US Army, Engineering & Support Center
Huntsville, AL

Seneca Army Depot Activity
Romulus, NY

PARSONS

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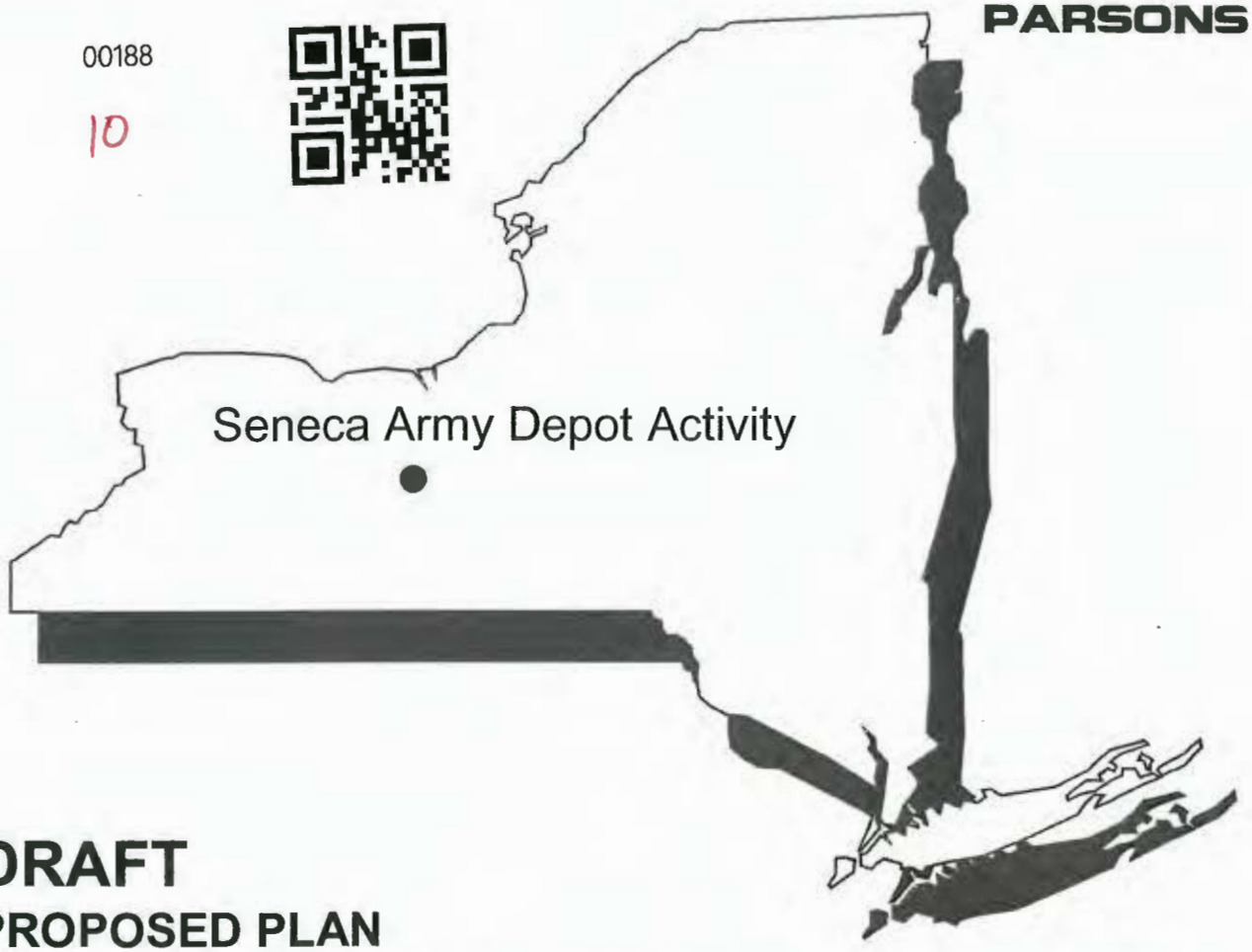

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PROPOSED PLAN

No Action/No Further Action/Institutional Controls for SWMUs SEAD-13, 39, 40, 43, 44A, 44B, 56, 67, 69 and 122B SENECA ARMY DEPOT ACTIVITY (SEDA) Romulus, New York

EPA Site ID# NY0213820830
NY Site ID# 8-50-006
CONTRACT NO. DACA87-02-D-0005
DELIVERY ORDER NOS. 0026 & 0028

April 2005

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Proposed Plan – Draft

No Action/No Further Action/Institutional Controls for SWMUs SEAD-13, 39, 40, 43, 44A, 44B, 56, 67, 69 and 122B at the SENECA ARMY DEPOT ACTIVITY (SEDA) Romulus, New York

April 2005

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1 PURPOSE OF PROPOSED PLAN

This Proposed Plan presents and summarizes data and information that the United States Army (Army) has assembled in support of its assertion that ten solid waste management units (SWMUs), designated as SEADs-13, 39, 40, 43/56/69, 44A, 44B, 67 and 122B within the Seneca Army Depot Activity (SEDA or the Depot) require No Action or No Further Action (NFA) because threats to human health or the environment resulting from petroleum products and hazardous materials do not exist. The Proposed Plan identifies the Army's and the U.S. Environmental Protection Agency's (EPA's) preferred and recommended remedial option (i.e., No Action with Institutional Controls (ICs) or No Further Action with ICs or No Further Action) for the ten SWMUs, and provides the justification and rationale for the recommended alternative at each site. Representatives of the Army developed the Proposed Plan in cooperation with the EPA, Region II and the New York State Department of Environmental Conservation (NYSDEC).

The Army is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and Section 300.430(f) of the National Contingency Plan (NCP). This Proposed Plan is being provided to inform the public of the Army's preferred and recommended remedial alternative. The Proposed Plan is intended to solicit public review and comment of available information and data and to specify the Army's preferred remedial option for the ten SWMUs. The Army's preferred remedy for the sites in this Proposed Plan is as follows:

- SEAD-13, No Action with a groundwater use and access restriction;
- SEADs-43/56/69, No Action with a reversionary deed restriction that limits use of the site in perpetuity to a prison;
- SEADs-44A and 44B, No Further Action with a reversionary deed restriction that limits use of the site in perpetuity to a prison;
- SEADs-39, 40 and 67, No Further Action combined with a planned institutional control that applies to all land within the Planned Industrial/Office Development (PID) area that restricts use and access to the groundwater and prohibits the use of the land for residential activities until and unless such access or use is

review with and approved by the Army and the EPA; and

- SEAD-122B, No Further Action.

Information provided herein, was presented to and discussed with representatives of EPA and NYSDEC and provides the basis for the Army identifying these sites as No Action with ICs, No Further Action with ICs, or No Further Action SWMUs.

This Proposed Plan identifies the preferred remedy and discusses the reasons for this preference. The Army will select a final remedy for the sites only after careful consideration of all comments received during the public comment period, and subsequent to final consultation with the EPA and NYSDEC.

2 COMMUNITY ROLE IN THE SELECTION PROCESS

The Army, the EPA, and the NYSDEC rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. A public comment period has been set from {DATE} through {DATE} to provide an opportunity for public participation in the remedy selection process for the sites. A public meeting is scheduled for {DATE} at the {LOCATION} beginning at {TIME}.

At the public meeting, the results of the site investigations and interim remedial actions (RAs) performed at the sites (as applicable) will be presented. The Army will also provide a summary of the preferred remedy, either No Action or No Further Action, for each site. During the presentation, the Army invites the public to participate in a question-and-answer period, during which time the public can ask questions or submit written comments on the Proposed Plan.

Verbal and written comments received from the public during the public meeting will be documented in the Responsiveness Summary section of the Record of Decision (ROD) document. The final ROD formalizes the selection of the remedy.

Written comments may be sent to:
Mr. Stephen Absolom
BRAC Environmental Coordinator
Building 123
5786 State Route 96
PO Box 9
Seneca Army Depot Activity
Romulus, New York 14541-0009

Information and data summarized within this Proposed Plan for each of the ten SWMUs are presented and described in greater detail within the documents contained within the Administrative Record for these sites: "Action Memorandum and Decision Document, Time-Critical Removal Actions, Four Metals Sites (SEADs 24, 50/54, & 67)" Report (Parsons, 2002a); "Final Decision Document for Time-Critical Removal Actions, Three VOC Sites" Report (Parsons, 2002b); "Revised Final – Characterization Report Small Arms Range – Airfield (Sead-122B)" (Parsons, 2004a); "Ordnance and Explosives Engineering Evaluation and Cost Assessment" (Parsons, 2004b); "Expanded Site Investigation – Eight moderately Low Priority AOC's SEADs 5, 9, 12 (A and B), (43, 56, 69), 44 (A and B), 50, 58, and 59" (Parsons, 1995); "Decision Document – Mini Risk Assessment (SEAD-9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 72, and 120B)" (Parsons, 2001); "VOC Sites – SEADs 39 and 40, Time-Critical Removal Action" (Weston, 2004); "Time-Critical Removal Action Metal Sites – SEAD 67" (Weston, 2004); "UXO and Soil Remediation AREA-44A" (Weston, 2003); which should be reviewed and consulted.

The public is encouraged to schedule a time to review the project documents at the Seneca Army Depot Activity repository (location provided below) to develop a better understanding of each of the listed sites and the investigations and studies that have been conducted.

Seneca Army Depot Activity
Building 123
5786 State Route 96
Romulus, New York 14541-0009
(607) 869-1309
Hours: Mon – Thurs. 8:30 a.m. – 2:30 p.m.

3 SITE BACKGROUND

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

The SEDA is located in an uplands area, which forms a divide separating two of the New York Finger Lakes, Cayuga Lake on the east and Seneca Lake on the west. The elevation of the facility is approximately 600 feet (ft) above Mean Sea Level (MSL).

On July 14, 1989, the EPA proposed SEDA for inclusion on the National Priorities List (NPL). Supporting its recommendation for listing, the EPA stated "the Army identified a number of potentially contaminated areas, including an unlined 13-acre landfill in the west-central portion of the depot, where solid waste and incinerator ash were disposed of intermittently for 30 years during 1941-79; two incinerator pits adjacent to the landfill, where refuse was burned at least once a week during 1941-74; a 90-acre open burning/detonation area in the northwest portion of the depot, where explosives and related wastes have been burned and detonated during the past 30 years; and the APE-1236 Deactivation Furnace in the east-central portion of the depot, where small arms are destroyed."[1] The EPA recommendation was approved and finalized on August 30, 1990, when SEDA was listed in Group 14 of the Federal Facilities portion of the NPL.

Once the Seneca Army Depot Activity was listed on the NPL, the Army, USEPA, and NYSDEC identified 57 SWMUs where historic data or information suggested, or evidence existed to support, that hazardous materials or hazardous wastes had been handled at the sites, and information or data suggested that identified materials may have possibly been released and migrated into the environment. Each of these sites was identified in the "Federal Facilities Agreement" (i.e., FFA, USEPA, NYSDEC, Army, 1993) signed by the three parties in 1993. This list was subsequently expanded to include 72 sites when the Army completed the "SWMU Classification Report, *Final*" (Parsons, 1994), which was prepared in response to the terms of the FFA. The SEDA was a generator and Treatment, Storage and Disposal Facility (TSDF) for hazardous materials; and thus, subject to regulation under the Resource Conservation and Recovery Act (RCRA). Under this permit system, corrective action is required at all SWMUs, as needed.

Remedial goals are the same for CERCLA and RCRA; thus when the 72 SWMUs were classified in the "SWMU Classification Report, *Final*" (Parsons, 1994), the Army recommended that they be listed either as No Action sites or Areas of Concern (AOCs). SWMUs listed as AOCs in the "SWMU Classification Report, *Final*" (Parsons, 1994) were then scheduled for further investigations based upon data and potential risks to the environment.

