY)
Methyl cyclohexane	108-87-2	Chronic	3.0	mg/m <sup>3</sup>	8.57E-01	mg/kg-day	Kidney	100	OERL	8/3/2009
Benzofuran	56-55-3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzofluoranthene	50-32-8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzofluoranthene	205-99-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzofluoranthene	191-24-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzofluoranthene	207-08-9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-Ethylhexyl)phthalate	117-81-7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	218-01-9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenz(a,h)anthracene	53-70-3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	132-64-9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	117-84-0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofuran	193-39-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	85-01-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Phenanthrene	108-95-2	Chronic	2.00E-01	mg/m <sup>3</sup>	5.71E-02	mg/kg-day	N/A	N/A	NCEA	4/1/2009
Phenol	60-57-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	115-29-7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan I	891-86-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan II	7421-93-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin aldehyde	53494-70-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin Ketone	76-44-8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor	1024-57-3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor Epoxide	7429-90-5	Chronic	5E-03	mg/m <sup>3</sup>	1.43E-03	mg/kg-day	N/A	N/A	NCEA	6/20/1997
Aluminum	7440-36-0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	7440-38-2	Chronic	1.50E-05	mg/m <sup>3</sup>	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	7440-43-9	Chronic	1.00E-05	mg/m <sup>3</sup>	2.86E-06	mg/kg-day	N/A	N/A	NCEA	4/1/2009
Chromium (VI)	18540-29-9	Chronic	1E-04	mg/m <sup>3</sup>	3E-05	mg/kg-day	Respiratory System	300	IRIS	7/21/2009
Cobalt	7440-48-4	Chronic	6E-06	mg/m <sup>3</sup>	1.71E-06	mg/kg-day	N/A	N/A	NCEA	4/1/2009
Copper	7440-50-8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	7439-89-6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	7439-92-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Magnesium	7439-95-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	7439-96-5	Chronic	5E-05	mg/m <sup>3</sup>	1E-05	mg/kg-day	Central Nervous System	1000	IRIS	8/16/2007
Selenium	7782-49-2	Chronic	2.00E-02	mg/m <sup>3</sup>	6E-03	mg/kg-day	N/A	N/A	NCEA	7/30/2009
Silver	7440-22-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thallium	7440-28-0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	7440-62-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

- (1) Inhalation RfD was adjusted based on the assumption of 70 kg body weight and 20 h/day inhalation rate.
- (2) For IRIS values, the date was the last time IRIS was checked.

For PPRTV values, the date was the date of the Region III RfC table, where the PPRTV was cited from.

N/A = Not Applicable  
IRIS = Integrated Risk Information System  
PPRTV = EPA's Provisional Peer Reviewed Toxicity Values