In 1995, the SEDA was designated for closure under the Department of Defense's (DoD's) Base Realignment and Closure (BRAC) process. With SEDA's inclusion on the BRAC list, the Army's emphasis expanded from expediting necessary investigations and remedial actions at prioritized sites to include the release of non-affected portions of the Depot to the surrounding community for their reuse

[1] Superfund NPL Assessment Program Database, Seneca Army Depot, Romulus, New York, http://www.epa.gov/suerfund/sites/npl/nar1249.htm.

for beneficial, non-military purposes (i.e., industrial, municipal, and residential).

Since the inclusion of the SEDA in the BRAC program, the Army has transferred approximately 8,000 acres to the community. An additional 250 acres of land have undergone a federal-to-federal transfer for continued use by the U.S. Coast Guard.

4 SITE DESCRIPTIONS

4.1 SEAD-13: Inhibited Red-Fuming Nitric Acid Disposal Site

SEAD-13 is located in the northeast portion of the Depot and includes two disposal areas, SEAD-13-East and SEAD-13-West, located on the eastern and western sides of the south end of the Duck Pond (**Figure 1 and 2**). Historically SEAD-13 was active during the early 1960s to dispose of quantities of unserviceable Inhibited Red-Fuming Nitric Acid (IRFNA), an oxidizer used in missile liquid propellant systems. It was originally thought that both areas had disposal pits but observations during the geophysical survey performed in 1993/1994 indicated that SEAD-13-East was the only area containing pits, with six (possibly seven) elongated pits being observed. The pits, which were each generally 20 to 30 ft long, oriented east to west, were marked by sparse vegetation, crushed shale and 1-inch limestone pieces at the surface. The SEAD-13-West area had no visible evidence of former disposal pits at the surface in 1993/1994 like at SEAD-13-East, however, there was an area characterized by sparse vegetation and some crushed shale.

During the operation of the IRFNA Disposal Site the pits were utilized as a neutralization area for IRFNA. The barrels of unserviceable IRFNA were stored on pallets near the west end of the pits. A stainless steel ejector, operated by water pressure, was fitted into one barrel at a time with water flowing through the ejector. The IRFNA mixed with water in the ejector and was then discharged through a long polyethylene hose under the water surface in the pit being used. During this period, the IRFNA/water mixture mixed with the limestone in the pit to facilitate the neutralization of the acid. Ten barrels were typically discharged into each pit during one day of operation.

4.2 SEAD-39: Leach Pit – Building 121

Building 121 is a boiler plant located in the administrative area (i.e., halfway along the eastern border) of the SEDA. SEAD-39 is the historic blowdown leaching area that was located exterior to, and immediately north of, Building 121 (**Figure 3**). Use of the leaching area was terminated in 1979 or 1980 when all boiler blowdown points within the Depot were connected to the sanitary sewer. After the SEAD-39 blowdown point was connected to the sewer, the area of the historic discharge was regarded and covered with topsoil. The Army estimates that six inches of fill and topsoil was placed in this area; thus, there is no depression or visible indication of where the historic blowdown leaching area was previously located. Center Street, which runs in an east-west direction, is located 50 ft to the north of Building 121 and the suspected location of the former leach pit.

Prior to connecting the boiler blowdown points to the sewer in 1979-1980, blowdown was reportedly released three times a day, and the discharged liquid was allowed to flow onto the ground at the blowdown point where it either infiltrated into the ground or flowed into the street. Each boiler is reported to have discharged between 400 and 800 gallons of blowdown liquids per day. The boiler blowdown is suspected to have contained water, tannins, caustic soda (sodium hydroxide), and sodium phosphate.

4.3 SEAD-40: Leach Pit – Building 319

Building 319 is a boiler plant located on First Street at the SEDA, which is located in the east central portion of the Depot. The historic blowdown leach pit that constitutes SEAD-40 was located in a drainage ditch next to the railroad tracks that are located north of Building 319 (**Figure 3**). A drainage pipe originating in

Building 319 is suspected to have carried blowdown liquids to the drainage ditch, where they were released and allowed to flow onto the ground. The drainage ditch originated at the mouth of the drainage pipe approximately 30 ft northeast of Building 319. The drainage ditch continued for approximately 400 ft to the north where it eventually leveled out into a grassy field. The ground surface to the north of Building 319 and to the south of the drainage ditch was covered with asphalt.

Between the time when the boilers were first installed and when the blowdown points were connected to the sanitary sewer system (1979-1980), the boilers discharged blowdown three times every 24 hours. It is estimated that the average blowdown flow totaled 400 to 800 gallons per day. The blowdown flow drained partly into the drainage ditch and partly into the ground. It is presumed that the boiler blowdown contained water condensate and a small amount of tannins, caustic soda (sodium hydroxide), and sodium phosphate that were used to reduce corrosion and scale in the boiler.

4.4 SEAD-43, 56 and 69: Building 606

SEADs-43, 56 and 69 are located in the southeastern corner of the Depot (**Figure 4**) in property that is currently associated with the New York State Department of Correctional Services' Five Points Correctional Facility. These areas are discussed, as one site because SEAD-43 and SEAD-56 both represent historic uses of Building 606 and SEAD-69 is a disposal area situated close to Building 606, which was previously suspected of receiving wastes from the two other SWMUs. The entire area encompassing the three SWMUs measures roughly 900 ft long (east-west) and 600 ft wide (north-south).

In the 1960s, Building 606 was used as a missile propellant test laboratory; this use is designated as SEAD-43, the Old Missile Propellant Test Laboratory. The Missile Propellant Test Laboratory was used for quality assurance (QA) surveillance testing of military ordnance items. Operations performed reportedly involved the operational or functional testing of explosive devices. The SWMU Classification Report (Parsons, 1994) indicates that IRFNA was used in, and stored at and near Building 606 prior to its disposal at SEAD-13. Much of the IRFNA storage occurred in a corrugated metal shed, which was exterior to and northwest of Building 606. The concrete pad was also used to aerate spill residues; thus IRFNA and/or liquid propellants from the QA laboratory may also have been released or disposed of in this area.

After 1976, Building 606 was used as pesticide and herbicide storage and mixing facility; this historic use is designated as SEAD-56, Herbicide/Pesticide Storage. Storage of pesticides and herbicides occurred at an old building foundation that was located west of Building 606. A historic, concrete underground tank was also used for the intermittent storage of wastewater generated during the rinsing of the portable truck-mounted tank that was used for mobile spraying operations at the Depot. The truck-mounted tank was rinsed between dissimilar successive pesticide and herbicide application, and the recovered wastewater was used as a diluent in successive mixing applications. In 1989 the pesticide/herbicide was upgraded when a new rinseate building was constructed to the east of Building 606, and the historic underground rinseate storage tank was replaced with a new vaulted tank that complied with changing environmental regulations.

SEAD-69 is a disposal area in an open field that is located southeast of Building 606. It is suspected that waste from the IRFNA storage and pesticide/herbicide mixing was disposed of at SEAD-69. SEAD-69 measures approximately 100 ft by 100 ft in size, and contained various construction debris including bricks and concrete blocks that were visible at the surface.

4.5 SEAD-44A: Quality Assurance Test Laboratory

SEAD-44A is located in the southeastern portion of the Depot approximately 1,000 ft east of Brady Road and 1,500 ft North of the South Patrol Road (see **Figure 4**) in property that is currently associated with the New York State Department of Correctional Services' Five Points Correctional Facility. SEAD-44A was previously occupied by Building 416 and a number of earthen berms that ran parallel to an unnamed dirt road in the site. The approximate extent of the site encompasses 25 acres

The earthen berms were historically used for QA testing of ordnance items including various pyrotechnics, firing devices, and 40-millimeter practice and chemical smoke grenades. The above ground testing of landmines also reportedly occurred in SEAD-44A in a separate bermed area. It is suspected that the area contains high levels of metals, cyanide and other contaminants associated with ordnance testing. A drainage swale runs east to west along the middle of the site; this feature drains surface water runoff to the west towards Silver Creek.

4.6 SEAD-44B: Quality Assurance Test Laboratory

SEAD-44B runs along the west side of Brady Road and occupies an area that is approximately 350 by 200 ft (**Figure 3**) in property that is currently associated with the New York State Department of Correctional Services' Five Points Correctional Facility. Two buildings were originally associated with SEAD-44B. The buildings were part of a QA test area for pyrotechnics, CS grenades and other fire devises. It is suspected that the area contains high metals and possible UXO debris.

Topographically there is a drainage ditch on the eastern border of SEAD-44B between the site and Brady Road. It was observed during a site visit in 1994 that the vegetation at the site was abundant with no observed stressed and the terrain of SEAD 44-B was relatively flat with two distinct earthen berms 1 to 2 ft high.

4.7 SEAD-67: Berms and Waste Piles

The SEAD 67 site is located in the central eastern portion of SEDA, immediately south of West Romulus Road and east of Sewage Treatment Plant No. 4. The area is undeveloped and heavily vegetated with low brush and deciduous trees.

A total of five waste soil piles and two berms were formerly staged at the SEAD 67 site. A grass covered 10-ft diameter waste soil pile and a 5-ft diameter waste soil pile were located approximately 50 ft and 70 ft respectively, to the south of West Romulus Road. A 10-ft diameter waste soil pile and a 60-ft long brush covered berm were located approximately 225 ft south of the road. Two smaller waste soil piles were located to the south of the berm. All waste soil piles and berms were approximately 3 to 4 ft high; except for the 10-ft diameter pile that was approximately 5 ft high. The origin of the bermed areas and waste piles are unknown.

The topography of the site slopes gently to the west to an unnamed stream, which is approximately 250 ft away from the former waste piles and berm structures. The stream is a Class C surface water body that flows north beneath West Romulus Road into a regulated wetland area. The wetland area provides tertiary treatment for the wastewater discharges from the treatment plant. Downstream of the wetland, the stream enters into Kendig Creek.

4.8 SEAD-122B: Small Arms Range

The small arms range (SAR, SEAD-122B) located on the Airfield along Route 96A was previously used by the Air Force, Navy and Army as a small arms qualification ground. The Airfield SAR is located in the southwest corner of SEDA adjacent to the SEDA Airfield Parcel (see **Figure 5**). The SAR consists of

two bermed small arms ranges: one previously used for small arms training; and the second previously used for machine gun targeting. Since construction by the Air Force in the early 1950s, the size and shape of the firing lanes and berms have been modified. The configuration during the investigations consisted of a 20-lane small arms range with protective wooden baffles and a two-lane machine gun range. Each of the firing line areas were surrounded on three sides (north, east and south) by earthen berms that measure up to 28 ft in height. The firing line areas are suspected to contain UXOs, high lead concentrations and possibly other high metal concentrations. Underlying the firing lines within each range area was a network of footer drains that captured surface water runoff from within the firing lines and conveyed it to the open area located west of the SAR where it was discharged. The surface water and groundwater flow is anticipated to follow the general trend of the land towards the west and Seneca Lake.

5 SITE INVESTIGATIONS AND STUDIES

5.1 SEAD 13: Inhibited Red-Fuming Nitric Acid Disposal Site

Site investigations performed at SEAD-13 included an Expanded Site Investigation (ESI) in 1993/94, followed by a Supplemental Investigation in 2001. The ESI work included geophysical investigations, surface and subsurface soil sampling, monitoring well installations, groundwater sampling, surface water/sediment sampling and chemical analyses. The supplemental investigation included additional soil borings (with surface and subsurface soil sampling), monitoring well installations, groundwater sampling and chemical analyses. Complete analytical results from both investigations are presented in *Final Decision Document Mini Risk Assessment SEAD-13, Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Area*, Parsons 2004. Data from the site investigations served as the basis of a mini-risk assessment[2] that was performed to assess potential site risks. The results of the mini-risk assessment are summarized below. A brief synopsis of the site investigations performed is presented later in this section, following the evaluation of the mini-risk assessment.