TABLE 2C  
CANCER TOXICITY DATA -- ORAL/DERMAL  
MUNITIONS RESPONSE

Chemical of Potential Concern	CAS Number	Oral Cancer Slope Factor	Oral Cancer Slope Factor Source	Oral to Dermal Adjustment Factor (1)	Adjusted Dermal Cancer Slope Factor (2)	Units	Weight of Evidence/ Cancer Guideline Description	Weight of Evidence Source	Date (3) (MM/DD/YY)
Methyl cyclohexane	108-87-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	56-55-3	0.73	NCEA	1	0.73	(mg/kg-day) <sup>1</sup>	B2	IRIS	8/16/2007
Benzo(a)pyrene	50-32-8	7.3	IRIS	1	7.3	(mg/kg-day) <sup>1</sup>	B2	IRIS	8/16/2007
Benzo(b)fluoranthene	205-99-2	0.73	NCEA	1	0.73	(mg/kg-day) <sup>1</sup>	B2	IRIS	8/16/2007
Benzo(g,h,i)perylene	191-24-2	N/A	N/A	1	N/A	N/A	D	IRIS	7/21/2009
Benzo(k)fluoranthene	207-08-9	0.073	NCEA	1	0.073	(mg/kg-day) <sup>1</sup>	B2	IRIS	8/16/2007
Bis(2-Ethylhexyl)phthalate	117-81-7	1.40E-02	IRIS	1	0.014	(mg/kg-day) <sup>1</sup>	B2	IRIS	7/30/2009
Chrysene	218-01-9	0.0073	NCEA	1	0.0073	(mg/kg-day) <sup>1</sup>	B2	IRIS	8/16/2007
Dibenz(a,h)anthracene	53-70-3	7.3	NCEA	1	7.3	(mg/kg-day) <sup>1</sup>	B2	IRIS	8/16/2007
Dibenzofuran	132-64-9	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/21/2009
Di-n-octylphthalate	117-84-0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	193-39-5	0.73	NCEA	1	0.73	(mg/kg-day) <sup>1</sup>	B2	IRIS	8/16/2007
Phenanthrene	85-01-2	N/A	N/A	1	N/A	N/A	D	IRIS	7/21/2009
Phenol	108-95-2	3.00E-01	IRIS	1	3.00E-01	(mg/kg-day) <sup>1</sup>	D	IRIS	7/21/2009
Dieldrin	60-57-1	16	IRIS	1	16	(mg/kg-day) <sup>1</sup>	B2	IRIS	8/16/2007
Endosulfan I	115-29-7	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/21/2009
Endosulfan II	891-86-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin aldehyde	7421-93-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin Ketone	53494-70-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor	76-44-8	4.5	IRIS	1	4.5	(mg/kg-day) <sup>1</sup>	B2	IRIS	7/21/2009
Heptachlor Epoxide	1024-57-3	9.1	IRIS	1	9.1	(mg/kg-day) <sup>1</sup>	B2	IRIS	7/21/2009
Aluminum	7429-90-5	N/A	N/A	N/A	N/A	N/A	D	NCEA	6/20/1997
Antimony	7440-36-0	N/A	N/A	0.15	N/A	N/A	N/A	N/A	N/A
Arsenic	7440-38-2	1.5	IRIS	1	1.5	(mg/kg-day) <sup>1</sup>	A	IRIS	8/16/2007
Cadmium	7440-43-9	N/A	N/A	N/A	N/A	N/A	B1	IRIS	2/13/2006
Chromium (VI)	18540-29-9	N/A	N/A	N/A	N/A	N/A	D	IRIS	8/16/2007
Cobalt	7440-48-4	N/A	N/A	N/A	N/A	N/A	B1	IRIS	8/3/2009
Copper	7440-50-8	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/21/2009
Iron	7439-89-6	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Lead	7439-92-1	N/A	N/A	N/A	N/A	N/A	B2	IRIS	08/03/09
Magnesium	7439-95-4	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Manganese	7439-96-5	N/A	N/A	0.04	N/A	N/A	D	N/A	N/A
Selenium	7782-49-2	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/30/2009
Silver	7440-22-4	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/30/2009

**TABLE 2C  
CANCER TOXICITY DATA -- ORAL/DERMAL  
MUNITIONS RESPONSE**

Chemical of Potential Concern	CAS Number	Oral Cancer Slope Factor	Oral Cancer Slope Factor Source	Oral to Dermal Adjustment Factor (1)	Adjusted Dermal Cancer Slope Factor (2)	Units	Weight of Evidence/ Cancer Guideline Description	Weight of Evidence Source	Date (3) (MM/DD/YY)
Thallium	7440-28-0	N/A	N/A	1	N/A	N/A	D	N/A	N/A
Vanadium	7440-62-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

IRIS = Integrated Risk Information System  
 HEAST= Health Effects Assessment Summary Tables  
 NCEA = National Center for Environmental Assessment  
 PPRTV = EPA's Provisional Peer Reviewed Toxicity Values

EPA Group:  
 A - Human carcinogen  
 B1 - Probable human carcinogen - indicates that limited human data are available  
 B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans  
 C - Possible human carcinogen  
 D - Not classifiable as a human carcinogen  
 E - Evidence of noncarcinogenicity

**Notes:**

- (1) Source: USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I), Final. A default value of 1 was used if no value was available in the USEPA (2004) document.
- (2) Dermal Cancer Slope Factor = Oral Cancer Slope Factor/Adjustment Factor
- (3) For IRIS values, the date was the last time IRIS was checked.

For PPRTV and NCEA values, the date was the date of the Region III RBC table, where the PPRTV and NCEA values were cited from.