Mini-Risk Assessment

A mini-risk assessment, based on maximum concentrations detected in each media, was conducted for SEAD-13 and included exposure scenarios for a park worker, recreational visitor (child) and a construction worker. The results of the mini-risk assessment (**Table 1**) indicated that risks to all industrial and residential receptors were below the USEPA acceptable limits (i.e., Hazard index of 1 or less and a cancer risk of 10^{-4}~10^{-6} or less) if exposure to groundwater is limited. The mini-risk assessment conducted at SEAD-13 concluded that the total non-cancer hazard index (HI) from all exposure routes is less than 1 for the construction worker, but exceeds 1 for the park worker (HI=4) and the recreational visitor (HI=2). The elevated HI for both receptors is due to ingestion of groundwater, with nitrate/nitrite-nitrogen, aluminum, and manganese in groundwater as the largest contributors of risk for both land uses. When the groundwater pathway is eliminated, the total hazard indices for these receptors are 0.008 and 0.006, meeting the EPA hazard index criteria of less than 1. The Army recommends that a groundwater used restriction be imposed at SEAD-13 until the groundwater quality achieves compliance with the standards.

Supporting Investigations and Analysis

Surface / Subsurface Soils

Ten soil borings were drilled and sampled at SEAD-13. Five soil borings were advanced within

[2] A mini-risk assessment is a conservative, screening risk assessment tool. Due to the conservative nature of the mini-risk assessment, it is likely that a more traditional risk assessment would estimate even lower risks.

each of the two reported disposal areas (East and West). Three samples were collected from each boring (one surface soil sample and two subsurface samples). Samples were analyzed for Target Compound List (TCL), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), Target Analyte List (TAL) metals, cyanide, explosives, herbicides, nitrates, and fluoride.

SVOCs were only found in the surface soil samples collected at SEAD-13. In general, the concentrations of SVOCs were low, with concentrations of 4-methylphenol, benzo(a)pyrene, dibenzo(a,h)anthracene, and phenol exceeding their TAGM values in one sample. Analytical results for the surface and subsurface samples are summarized in **Tables 2 and 3** in this report.

Only one pesticide compound was detected at SEAD-13. The pesticide, 4,4'-DDE, which was found in only one surface sample, SB13-2-1 (SEAD-13-East), at an estimated concentration of 3.6 µg/Kg was below the TAGM value of 2,100 µg/Kg.

Several metals were detected in the surface and subsurface samples at SEAD-13. The metals detected (chromium, copper, lead, iron, nickel, potassium, sodium, and thallium) were above State of New York Technical and Administrative Guidance Memorandum (TAGM) #4046 cleanup objective levels. Results of the surface and subsurface samples are summarized in Tables 2 and 3 in this report.

Groundwater

During the ESI seven monitoring wells were installed at SEAD-13: four on the east side of the Duck Pond, and three on the west side of the pond. The three wells installed on the west side were positioned to investigate rumors of a disposal area, which had not previously been identified in the geophysical investigation. The wells on the east side were installed to assess the possible groundwater contamination associated with the six or seven identified pits. Four additional wells were installed in 2001/2002 to further delineate SEAD-13 and to replace two wells that were consistently found to be dry. Additional groundwater sampling, using the low-flow technique was performed in both 2001 and 2002.

Several SVOCs were detected in the groundwater samples; however, bis(2-ethylhexyl)phthalate was the only compound observed to exceed its New York Class GA criteria value of 5 µg/L. This compound was determined to be a common laboratory contaminant and is not attributed to site conditions.

Eleven metals (aluminum, antimony, arsenic, chromium, iron, lead, magnesium, manganese, nickel, selenium, and sodium) were found in the groundwater samples at concentrations above their respective Class GA standard levels. The elevated metal concentrations for chromium, iron, magnesium, and manganese were measured during the 2001 sampling round when turbidity was high. Lower turbidity readings in the 2002 sampling round showed a significant decrease in concentrations. Manganese in 2002, with the lower turbidity reading, was still at 397 µg/L, above the GA value of 300 µg/L. The remaining metal values were below the GA in 2002. Groundwater results are presented in **Table 4** and full analytical results are presented in the *Final Decision Document Mini Risk Assessment SEAD-13, Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Area*, Parsons 2004.

The groundwater samples were analyzed for nitrate/nitrite-nitrogen and fluoride, which were considered indicator compounds based on the types of materials disposed in the pits at SEAD-13. Five of the ten groundwater samples had nitrate (expressed as nitrogen) concentrations above the criteria value of 10 mg/L. The maximum nitrate value detected was 731 mg/L in sample MW13-13, which is located downgradient from the former IRFNA pits in SEAD-13-East. The nitrite concentrations were all

below the criteria value of 1 mg/L, except the concentrations at MW13-11 and MW13-14, which were detected at 2.1 mg/L and 1.1 mg/L, respectively. Fluoride was detected at concentrations ranging from 0.1 to 0.45 mg/L. All of the reported concentrations were below the Class GA Standard of 1.5 mg/L.

Surface Water/Sediment

Three sediment and surface water sample sets were collected from within the Duck Pond in 1993 to assess the potential impact of the IRFNA disposal pits on adjacent surface water bodies. Surface water samples collected in 1993 exhibited unusually high aluminum concentrations. Consequently, additional samples were collected in January 2000 at SW13-4, SW13-5, and SW13–6 to confirm the presence of aluminum and lead. Turbidity was noted in 1993 as being high in the surface water samples collected. The follow-up sampling in 2000 showed minimum turbidity readings. The correlation between the higher turbidity and higher concentrations and the lower turbidity and lower concentrations indicate that the aluminum and iron values were consistent with the lower concentrations. However, since the set of 1993 data recorded turbidity as a sample observation and not an actual value, both sets of results were used in the Risk Assessment evaluation. The surface water results are presented in **Table 5**.

Nitrate/nitrite-nitrogen was detected in six out of nine of the surface water samples at SEAD-13, with concentrations ranging from 0.02 mg/L to 0.11 mg/L. The maximum concentration, 0.11 J mg/L, was found in sample SW13-5, near the point of groundwater discharge to the pond. Fluoride was also detected in the surface water samples. The reported concentrations ranged from 0.27 to 0.39 mg/L. There are no surface water standards for nitrate/nitrite-nitrogen or fluoride.

A number of metals were detected in the sediment samples collected at SEAD-13. Of these, cadmium, chromium, copper, iron, manganese, nickel, and sodium were detected in excess of the NYSDEC Sediment Lowest Effect Level guidance values. Cadmium exceeded the criteria (0.6 mg/Kg) in five samples, with a maximum detection estimated at 0.96 mg/Kg in SD13-4. Nickel was detected in all ten sediment samples at concentrations that exceeded the criteria level of 16 mg/Kg, with a maximum concentration of nickel of 35.4 mg/Kg in sample SD13-4. Sodium was detected at concentrations that exceeded the criteria (1 mg/Kg) in four samples. The maximum concentration estimated at 326 mg/Kg was found at sample SD13-4. The manganese criterion of 460 mg/Kg was exceeded in three samples. The maximum concentration of manganese, 778 mg/Kg, was detected in sample SD13-3. The chromium criterion, 26 mg/Kg, was slightly exceeded in three sediment samples. The maximum concentration of chromium, 27.7 mg/Kg, was detected in SD13-4. The copper criteria of 16 mg/Kg was exceeded in all ten samples, with the maximum concentration of 20.7 mg/Kg detected in SD13-4. The iron criteria of 20,000 mg/Kg was exceeded by nine of the ten sediment samples collected, with the maximum concentration of 29,400 mg/Kg detected in sample SD13-4.

SVOC concentrations in sediment did not exceed the NYS Sediment Criteria for Benthic Aquatic Life Chronic Toxicity, with the exception of 4-methylphenol at SD13-4. The sediment results are presented in **Table 6**.

Nitrate/nitrite-nitrogen was detected in seven of the ten sediment samples analyzed. The maximum concentration detected was 6.4 mg/Kg in sample SD13-6. Fluoride was detected in all four of the sediment samples analyzed for fluoride. The reported concentrations ranged from 188 to 270 mg/Kg.

5.2 SEAD 39: Leach Pit – Building 121

Site work performed at SEAD-39 included a limited sampling program and a remedial action soil removal, including confirmation sampling. The

results of the investigations are summarized and presented below.

Limited Sampling Program – 1993/94

A limited sampling program was performed at SEAD-39 to obtain evidence of a release. One soil boring was advanced to a depth of 5.7 ft bgs, with a soil sample collected directly above the water table (3 – 5 ft bgs) for chemical analysis. Four surface soil samples were also collected in the area surrounding the soil boring.

Total Petroleum Hydrocarbons (TPHs) were detected below the 100 parts per million (ppm) soil standard in all samples collected with the exception of one, which had a level of 118 ppm. It could not be determined, based on the laboratory results, if the contaminants were a result of boiler blowdown liquids being released or if TPH was naturally occurring or anthropologically deposited organic material. A summary of the soil results can be found in **Table 7**, which is provided at the end of this document. Analytical results for the samples can be found in the *Final Action Memorandum and Decision Document, Time-Critical Removal Actions*, Parsons 2002.

Time Critical Removal Action - 2003

A total of 34 tons of soil was excavated at SEAD 39 to a depth of 1 foot in August 2003. Building 121 and two paved roads helped define and limit the border of the excavation. Following the excavation, eight soil samples were collected for analysis. Analytical results had elevated concentrations of one or more parameters (PAHs, arsenic, barium, and/or silver). The areas of highest concentrations were delineated in October 2003 to determine the extent needed for further excavation.

The average concentrations of PAHs in post-excavation and delineation samples show that PAH levels in soil have been significantly reduced but still above the recommended soil cleanup criteria. Although PAH exceedances were detected in all of the post-excavation and delineation samples, an evaluation of the benzo(a)pyrene toxicity equivalency (TEQ)[3] at all eight sampling locations indicated that the average TEQ was 11.17 parts per million (ppm or mg/Kg). The overall average was heavily biased by a single value of over 121 ppm (SEAD39-PX-SS-003), which was collected from a location near the boiler house blowdown release point in the shallow soils (0–6 inches). This soil includes soil and topsoil that was used to regrade the area after the boiler blowdown was connected to the sewer, and is not believed to be associated with the historic release. Without this value, the overall average TEQ falls to 3.8 ppm. The deeper sample collected from this same location showed a TEQ of 19.9 ppm. Details of the individual samples and their results are presented in **Table 8**. Results of the remainder of the confirmational sampling points indicate that the benzo(a)pyrene TEQ is not exceeded at depths greater than 6 inches, or beyond 5 ft, of the initial post-excavation sample collected at this location.

The average metals detected at the site were at levels consistent with background samples. A summary of the confirmation and delineation samples can be found in **Table 9**, at the end of this document. Analytical results for the samples collected can be found in *VOC Sites – SEAD's 39 and 40 Time-Critical Removal Action*, Weston 2004. It was determined based on the confirmation and delineation samples that further excavation would not be necessary at SEAD-39.

5.3 SEAD-40: Leach Pit – Building 319

The investigative work at SEAD-40 included a limited site investigation in 1993/94 followed by a time critical removal action (TCRA) in 2002/2003. The results of the investigations are summarized and presented below.

[3] Total carcinogenic PAHs (cPAHs) include benzo(a)pyrene; dibenzo(a,h)anthracene; benzo(a,h)anthracene: benzo(b) fluoranthene; indeno(1,2,3-cd)pyrene; benzo(k)fluouranthene; and chrysene. The TEQ should not exceed 10 mg/Kg limit.

Limited Sampling Program – 1993/94

Potential evidence of a release at SEAD-40 was evaluated with a limited sampling program in 1993/94. One soil boring was advanced in the ditch near the mouth of the drainage pipe to a depth of 5.8 ft bgs and sampled for VOCs from 4-6 ft bgs. Four surface soil samples were also collected at the site. One surface sample was collected at the mouth of the drainage pipe near the 6 ft boring, another was collected between Building 319 and the drainage ditch, and the remaining two were collected in the drainage ditch approximately 50 and 100 ft downstream of the mouth of the discharge pipe.

TPHs were detected in all samples collected at SEAD-40. The extent of the TPH contaminants indicated that the subsurface had been impacted to a depth of 6 ft near the drain discharge pipe and the surface soil along the path to where the blowdown liquids were discharged from the boiler plant. A summary of the soil results can be found in **Table 10**, which is provided at the end of this document. Analytical results for the samples can be found in the *Final Action Memorandum and Decision Document, Time-Critical Removal Actions*, Parsons 2002.

Time Critical Removal Action – 2003

Approximately 39 tons of soil was removed from SEAD-40 in August 2003. The impacted soil was excavated at one section to a depth of 1 ft bgs and at another section to a depth of 6 ft bgs. The excavation was limited in size by railroad tracks to the north and a parking lot to the south. Post-excavation samples were analyzed for VOCs, PAHs and metals. The sampling results were elevated for PAHs and non-target metals (arsenic, barium, and/or chromium). Delineation samples were collected in October 2003 to evaluate the need for further excavation at the site.

It was determined, based on the excavation and delineation samples, that the concentrations of PAH contaminants have been significantly reduced at SEAD-40; however, there are still some results that exceed the recommended soil cleanup objective criteria. An evaluation of the benzo(a)pyrene TEQ resulted indicated that the average TEQ value found at the site was 7.3 ppm, with values ranging from a low of 0.067 to a high of 48.4 ppm. TEQ exceedances were found in only ten of 47 samples (**Table 11**). All of the samples where the TEQ cleanup objective of 10 ppm were exceeded were collected from four locations (SEAD40-PX-SS-006, SEAD40-PX-SS-007, SEAD40-PX-SS-012 and SEAD40-PX-SS-013), all of which were located on the edge of the excavations, beyond the limits of the drainage channel where the boiler blowdown was previously discharged. Results of the additional delineation sampling conducted in October 2003 at these locations indicate that the benzo(a)pyrene TEQ is also exceeded in samples collected from 12 inches below grade (i.e., six inches deeper than the original confirmational sample) at sample locations PX-SS-012 and PX-SS-013; however, results from samples collected at depths of 6 and 12 inches bgs at sampling points moved 5 feet out from the excavation at locations PX-SS-012 and PX-SS-013 indicate levels below the 10 ppm TEQ value. This suggests that the lateral spread of PAHs in the direction of the nearby railroad tracks is limited. Results of the additional delineation sampling conducted on the other side of the drainage ditch indicate that the benzo(a)pyrene TEQ is not exceeded in samples collected beneath the original confirmation sample (i.e., at a depth of 12 inches bgs at the original perimeter location). However, additional delineation samples collected 5 ft away from the original perimeter sample locations, PX-SS-006 and PX-SS-007 (at depths of 6 and 12 inches bgs) indicate that concentrations in excess of the 10 ppm TEQ value are present. This suggests that runoff from the adjacent parking area, which is not a CERCLA source, is contributing to the elevated levels observed in this area.

The site-wide average of metals at the site was also below the cleanup criteria. A summary of the confirmation and delineation samples can be found in

Table 12, at the end of this document. Analytical results for the samples collected can be found in *VOC Sites – SEAD's 39 and 40 Time-Critical Removal Action*, Weston 2004. It was determined based on the confirmation and delineation samples that further excavation would not be necessary at SEAD-40.

5.4 SEAD-43, 56, and 69: Building 606

A summary of the subsurface soil, groundwater and surface water and sediment results can be found in **Tables 13-16**, which are provided at the end of this document. Analytical results for the samples collected can be found in *The Completion Report for Six Areas of Concern – SEADs (43, 56, 69), 44A, 44B, 52, 62 and 120B* Parsons, 2001. Data from the site investigations served as the basis of a mini-risk assessment, which was performed to assess potential site risks. The results of the mini-risk assessment are summarized below. A brief synopsis of the site investigations performed is presented later in this section following the evaluation of the mini-risk assessment.

Mini-Risk Assessment

The mini-risk assessment evaluated the scenarios for a prison worker, prison inmate, construction worker, on-site daycare worker and child at daycare. It should be noted that the described property shall be used and maintained for a correctional facility in perpetuity. **Table 17** summarizes the calculated cancer and non-cancer risks for all receptors and exposure routes considered in the risk assessment *Decision Document – Mini Risk Assessment SEAD 9,27,28,32,33,34,43,44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 72, and 120B –Draft Final February 2001.* The total cancer risk from all exposure routes is within or below the EPA target range for all five receptors. Likewise, the total non-cancer hazard index from all exposure routes is less than one for all five receptors.

Supporting Investigations and Analysis

Field investigations were conducted at SEAD (43, 56, and 69) in February of 1994 as part of the ESI for Eight Moderately Low Priority AOCs. (Parsons - December 1995)

Test Pits

Three test pits were excavated at SEAD-69 over distinct EM-31 geophysical anomalies and in areas with debris on the ground. The test pits revealed the presence of buried bricks, concrete blocks, construction debris and piping. No impacted soil or obvious contamination was observed in the three test pits investigated. Soil samples were not submitted for analysis from the investigated test pits.

Surface/Subsurface Soil

Ten soil borings were performed at SEADs-43, 56, and 69; three at SEAD 56, three at 69, and four at SEAD-43. A total of 30 samples from these ten borings were submitted for chemical analysis.

Five VOCs were detected in ten of the 30 soil samples collected at SEADs 43, 56 and 69. All were found at concentrations at least an order of magnitude below their respective TAGM values.

Twenty-one SVOCs were found at varying concentrations in the soil samples collected at SEAD-43, 56 and 69. Only six PAH compounds, benzo(a)anthracene, chrysene, benzo(a)pyrene, dibenzo(a,h)anthracene, benzo(b)fluoranthene, and benzo(k)fluoranthene, were found at concentrations which exceed their respective TAGM values. All of the TAGM exceedances for these compounds were in soil samples SB43-3-00, SB43-4.01 and SB43-4.02. The highest concentrations of the PAHs found above TAGM values, as well as the highest concentrations for 12 of the 15 remaining SVOCs detected at SEADs 43, 56, and 69, were found in soil sample SB43-4.02.

Two pesticides (endosulfan I and alpha-chlordane) were detected in two of the soil samples collected at SEAD-43, 56 and 69. Endosulfan I was found in sample SB-43-3.00 and was reported at a concentration of 1.2 µg/Kg (the TAGM value for endosulfan I in soil is 900 µg/Kg). Alpha-Chlordane was found in sample SB43-4.01 at a concentration of 2.4 µg/Kg (the TAGM value for alpha-chlordane is 540 µg/Kg).

Eleven metals were detected in one or more samples at concentrations that exceeded their respective TAGM values. The occurrences of TAGM exceedances were distributed throughout the 30 soil samples analyzed from SEADs 43, 56, and 69. Aluminum, chromium, iron, magnesium, potassium and zinc were the most frequently detected metals and each had reported concentrations above their associated TAGM values. Zinc was found at concentrations, which exceeded the TAGM value of 115 µg/Kg in ten of the 30 soil samples. A trace amount of cyanide (1.7 µg/Kg) was found in soil sample SB56-3-04. This was the only detected concentration of cyanide in the 30 samples collected.

Nitrate/nitrite nitrogen was detected in 83% of the soil samples collected at SEADs 43, 56, and 69. Concentrations ranged from a low of 0.02 mg/Kg in sample SB56-3-00 to a maximum of 9.7 mg/Kg in sample SB69-1-00.

Groundwater

Four groundwater-monitoring wells were installed in the vicinity of SEAD-43, 56 and 69. One monitoring well (MW43-1) was installed upgradient, along the eastern boundary of SEAD-43, 56 and 69 to obtain background water quality data. The remaining three monitoring wells were installed downgradient of the individual SEADs, in a linear fashion along the southwestern side of each area of concern being investigated.

The analysis for herbicides by method 8150 revealed 2,4,5-TP (silvex) at a concentration of 0.44 µg/L in the groundwater sample from monitoring well MW43-3. This concentration is slightly above the New York Class GA groundwater criteria of 0.26 µg/L.

Twenty metals were detected in the groundwater at SEADs-43, 56 and 69. The reported concentrations of iron in all four groundwater samples were the only values observed that exceeded the New York AWQS Class GA criteria.

The groundwater samples were analyzed for nitrate/nitrite nitrogen. Concentrations of 0.06, 0.03, and 0.02 were reported in samples MW43-1, MW43-1 and MW43-4, respectively. No indicator compounds were detected in groundwater sample MW43-2.

Surface Water

Five surface water and sediment samples were collected from drainage swales located within SEAD-43, 56, and 69. Of these samples, one was collected from the drainage swale located upgradient of the site, two samples were collected downgradient of SEAD-43 and 56 following both possible drainage directions (northwest and southwest). The final sample was collected downgradient of SEAD-69 the suspected disposal area for building 606. A duplicate sample was also collected from this location. All surface water and sediment samples were submitted for chemical analysis.

Two SVOCs were found in the surface water collected at SEADs-43, 56 and 69. Surface water sample SW43-2 had 1 µg/L of 4-Methylphenol and surface water sample SW43-1 had 150 µg/L of bis(2-ethylhexyl)phthalate. The detection of 4-Methylphenol is the only phenol detection at the Site and is equal to the New York GA Standard of 1 µg/L for total phenols.

A total of 17 metals were found in the surface water samples collected at SEADs-43, 56, and 69 concentrations. Aluminum, iron, potassium, and zinc were elevated in one or more of the five surface water samples collected. The highest concentrations of aluminum (1,190 µg/L) and iron (1,750 µg/L) were detected in sample SW43-1. The highest concentrations of potassium (277 µg/L) and zinc (1,040 µg/L) were found in surface water sample SW43-4. All other detected metals were below criteria values.

Nitrate/nitrite nitrogen was detected in all five of the surface water samples analyzed from SEADs 43, 56, and 69. The reported concentrations of nitrate/nitrite nitrogen ranged from a low of 0.01 mg/L in sample SW43-1 to a high of 1.42 mg/L in SW43-3.

Sediment

Five sediment samples were collected as part of the SEAD-43, 56, and 69 investigations. Acetone and 2-butanone were the only VOCs found in the five sediment samples collected at SEADs-43, 56, and 69. These VOCs are common laboratory contaminants.

Three herbicides were detected in the sediment samples collected at SEADs-43, 56, and 69. The herbicides 2,4,5-T, 2,4-DB, and MCPP were all found in sample SD43-2 at concentrations of 18, 110, and 17,000 µg/Kg, respectively. These were the highest concentrations of 2,4-DB and MCPP detected in the sediments at SEADs-43, 56, and 69. The maximum concentration of 2,4,5-T was 23 µg/Kg in sample SD43-3.