TABLE 2D  
CANCER TOXICITY DATA -- INHALATION  
MUNITIONS RESPONSE

Chemical of Potential Concern	CAS Number	Unit Risk	Units	Unit Risk Source	Adjustment (1)	Inhalation Cancer Slope Factor	Units	Weight of Evidence/ Cancer Guideline Description	Weight of Evidence Source	Date (2) (MM/DD/YY)
Methyl cyclohexane	108-87-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	56-55-3	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	8/16/2007
Benzo(a)pyrene	50-32-8	1.1E-03	(ug/m <sup>3</sup> ) <sup>-1</sup>	NCEA	3500	3.85	(ug/m <sup>3</sup> ) <sup>-1</sup>	B2	NCEA	4/1/2009
Benzo(b)fluoranthene	205-99-2	1.10E-04	(ug/m <sup>3</sup> ) <sup>-1</sup>	NCEA	3500	0.385	(ug/m <sup>3</sup> ) <sup>-1</sup>	B2	NCEA	4/1/2009
Benzo(g)hperylene	191-24-2	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/21/2009
Benzo(k)fluoranthene	207-08-9	1.10E-04	(ug/m <sup>3</sup> ) <sup>-1</sup>	NCEA	3500	0.385	(ug/m <sup>3</sup> ) <sup>-1</sup>	B2	NCEA	4/1/2009
Bis(2-Ethylhexyl)phthalate	117-81-7	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	7/30/2009
Chrysene	218-01-9	1.10E-05	(ug/m <sup>3</sup> ) <sup>-1</sup>	NCEA	3500	0.0385	(ug/m <sup>3</sup> ) <sup>-1</sup>	B2	NCEA	4/1/2009
Dibenz(a,h)anthracene	53-70-3	0.0012	(ug/m <sup>3</sup> ) <sup>-1</sup>	NCEA	3500	4.2	(ug/m <sup>3</sup> ) <sup>-1</sup>	B2	NCEA	4/1/2009
Dibenzofuran	132-64-9	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/21/2009
Di-n-octylphthalate	117-84-0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene	193-39-5	0.00011	(ug/m <sup>3</sup> ) <sup>-1</sup>	NCEA	3500	0.385	(ug/m <sup>3</sup> ) <sup>-1</sup>	B2	NCEA	4/1/2009
Phenanthrene	85-01-2	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/21/2009
Phenol	108-95-2	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/21/2009
Dieldrin	60-57-1	4.60E-03	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	16.1	(ug/m <sup>3</sup> ) <sup>-1</sup>	B2	IRIS	7/21/2009
Endosulfan I	115-29-7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan II	891-86-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin aldehyde	7421-93-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin Ketone	53494-70-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor	76-44-8	1.30E-03	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	4.55	(ug/m <sup>3</sup> ) <sup>-1</sup>	B2	IRIS	7/21/2009
Heptachlor Epoxide	1024-57-3	2.60E-03	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	9.1	(ug/m <sup>3</sup> ) <sup>-1</sup>	B2	IRIS	7/21/2009
Aluminum	7429-90-5	N/A	N/A	N/A	N/A	N/A	N/A	D	NCEA	6/20/1997
Antimony	7440-36-0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	7440-38-2	4.3E-03	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	15.05	(ug/m <sup>3</sup> ) <sup>-1</sup>	A	IRIS	8/16/2007
Cadmium	7440-43-9	1.8E-03	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	6.3	(ug/m <sup>3</sup> ) <sup>-1</sup>	B1	IRIS	7/21/2009
Chromium (VI)	18540-29-9	1.2E-02	(ug/m <sup>3</sup> ) <sup>-1</sup>	IRIS	3500	42	(ug/m <sup>3</sup> ) <sup>-1</sup>	A	IRIS	8/16/2007
Cobalt	7440-48-4	9.0E-03	(ug/m <sup>3</sup> ) <sup>-1</sup>	NCEA	3500	31.5	(ug/m <sup>3</sup> ) <sup>-1</sup>	B1	NCEA	8/3/2009
Copper	7440-50-8	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/21/2009
Iron	7439-89-6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	7439-92-1	N/A	N/A	N/A	N/A	N/A	N/A	B2	IRIS	08/03/09
Magnesium	7439-95-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	7439-96-5	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	8/16/2007
Selenium	7782-49-2	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/30/2009
Silver	7440-22-4	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	7/30/2009
Thallium	7440-28-0	N/A	N/A	N/A	N/A	N/A	N/A	D	IRIS	8/16/2007
Vanadium	7440-62-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

EPA Group:  
A - Human carcinogen  
B1 - Probable human carcinogen - indicates that limited human data are available  
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans  
C - Possible human carcinogen  
D - Not classifiable as a human carcinogen  
E - Evidence of noncarcinogenicity

Notes:  
(1) The adjustment was based on a 70 kg body weight and 20 m<sup>3</sup>/day inhalation rate.  
(2) For IRIS values, the date was the last time IRIS was checked. For NCEA values the date was the date of the Region III RBC, where the NCEA was cited from