A total of 22 metals were detected in the sediment samples collected as part of the SEAD-43, 56, and 69 investigations. Arsenic, cadmium, chromium, copper, iron, manganese, nickel, and zinc were found at concentrations, which exceeded their respective criteria values. Except for zinc, the highest concentrations for the eight metals found above criteria values occurred in sample SD43-1. The highest reported concentration of zinc (178 µg/Kg) was in sediment sample SD43-5.

The analysis for explosives by Method 8330 detected HMX in two of the five sediment samples collected at SEADs-43, 56, and 69. The concentrations in sediment samples SD43-2 and SD43-4 were 110 and 72 µg/Kg, respectively. Nitrate/nitrite-nitrogen was detected in four of the five sediment samples. Concentrations ranged from 0.03 to 0.15 µg/Kg. The maximum concentration was found in sample SD43-3.

5.5 SEAD-44A: Quality Assurance Test Laboratory

Site investigations at SEAD-44A included a limited site investigation in 1993/94 followed by a TCRA in 2000/2002. Chemical data from the 1993 limited site investigation served as the basis of a risk assessment and inclusion in the prison risk assessment in 2000. A brief synopsis of the site investigations performed is presented later in this section, following the evaluation of the mini-risk assessment.

Mini-Risk Assessment

The risk assessment performed for SEAD-44A had total cancer risks below or within the EPA target ranges for all receptors under the prison land use scenario (i.e., prison worker, industrial worker, Institutional worker, park worker, warehouse worker construction worker, worker at onsite day-care, child at on-site day care center, institution student, recreational visitor, and trespasser). Likewise the total non-cancer risk and total non-cancer hazard indices from all exposure routes are less than one for all receptors. The described property shall be used and maintained for a correctional facility in perpetuity. The results of total cancer risk and total non-cancer hazard index can be found in **Table 18** of the Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62,

64A, 64B, 64C, 64D, 66, 68, 72, and 120B – Draft Final February 2001 (Parsons) and also summarized at the end of this document.

Supporting Investigations and Analysis

Limited Sampling Program – 1993/94

Potential evidence of release at SEAD-44A was evaluated with a limited sampling program in January of 1993/94. Nine excavations were performed at the three earthen berms; with three samples collected from each berm. Two surface soil samples were collected at various points around each of the three berms from a depth of 0 to 2 inches. Three groundwater monitoring wells were installed; one up gradient of the site and the other two downgradient of the berms. Four surface water and sediment samples were collected from the drainage swale that runs east west across the site. All samples were submitted for chemical analysis of TCLVOC, SVOC, pesticides/PCB's, TAL metals, and cyanide according to NYSDEC CLP SOW, explosives by method 8330, and nitrates by method 353.2. Analytical results for the samples collected can be found in the *Expanded Site Investigation – Eight moderately Low Priority AOC's - SEADs 5,9,12 (A and B), (43, 56, 69), 44 (A and B), 50, 58, and 59 December 1995*

Surface/Subsurface Soil

The analytical results for the 15 soil samples collected as part of the SEAD-44A investigation are presented in **Table 19**. The following is a summary of the nature and extent of the soil contamination SEAD 44A.

Surface soil samples showed no TAGM exceedances and for the most part, were very low in concentration. The subsurface samples from the berm excavation samples showed TAGM exceedances for benzo(a)anthracene, chrysene, benzo(a)pyrene, and dibenzo(a,h)anthracene. Benzo(a)pyrene was found to be present in all nine berm excavation samples. Benzo(a)pyrene was found at a maximum concentration of 1,100µg/Kg, 18 times the TAGM value of 61 µg/Kg. Benz(a)anthracene, chrysene, and dibenzo(a,h)anthracene were found at concentrations that were 2 to 11 times the TAGM value.

Nine pesticide compounds were detected in the 15 soil samples collected during the ESI all concentrations were below the respective TAGM values for the detected pesticide compounds.

Twenty-one metal compounds were detected in the 15 soil samples submitted as part of the ESI. Of the 21 metals reported, 15 were found in one or more of the samples at concentrations greater than two times the TAGM limits for those metals. The exceptions for this are the metals antimony and magnesium. These two metals were detected at three times the TAGM value.

Only one nitroaromatic compound, 2,4,6- trinitrotoluene, was detected in one soil sample at a concentration of 110J µg/Kg. Currently there is no TAGM value for 2,4,6 –TNT

Groundwater

Two VOCs were detected in the sampled groundwater, Acetone at 8 µg/L and 1,1,2,2-tetrachloroethane 3 µg/L. Neither compound was above the NYAWQS Class GA groundwater standard for the detected compound.

All metals detected in the groundwater at SEAD-44A, with the exception of iron, were at concentrations below the state and federal criteria. Iron was detected in MW44A-2 at a concentration of 4,810 µg/L; this elevated concentration of iron has been associated with the elevated turbidity in the sample (693 NTUs). Groundwater samples are presented in **Table 20**.

Surface Water / Sediments

Surface water results indicate that the unnamed drainage swale within SEAD-44A has not been significantly impacted by contaminants. Only aluminum, iron, nickel and zinc were detected at concentrations above the designated NYS class C surface water criteria value. Surface water results area presented in **Table 21**.

Sediment samples collected from the drainage swale in SEAD-44A show the presence of two SVOCs (**Table 22**). The two SVOCs detected are both phthalates and were found in low concentrations in the sample. A number of metals were detected in the sediment at SEAD 44A; of the metals detected, copper, iron, manganese, and nickel were detected at concentrations that exceeded the NYSDEC Sediment Criteria.

Time Critical Removal Action – 2000/2002

Between 2000 and 2002 three separate contractors EODT, Parsons and Weston Solutions, Inc. performed a site wide UXO and Soil Remediation at SEAD-44A. This UXO removal action was performed using heavy equipment to remove the top 2 ft of soil from the entire 25-acre site, followed by sifting it to remove all pieces greater than 1 inch in size. The goal of this effort was to separate the UXO and OE related items from the surface soil and berm soil. The total volume of soil removed from the ground surface and bermed areas equaled 27,000 yards of material. This soil was processed through a vibratory screen that separated the oversize material that was greater than 1 inch from the surrounding soil. After the OE contaminated soil was removed from the area and stockpiled onsite. Parsons performed a geophysical survey across 55% of the 25-acre site to locate and investigate any subsurface anomalies that remained after the 0-2 foot soil removal. The geophysical survey was used to assess whether all of the UXO and OE related items had been recovered during the initial soil removal effort. This geophysical mapping effort resulted in 1588 geophysical anomalies being investigated and 5 UXO items being recovered from the area surveyed after the initial soil removal. The soil removal and screening effort was continued the following year by Weston Solutions Inc. resulted in the entire 18,750 yards of material EODT Inc removed being re-processed down to >1 inch. Weston Solutions Inc. then removed an additional 8250 yards of material from a 1-foot soil removal outside the bermed area. This recovery effort removed an additional 12 OE items from the top 1-foot of material and ten OE items from the remaining mapped area of 1-foot removal. Documentation of the work performed by EODT and Weston Solutions INC. can be found in the document *UXO and Soil Remediation Area 44-A Final Report – May 2003*

5.6 SEAD-44B: Quality Assurance Test Laboratory

The investigative work at SEAD-44B included a limited site investigation in 1993/94 followed by a risk assessment in February of 2000. The results of the risk assessment and supporting investigation are summarized and presented below.

Mini-Risk Assessment

The receptors evaluated for the mini-risk assessment were the prison receptors (i.e., prison worker, industrial worker, Institutional worker, park worker, warehouse worker construction worker, worker at onsite day-care, child at on-site day care center, institution student, recreational visitor, and trespasser). The described property shall be used and maintained for a correctional facility in perpetuity. **Table 23** summarizes the calculated cancer and non-cancer risks for all receptors and exposure routes considered in the risk assessment *Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 72, and 120B –Draft Final February 2001.* The total cancer risk from all exposure routes is within or below the EPA target

range for all five receptors. Likewise, the total non-cancer hazard index from all exposure routes is less than one for all five receptors.

Supporting Investigations and Analysis

During the ESI three surface soil samples were collected from a depth of 0-2 inches. One sample was collected to the west (downgradient) of the concrete pad and flagpole. A second sample was collected in the southwestern portion of SEAD-44, immediately downgradient of several small piles observed on the ground surface. The last soil sample was collected to the west (downgradient) of the metal building located on the property. Three groundwater-monitoring wells were installed at SEAD-44B. One monitoring well (MW44B-1) was installed on the other side of East Brady Road, upgradient of the concrete slab and metal building associated with SEAD-44B to obtain back groundwater quality data. The two remaining monitoring wells were installed downgradient of the concrete slab and the metal building along the western boundary of SEAD 44-B. From these three groundwater-monitoring wells one groundwater sample was collected from each well and submitted for chemical analysis. Two surface water and sediment samples were collected from SEAD-44B for chemical analysis. Each of the two samples were located within the drainage ditch which runs parallel to Brady Road along the eastern boundary of SEAD-44B. All of the samples were analyzed for TCL VOCs, SVOCs, Pesticide/PCBs, TAL metals, and cyanide according to NYSDEC CLP SOW, explosives by Method 353.2.

A summary of the surface soil, groundwater and surface water and sediment results can be found in **Tables 24 to 27** respectively, which are provided at the end of this document. Analytical results for the samples collected can be found in *The Completion Report for Six Areas of Concern – SEADs (43, 56, 69), 44A, 44B, 52, 62, and 120B – Final May 2001-Parsons.*

Surface/Subsurface Soil

Two VOCs, acetone and 2-butanone, were detected in the soil samples collected at SEAD-44B. Acetone and 2-butanone are common laboratory contaminants. Both contaminants were present at concentrations that are well below the respective TAGM values. Acetone was present in all three surface soil samples at concentrations ranging from 38 to 47 µg/Kg. 2-butanone was present in only one sample, SS44B-1, at a concentration of 10 µg/Kg which is well below the TAGM value of 300 µg/Kg.

Thirteen SVOCs were found at varying concentrations in two of the three surface soil samples. In general, the concentrations of SVOCs were low, with only two compounds exceeding their respective TAGM values. Surface soil sample SS44B-3 had benzo(a)pyrene and dibenzo(a,h)anthracene concentrations of 98µg/Kg and 28µg/Kg detected. The TAGM value for benzo(a)pyrene is 61µg/Kg while the TAGM value for dibenzo(a,h)anthracene is 14µg/Kg. Both compounds were detected above the respective TAGM value.

Five pesticide compounds were detected in two out of the three soil samples collected at SEAD-44B. The compound dieldrin, a known pesticide was detected at a concentration of 57µg/Kg, which exceeds its TAGM value (44µg/Kg). No PCBs were detected in the soil samples submitted for analysis from SEAD-44B.

Three metals were found at concentrations above their associated TAGM values at SEAD-44B. Arsenic was detected in sample SS44B-3 at 13.1 mg/Kg, which is above its TAGM value of 8.2 mg/Kg. Lead was detected in a single soil sample SS44B-1 at a concentration of 39.5 mg/Kg slightly above the TAGM value of 24.4 mg/Kg. The metal zinc was detected in sample SS44B-1 at a concentration of 145 mg/Kg, slightly above the TAGM value of 110 mg/Kg.

Nitrate/Nitrite/nitrogen was detected in all three surface soil samples collected. Concentrations ranged from a low 0.04 mg/Kg to a maximum of 0.47 mg/Kg in sample SS44B-1.

Groundwater

Sixteen metals were detected in the groundwater samples submitted for analysis from SEAD-44B. Iron was the only metal detected at concentrations above its NY AWQS Class GA criteria value of 300 µg/L. Concentrations of 2,340 and 666 µg/L, found in samples MW44B-1 and MW44B-2 respectively, were the only values for iron that exceeded Class GA groundwater criteria.

Surface Water

Thirteen metals were detected in the surface water samples analyzed from SEAD-44B. All reported concentrations of aluminum, arsenic, copper, iron, mercury, nickel, and zinc were below the NY Class C guideline values. No criteria exist for the remaining six metals (barium, calcium, magnesium, manganese, potassium, and sodium) detected in surface water at SEAD-44B.

Nitrate/nitrite nitrogen compounds were detected in one of the two samples at a concentration of 0.01 mg/L. Currently, no criteria exist for nitrate/nitrite nitrogen in NY Class C surface water.

Sediment

Two sediment samples were collected as part of the SEAD-44B investigation; the results are presented in Table 26. The compound, 2-butanone, was the only VOC detected in the sediment samples submitted from the SEAD-44B investigation. A concentration of 12 µg/Kg was detected in sample SD44B-2.

Di-n-butylphthalate was identified in both sediment samples collected at SEAD-44B. The reported concentrations of di-n-butylphthalate were 65 and 110 µg/Kg in samples SD44B-1 and SD44B-2 respectively. Currently exist no sediment criteria exist for di-n-butylphthalate.

Twenty metals were detected in the sediment samples collected at SEAD-44B. Arsenic, copper, iron, manganese, and nickel were detected at concentrations, which exceed the NYSDEC sediment criteria. The highest concentration of arsenic was 58.3 mg/Kg in sample SD44B-1. This value was 9.7 times over the sediment criteria value of 6mg/Kg. The remaining metals copper, iron, manganese and nickel, were detected in excess of the NYSDEC Sediment Criteria Value for Aquatic Life. The concentrations for the remaining metals were only slightly above their associated sediment criteria established by NYSDEC.

Nitrate/nitrite nitrogen compounds were detected in the both sediment samples at concentrations of 0.03 and 0.06 mg/Kg. The maximum concentration 0.06 mg/Kg, was found in sample SD44B-1.

5.7 SEAD-67: Berms and Waste Piles

The investigative work at SEAD-67 included an ESI in 1993 and a TCRA in 2002/2003, which included confirmation sampling. The results of the investigations are summarized and presented below.

Expanded Site Inspection – 1993

The ESI combined non-intrusive and intrusive sampling operations within the inspection. The non-intrusive investigations included seismic refraction, electromagnetic, and ground penetrating radar surveys. Intrusive investigations included five test pits, eight soil samples, installation and subsequent testing of three monitoring wells and the collection of two surface water/sediment samples. All samples collected as part of the ESI were analyzed for the following constituents: VOCs, SVOCs, pesticides/ PCBs, metals, and cyanide. A summary of the soil, groundwater and surface water/sediment results

presented below can be found in **Tables 28 to 31**, which are provided at the end of this document. Analytical results for the samples collected can be found in *Decision Document for Removal Actions at SWMUs SEAD-24, SEAD-50, SEAD-54, and SEAD-67*, Parsons 2001.

Surface/Subsurface Soil

Available results indicated that soil in the piles and berm structures at SEAD-67 were impacted by SVOCs, predominantly PAHs, and by the metal, mercury. A total of 50 TCL/TAL compounds were detected in soil samples, and of this total, ten were detected at concentrations, which exceeded NYSDEC's recommended soil cleanup objective levels. However, none of the values found to exceed NYSDEC cleanup objective levels were pesticides/ PCBs.

Groundwater

Available data indicates that the groundwater has not been significantly impacted by historic operations at SEAD-67. Aluminum, iron, and manganese were the only compounds detected at concentrations exceeding the NYSDEC cleanup objective level. However, elevated levels of turbidity were recorded in groundwater samples collected from SEAD-67. It is presumed that the noted exceedances of aluminum, iron and manganese are associated, at least in part, with the elevated levels of turbidity.

The PID area, where SEAD-67 is located, is under a groundwater restriction. The exceedances of aluminum, iron and manganese in groundwater maintain the argument that SEAD-67 should remain included in the restriction.

Surface Water / Sediments

Surface water results indicate that the unnamed stream near SEAD-67 has not been significantly impacted by contaminants. Only aluminum and iron were detected at concentrations above the designated NYS surface water criteria value.

Sediment near SEAD-67 has been impacted by SVOCs (mostly PAHs), pesticides, and a few metals (i.e., copper, manganese, nickel, and silver).

Based on the results of the ESI, the Army proposed a TCRA at SEAD-67.

Time Critical Removal Action – 2002/2003

SEAD-67 was subdivided into two areas prior to excavation in 2002. Area 1 (piles 1 and 2) had 483 cy of soil removed and Area 2 (piles 3 to 7) had 1,308 cy of soil removed. The soil removed from SEAD-67 was classified and profiled as non-hazardous metal and PAH contaminated soil for treatment and disposal. Analytical results for the samples collected are summarized in **Table 32** and can be found in *Time Critical Removal Action Metal Sites – SEAD 67*, Weston 2004. Below is a separate excavation description for each area.

Excavation Area 1

The waste piles were removed in December 2002 and confirmation samples were collected in the surface soils directly around the removal. These initial samples had concentrations of Mercury (the constituent of concern) above the Cleanup Goal of 0.1 mg/Kg at a maximum concentration of 1.0 mg/Kg. Four non-target metals (antimony, cadmium, selenium and thallium) and two PAHs were also found to exceed NYS recommended cleanup objectives.

In June 2003, a crew was remobilized to SEAD-67 to remove an additional foot of soil from Area 1. The amount of soil to be removed was determined following the collection and analysis of a series of split spoon soil samples collected 10 ft, 25 ft, and 50 ft increments to the north, south, east and west of the footprint represented by former waste Pile 1. A total of 9 soil borings were advanced and sampled to a

depth of 4 ft. Analytical results indicated that only the first foot of soil to the lateral limits of the soil borings should be removed. A summary of the surface soil results can be found in Table 32, which is provided at the end of this document. Confirmation samples were not collected following the soil removal. Soil removal at Area 1 was considered completed following the June removal action based on the results of the split spoon samples collected at depth prior to the excavation.

Excavation Area 2

The five waste piles at Area 2 were removed in December 2002 and confirmation samples were collected in the footprints of each of the piles. The initial samples exhibited concentrations of Mercury (the constituent of concern) above the Cleanup Goal of 0.1 mg/Kg at a maximum concentration of 10.0 mg/Kg. Five non-target metals (arsenic, copper, selenium, silver, and thallium) and two PAHs were also observed to exceed NYS cleanup objectives.

In June 2003, a crew was remobilized out to the site to remove the first foot of soil from Area 2. The amount of soil removed was determined based on eight soil locations collected within a 135 ft by 165 ft perimeter limit encompassing the footprint represented by Piles 3-7. Thirty-two samples were collected to a maximum depth of 4 ft in those eight borings. Concentrations of target metals and PAH did not exceed NYS cleanup goals in any samples collected below ground surface. Therefore, the first foot of soil to the lateral limits of the soil borings was removed. Confirmation samples were not collected following the soil removal. A summary of the surface soil results can be found in Table 32, which is provided at the end of this document. Area 2 was considered remediated following the June removal action based on the split spoon samples collected at depth prior to the excavation.

5.8 SEAD-122B: Small Arms Range

The investigative work at the SAR included an initial site investigation in 2002, followed by a treatability study in 2004. The results of the investigations are presented in the following section.

Initial Site Investigation – 2002

Surface soil samples were collected at 25 different locations within the SAR. Two samples were collected at each location with the exception of one location, which had only one sample depth. The samples were analyzed for TAL, Synthetic Precipitation Leaching Procedure (SPLP), and Toxic Characteristics Leaching Procedure (TCLP) metals. Each sample was screened for visible bullets and bullet fragments before being sent to the laboratory for analysis.

Subsurface soil samples were collected from seven borings located in the two berms and from three monitoring well locations located exterior to the bermed area. Each boring advanced within the berms had three to seven associated subsurface samples, while the monitoring wells had only one sample. The 32 collected samples (including one duplicate) ranged in depth from surface to 30 ft bgs. The samples were analyzed for TAL, TCLP and SPLP metals.

Lead, as the main constituent of concern, was found primarily in the surface samples with a high concentration of 60,650 parts per million (ppm) along the east side of the berm (impact area). Additional metal results, including antimony, arsenic, copper, silver, sodium, thallium and zinc were found primarily in the surface samples at concentrations slightly over the soil cleanup objective. These concentrations were all located within the high lead concentration areas. One TCLP lead concentration was above the RCRA limit of 5,000 µg/L.

The SPLP metals results indicated levels of antimony, iron and thallium that were above the

NYSDEC Class GA standards. The iron and thallium exceedances were found at areas where the soil concentrations were within the maximum Seneca background. Four of the antimony SPLP concentrations that exceeded that GA limit were within the proposed excavation area for the treatability study. The remaining four detections were in an area where the antimony concentrations in soil were below the maximum Seneca background concentration. A summary of these results can be found in **Table 33** and the comprehensive table of results can be found in *The Characterization Report – Small Arms Range – Airfield (SEAD-122B)*, Parsons 2004.

Groundwater

Three monitoring wells were installed and sampled in 2002. The groundwater samples were sampled using low-flow sampling procedures with a peristaltic pump and dedicated tubing and analyzed for TAL Metals. Metal concentrations detected in groundwater were below NYSDEC Class GA standards with the exception of antimony and iron. These concentrations are the basis of a groundwater classification area and are presented in **Table 34** of this document.

It was concluded that the groundwater on site is not impacted by the soil based on the observed TAL metal concentrations at the three wells being below the SEDA-specific background level (i.e., 421~580 ppb vs. 4480 ppb) and the downgradient well being non-detect. Groundwater analytical results are presented in *The Characterization Report – Small Arms Range – Airfield (SEAD-122B)*, Parsons 2004.

Treatability Study – 2004

Approximately 500 cubic yards (cy) of soil was excavated from locations where high concentrations of total lead were found during the SI. The additional contaminants detected at levels above their respective NYSDEC cleanup objective levels were within the areas with high lead concentrations. Elevated lead concentrations included any value above 400 ppm. These areas constituted the area where the 500 cy of soil was removed from the site that included the western face of the backstop berm and a drainage swale that carries surface water runoff away from the firing range area.

Confirmatory soil samples were collected and analyzed for total lead to ensure that all soil with total lead concentrations in excess of 400 ppm were removed during the treatability study. If lead concentrations exceeded 400 ppm in the confirmation sample, excavation continued in that area and an additional confirmation sample was collected. The final samples reported confirm that all excavated locations detected lead at levels less than 400 ppm. The maximum detection of lead in the final confirmation samples at the site was 213 ppm at CS005A.

6 SUMMARY OF THE REMEDIAL GOALS AND PROPOSED ACTION

The selected remedy for any site should, at a minimum, eliminate or mitigate all significant threats to the public health or the environment presented by the hazardous waste present at the site. The Army believes that information and data developed for SEADs 13, 39, 40, 43/56/69, 44A, 44B, 67, and 122B presented and discussed in this Proposed Plan indicate that existing conditions found at the sites satisfy this objective. The Army proposes No Action at SEADs 13 and 43/56/69 with the following ICs:

- SEAD-13: Groundwater Use Restriction
- SEAD 43/56/69: Reversionary Deed Restriction

The Army proposes No Further Action at SEADs 44A, and 44B with the following ICs:

- SEAD-44A: Reversionary Deed Restriction
- SEAD-44B: Reversionary Deed Restriction

The Army proposes No Further Action at SEADs 39, 40 and 67 and combines this with previously planned and documented institutional controls [See the "Final ROD for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas" (Parsons, 2004)] that include an PID area-wide access to and use of an area-wide groundwater restriction and a PID area-wide residential activity use restriction.

The Army proposes No Further Action at SEAD-122B with no associated ICs. The rationale behind the Army's decisions is explained in further detail below.

No Action with ICs Sites

Based on the findings of the investigations and risk assessments completed for the sites, the Army has selected No Action as the remedy for SEAD-13 and SEAD-43/56/69. These selections are based on the Army's determination that these sites do not pose a significant threat to human health or the environment.

While the Army recommends that No Action is needed at SEAD-13, its does acknowledge that a land use restriction on groundwater will be necessary. As is discussed above, there is risk associated with the use of the groundwater, driven by the concentrations of nitrate, aluminum and manganese. The Army believes that the risk due to the metals may be associated with the suspended solids that are present in the collected groundwater samples, but is aware that the nitrate is probably directly attributable to past activities that were conducted in the area. However, the Army also believes that the nitrate is being attenuated naturally, and will continue to diminish with time. Therefore, the Army is proposing that a land use restriction, which restricts access to, and the use of groundwater from the site, be imposed until data is available to indicate that the risk has diminished and until the local groundwater is shown to be of a quality consistent with federal and state ambient water and groundwater quality standards.

The groundwater use restriction will be identified in the ROD and should also be identified in all future leases or deeds. A restriction on the use of groundwater together with a groundwater monitoring program is recommended due to the presence of elevated levels of nitrate/nitrite-nitrogen, and to a lesser extent, selected metals in the groundwater at SEAD-13-East. In accordance with Section 121(c) of the CERCLA, the monitoring program will be reviewed after five years.

No Action is also recommended for SEAD-43/56/69, which has been transferred to the State of New York under a Quitclaim deed and is now located within the parcel of land used for the Five Point's Correctional Facility. The Quitclaim deed, which was recorded by the Seneca County Clerk on 26 September 2000 (See Liber 612 Page 014 through page 031), contains conditions that require the site to be maintained and used as a correctional facility in perpetuity, and requires that the property shall not be sold, leased, mortgaged, assigned or otherwise disposed of. If these conditions are breached, the property reverts back to the US Government.

No Further Action with ICs Sites

Based on the findings of the investigations, removal actions, and treatability study activities completed for the sites, the Army has selected No Further Action with ICs as the remedy for SEAD-39, SEAD-40, SEAD-44A, SEAD-44B, and SEAD-67. These selections are based on the Army's determination that these sites do not pose a significant threat to human health or the environment.

It should be noted that land within the PID area, which encompasses the SEAD-39, SEAD-40, and SEAD-67 sites, is the subject of a separate Final ROD where other institutional controls have been planned Specifically these existing planned institutional controls, which are identified in the "Final ROD for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas" (Parsons, 2004) include PID

area-wide institutional controls (ICs), that limit access to, and use of, groundwater and use of the land for residential activities, unless the Army and the EPA review and approve the elimination of such restrictions at a specific site or in a specific area of the PID. The Army recommends that the existing land use restrictions already applied by the prior ROD remain in effect. In the event that future users of the sites propose future uses for SEAD-39, SEAD-40, and SEAD-67 that require reassessment of these restriction, the potential future user will bear the burden of developing data that indicates that such uses are viable.

No Further Action is also recommended for SEAD-44A and SEAD-44B, which have also been transferred to the State of New York under a Quitclaim deed and are now located within the parcel of land used for the Five Point's Correctional Facility. The Quitclaim deed, which was recorded by the Seneca County Clerk on 26 September 2000 (See Liber 612 Page 014 through page 031), contains conditions that require the site to be maintained and used as a correctional facility in perpetuity, and requires that the property shall not be sold, leased, mortgaged, assigned, or otherwise disposed of. If these conditions are breached, the property reverts back to the US Government.

No Further Action

Based on the findings of the investigations, removal actions, and treatability study activities completed for the sites, the Army has selected No Further Action as the remedy for SEAD-122B. This selection is based on the Army's determination that these sites do not pose a significant threat to human health or the environment.

7 REFERENCES

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Parsons, 1994 – SWMU Classification Report, September 1994

Seneca County Clerk, 2000 – Quitclaim Deed for the Five Point's Correctional Facility – Liber 612 Page 014 through Page 031, September 2000.

Title 40, Code of Federal Regulations, Part 261, Identification and Listing of Hazardous Waste.

Title 40 Code of Federal Regulations, Part 300, National Oil and Hazardous Substances Pollution Contingency Plan.

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Weston, 2004 – Seneca Army Depot Activity Time-Critical Removal Action Metal Sites – SEAD 67, Seneca County, Romulus, New York, March 2004.

Weston, 2003 – Seneca Army Depot Activity UXO and Soil Remediation AREA-44A Seneca County, Romulus, New York, May 2003.

GLOSSARY

Aquifer
An aquifer is a saturated permeable geologic unit or rock formation that can store significant quantities of water and transmit the water under ordinary hydraulic gradients, possibly to wells.

Area of Concern (AOC)
Areas of Concern (AOCs) include both solid waste management units where releases of hazardous substances may have occurred and locations where there has been a release or threat of a release in the environment of a hazardous substance, pollutant or contaminant (including radionuclides) under CERCLA.

Army Corps of Engineer (USACE)
The engineering organization of the U.S. Army. The districts involved in the Seneca Army Depot Activity project include the New York District (CENAN), the New England District (CENED), and the Engineering and Support Center, Huntsville (CEHNC).

Asbestos Containing Material (ACM)
Asbestos-containing material (ACM), is defined by the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), as any material containing more than one percent (1%) asbestos

Baseline Risk Assessment (BRA)
A baseline risk assessment is an assessment conducted before cleanup activities begin at a site to identify and evaluate the threat to human health and the environment. After remediation has been completed, the information obtained during a baseline risk assessment can be used to determine whether the cleanup levels were reached.

Base Realignment and Closure (BRAC)
A congressionally mandated process that involves closure of military bases. The goal of BRAC is to transition the former bases from military uses to civilian reuse, with the intent of minimizing the negative effects of base closure by spurring economic development and growth. The SEDA was listed as a base to be closed in October 1995. Base closure is in the process of being performed.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA:

Established prohibitions and requirements concerning closed and abandoned hazardous waste sites;

Provided for liability of persons responsible for releases of hazardous waste at these sites; and

Established a trust fund to provide for cleanup when no responsible party could be identified.

The law authorizes two kinds of response actions:

Short-term removals, where actions may be taken to address releases or threatened releases requiring prompt response.

Long-term remedial response actions, that permanently and significantly reduce the dangers associated with releases or threats of releases of hazardous substances that are serious, but not immediately life threatening. These actions can be conducted only at sites listed on EPA's National Priorities List (NPL).

CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous

substances, pollutants, or contaminants. The NCP also established the NPL.

CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986

Cleanup

Cleanup is the term used for actions taken to deal with a release or threat of release of a hazardous substance that could affect humans and or the environment. The term sometimes is used interchangeably with the terms remedial action, removal action, response action, or corrective action.

Closure (Under RCRA)

RCRA closure is a process for preventing the release of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the groundwater, surface water, or the atmosphere from a hazardous waste management facility after the facility stops receiving waste. The closure process may involve waste removal and management, decontamination and decommissioning of equipment, application of final covers, and other release-preventing actions. The process also involves developing a closure plan, having the plan approved as part of the facility's permit, and implementing the plan when the facility closes. Closure occurs after the facility accepts the final shipment of hazardous waste (unless the facility qualities for a delay of closure). (Reference: http://tis.eh.doe.gov/oepa/guidance/rcra/closur.pdf)

Closure (Department of Defense)

Under the Department of Defense's definition, closure means that all missions of the base will cease or be relocated. All personnel (military, civilian, and contractor) will either be eliminated or relocated. The entire base will be excessed and the property disposed.
(Reference:
ttp://www.hqda.army.mil/acsimweb/brac/braco.htm)

Community Environmental Response Facilitation Act (CERFA – Public Law 102-426)

The Community Environmental Response Facilitation Act (CERFA) was passed by Congress in 1992, and amended Section 9620(h) of CERCLA, which addresses Federal real property transfers. In enacting the legislation Congress stated that the closure of Federal facilities has an adverse impact on local economies and that delays in remediating contaminated real property add to this burden by delaying the conversion of such property to productive uses. The statute applies to real property owned by the Department of Defense and on which the U.S. plans to terminate Federal government operations, as well as to real property that has been used as a military installation and which is being closed or realigned pursuant to base closure. Federal entities with control over such properties must identify those upon which no hazardous substances or petroleum products/derivatives were stored for more than one year, released, or disposed of by examining relevant sources of data such as property deeds, aerial photographs, or other similar documents. Subsequent transfers or sales of the identified properties by the limited states must contain assurances that the U.S. will assume full responsibility for any response or corrective action that may become necessary after the transfer of property is completed. Where hazardous substances or petroleum products/derivatives were stored for more than one year, released, or disposed of on the U.S.-owned real property, the Federal entity with control of the property must notify the state of any lease entered into by the controlling Federal entity that will remain in effect after operations cease. The notification must be sent to the state prior to the signing of the lease, and must inform the state of the name of the lessee, and a description of the uses permitted under the condition of the lease. (Reference:
http://www.ntc.blm.gov/learningplace/res_CERFA.html)

Completion Report
A report that documents and certifies that conditions found at an Area of Concern (AOC) do not constitute a threat to public health, welfare or the environment and that further remedial measures are not necessary. Such documentation shall meet, to the extent practicable and as necessary under the specific facts pertaining to the AOC, the requirements of EPA's RCRA Facility Investigation Guidance, EPA's Guidance for Conducting RI/FSs under CERCLA, and any subsequent amendments to these documents and all other applicable federal or state guidance.

Contaminant
A contaminant is any physical, chemical, biological, or radiological substance or matter present in any media at concentrations that may result in adverse effects on air, water, or soil.

Deactivation Furnace
A Deactivation Furnace is an incineration system designed to demilitarize obsolete of unserviceable ammunition items, and to dispose of bulk propellant, explosives, or pyrotechnic wastes generated during the process of manufacture and assembly.

Detection Limit
The lowest concentration of a chemical that can be distinguished reliably from a zero concentration.

Disposal
Disposal is the final placement or destruction of toxic, radioactive or other wastes; surplus or banned pesticides or other chemicals; polluted soils; and drums containing hazardous materials from removal actions or accidental release. Disposal may be accomplished through the use of approved secure landfills, surface impoundments, land farming, deep well injection, or ocean dumping.

Environmental Protection Agency (EPA)
The Federal regulatory agency responsible for enforcing the environmental rules and regulations of the United States. Representatives from the EPA Region 2, which includes New York State, are involved in the review and oversight of the environmental work being conducted at the Seneca Army Depot Activity.

Expanded Site Investigation (ESI)
An expanded investigation that typically includes media sampling and analyses. An ESI is performed following a Preliminary Site Investigation to obtain more information regarding the concentrations of pollutants at a site.

Federal Facilities Agreement (FFA) also known as the Interagency Agreement (IAG)
An agreement signed between EPA, NYSDEC and the Army that describes the process for identifying, investigating and remediating sites at the Seneca Army Depot Activity.

GA Groundwater Standard
A water quality standard promulgated by the NYSDEC that establishes a minimum quality of a groundwater supply that could be used as a source of drinking water.

Groundwater
Groundwater is the water that flows beneath the earth's surface that fills pores between such materials as sand, soil, or gravel and that often supplies wells and springs. *See also Aquifer.*

Heavy Metal
The term heavy metal refers to a group of toxic metals including arsenic, chromium, copper, lead, mercury, silver, and zinc. Heavy metals often are present at industrial sites at which operations have included battery recycling and metal plating.

Hydrogeology
Hydrogeology is the study of groundwater, including its origin, occurrence, movement, and quality.

Incinerator
A furnace or container used for burning waste materials.

Inorganic Compounds

An inorganic compound is a compound that generally does not contain carbon atoms (although carbonate and bicarbonate compounds are notable exceptions). Examples of inorganic compounds include various metals.

Landfill

A sanitary landfill is a land disposal site for non-hazardous solid wastes at which the waste is spread in layers compacted to the smallest practical volume.

Lead

Lead is a heavy metal that is hazardous to health if breathed or swallowed. Its use in gasoline, paints, and plumbing compounds has been sharply restricted or eliminated by federal laws and regulations. *See also Heavy Metal.*

Mean Sea Level (MSL)

The average height of the sea surface, based upon hourly observation of the tide height on the open coast or in adjacent waters that have free access to the sea. In the United States, it is defined as the average height of the sea surface for all stages of the tide over a nineteen year period. Mean sea level, commonly abbreviated as MSL and referred to simply as 'sea level,' serves as the reference surface for all altitudes in upper atmospheric studies.
(Reference:
http://earthobservatory.nasa.gov:81/Library/glossary.php3?xref = mean%20sea%20level)

Mercury

Mercury is a heavy metal that can accumulate in the environment and is highly toxic if breathed or swallowed. Mercury is found in thermometers, measuring devices, pharmaceutical and agricultural chemicals, chemical manufacturing, and electrical equipment. *See also Heavy Metal.*

Maximum Contaminant Level (MCL)

Established under the Safe Drinking Water Act as concentrations of pollutants considered protective for drinking water.

Monitoring Well

A monitoring well is a well drilled at a specific location on or off a hazardous waste site at which groundwater can be sampled at selected depths and studied to determine the direction of groundwater flow and the types and quantities of contaminants present in the groundwater.

National Contingency Plan (NCP)

The NCP, formally the National Oil and Hazardous Substances Contingency Plan, is the major regulatory framework that guides the Superfund response effort. The NCP is a comprehensive body of regulations that outlines a step-by-step process for implementing Superfund responses and defines the roles and responsibilities of EPA, other federal agencies, states, private parties, and the communities in response to situations in which hazardous substances are released into the environment. *See also Superfund.*

National Exposure Research Laboratory (NERL)

EPA's National Exposure Research Laboratory (NERL) is comprised of several divisions with diversified research specialties. NERL conducts research and development that leads to improved methods, measurements and models to assess and predict exposures of humans and ecosystems to harmful pollutants and other conditions in air, water, soil, and food.

National Priorities List (NPL)

The NPL is EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response under Superfund. Inclusion of a site on the list is based primarily on the score the site receives under the HRS. Money from Superfund can be used for cleanup only at sites that are on the NPL. EP A is required to update the NPL at least once a year. *See also Hazard Ranking System and Superfund.*

New York State Department of Environmental Conservation (NYSDEC)
NYSDEC's missions include detecting and controlling sources of pollution, protecting and managing New York's natural resources, informing and educating the public about environment, natural resources, and government's actions to protect them.

NFA
No Further Action.

NYCRR
The New York State compilation of Codes, Rules, and Regulations.

Organic Chemical or Compound
An organic chemical or compound is a substance produced by animals or plants that contains mainly carbon, hydrogen, and oxygen.

Percent Solids
A physical determination used to measure the amount of solid material (i.e., normally defined as non-volatile material at 105 °C) that is contained in a sample such as a soil or sediment.

Permeability
Permeability is a characteristic that represents a qualitative description of the relative ease with which rock, soil, or sediment will transmit a fluid (liquid or gas).

Pesticide
A pesticide is a substance or mixture of substances intended to prevent or mitigate infestation by, or destroy or repel, any pest. Pesticides can accumulate in the food chain and or contaminate the environment if misused.

Polychlorinated Biphenyl (PCB)
PCBs are a group of toxic, persistent chemicals, produced by chlorination of biphenyl, that once were used in high voltage electrical transformers because they conducted heat well while being fire resistant and good electrical insulators. These contaminants typically are generated from metal degreasing, printed circuit board cleaning, gasoline, and wood preserving processes. Further sale or use of PCBs in the United States was banned in 1979.

Polycyclic Aromatic Hydrocarbon (PAH)
A PAH is a chemical compound that contains more than one fused benzene ring. They are commonly found in petroleum fuels, coal products, and tar.

Preliminary Assessment and Site Investigation (PA/SI)
A PA/SI is the process of collecting and reviewing available information about a known or suspected hazardous waste site or release. The PA/SI usually includes a visit to the site.

Proposed Plan
The Proposed Plan is the first step in the remedy selection process. The Proposed Plan provides information supporting the decisions of how the preferred alternative was selected. It summarizes the site information and how the alternatives comply with the requirements of the NCP and CERCLA. The Proposed Plan is provided to the public for comment. The responses to the Proposed Plan comments are provided in the ROD.

Record of Decision (ROD)
A ROD is a legal, technical, and public document that explains which cleanup alternative will be used at a Superfund NPL site. The ROD is based on information and technical analysis generated during the remedial investigation and feasibility study (RI/FS) and consideration of public comments and community concerns. *See also Preliminary Assessment and Site Investigation and Remedial Investigation and Feasibility Study.*

Release
A release is any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, leaching, dumping, or disposing into the environment of a hazardous or toxic chemical or extremely hazardous

substance, as defined under RCRA. *See also Resource Conservation and Recovery Act.*

Remedial Action (RA)
A RA is the actual construction or implementation of a remedy at a site or portion thereof.

Remedial Investigation and Feasibility Study (RI/FS)
The RI/FS is the step in the Superfund cleanup process that is conducted to gather sufficient information to support the selection of a site remedy that will reduce or eliminate the risks associated with contamination at the site. The RI involves site characterization through collection of data and information necessary to characterize the nature and extent of contamination at the site. The RI also determines whether the contamination presents a significant risk to human health or the environment. The FS focuses on the development of specific response alternatives for addressing contamination at a site.

Resource Conservation and Recovery Act (RCRA)
RCRA is a federal law enacted in 1976 that established a regulatory system to track hazardous substances from their generation to their disposal. The law requires the use of safe and secure procedures in treating, transporting, storing, and disposing of hazardous substances. RCRA is designed to prevent the creation of new, uncontrolled hazardous waste sites.

Risk Assessment
The process of assessing and analyzing threats that contaminants found at a site pose to surrounding populations and the environment. The resulting analysis is used as a preliminary, conservative estimate of the potential level of threat that is posed so that appropriate and cost-effective countermeasures can be identified and implemented.

Sediment Criteria
Technical guidance provided by NYSDEC, the Division of Fish and Wildlife, that describes allowable sediment quality for a variety of chemicals. The values provided in this document have been adopted as screening levels for comparison to site data. Exceedances of these values provides that basis for further evaluation and decision making.

Seismic Refraction
Seismic refraction measures is the velocity that a compression wave travels through a material. The compression wave velocity is measured by placing sensitive motion detectors on the ground surface, then impacting the ground with an object such as a sledgehammer. An oscilloscope measures the travel time of the compression wave to each motion detector. Mathematical analysis of the travel times will produce a profile of changes in compression wave velocity, which can then determine the type of material below the ground.

Semivolatile Organic Compound (SVOC)
SVOCs, composed primarily of carbon and hydrogen atoms, have boiling points greater than 2000°C. Common SVOCs include PCBs and phenol. *See also Phenol and Polychlorinated Biphenyl.*

Seneca Army Depot Activity (SEDA)
A 10,634-acre military facility, constructed in 1941, located in central New York responsible for storage and management of military commodities, including munitions. The depot ceased military operations in 2000. Environmental cleanup activities will continue until all sites have been addressed.

Seneca County Board of Supervisors
The board that oversees Seneca County's governmental affairs.

Significant Threat
The term refers to the level of contamination that a state would consider significant enough to warrant an action. The thresholds vary from state to state.

Soil Boring

Soil boring is a process by which a soil sample is extracted from the ground for chemical, biological, and analytical testing to determine the level of contamination present.

Solid Waste

Any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous materials resulting from industrial, commercial, mining, and agricultural activities and from community activities

Solid Waste Management Unit (SWMU)

A SWMU is a RCRA term used to describe a contiguous area of land on or in which where solid waste, including hazardous waste, was managed. This includes landfills, tanks, land treatment areas, spills and other areas where waste materials were handled. Identification of all SWMUs at SEDA was performed as part of the RCRA Part B Permit Application process.

Subsurface

Underground, or beneath the surface.

Surface Water

Surface water is all water naturally open to the atmosphere, such as rivers, lakes, reservoirs, streams, and seas.

Superfund

Superfund is the trust fund that provides for the cleanup of hazardous substances released into the environment, regardless of fault. The Superfund was established under CERCLA and subsequent amendments to CERCLA. The term Superfund also is used to refer to cleanup programs designed and conducted under CERCLA and its subsequent amendments. *See also Comprehensive Environmental Response, Compensation, and Liability Act.*

Technical Administrative Guidance Memorandum (TAGM)

TAGMs are technical guidance publications provided by NYSDEC that describes various processes and procedures recommended by NYSDEC for the investigation and remediation of hazardous waste sites. One TAGM, No. 4046, provides guideline values for recommended soil cleanup levels at waste sites.

Time Critical Removal Action (TCRA)

A TCRA can be used to eliminate possible threats, and to expedite the closure process and lessen, and perhaps eliminate, any possible threats, current or future that these sites may pose to human health and the environment.

Total Petroleum Hydrocarbon (TPH)

TPH refers to a measure of concentration or mass of petroleum hydrocarbon constituents present in a given amount of air, soil, or water

Volatile Organic Compound (VOC)

A VOC is one of a group of carbon-containing compounds that evaporate readily at room temperature. Examples of VOCs include trichloroethane; trichloroethylene; and BTEX. These contaminants typically are generated from metal degreasing, printed circuit board cleaning, gasoline, and wood preserving processes.

Water Table

A water table is the boundary between the saturated and unsaturated zones beneath the surface of the earth, the level of groundwater, and generally is the level to which water will rise in a well.

TABLE 1
CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-13
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX	CANCER RISK
PARK WORKER	Inhalation of Dust in Ambient Air	6E-07	1E-10
	Ingestion of Soil	4E-03	6E-07
	Dermal Contact to Soil	1E-03	5E-07
	Ingestion of Groundwater	4E+00	8E-07
	Dermal Contact to Surface Water	2E-03	5E-09
	Dermal Contact to Sediment	7E-04	2E-07
	TOTAL RECEPTOR RISK (Nc & Car)	*4E+00*	*2E-06*
RECREATIONAL VISITOR (CHILD)	Inhalation of Dust Ambient Air	2E-07	9E-12
	Ingestion of Soil	3E-03	9E-08
	Dermal Contact to Soil	4E-04	3E-08
	Inhalation of Groundwater	NQ	9E-13
	Ingestion of Groundwater	2E+00	6E-08
	Dermal Contact to Groundwater	5E-02	2E-08
	Dermal Contact to Surface Water	5E-03	3E-09
	Dermal Contact to Sediment	2E-03	9E-08
	TOTAL RECEPTOR RISK (Nc & Car)	*2E+00*	*3E-07*
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	8E-06	7E-11
	Ingestion of Soil	3E-02	2E-07
	Dermal Contact to Soil	2E-03	3E-08
	TOTAL RECEPTOR RISK (Nc & Car)	*3E-02*	*2E-07*

NQ= Not Quantified due to lack of toxicity data.

RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX	CANCER RISK
RESIDENT (ADULT)	Inhalation of Dust in Ambient Air	3E-06	5E-10
	Ingestion of Soil	8E-03	1E-06
	Dermal Contact to Soil	3E-04	3E-07
	Inhalation of Groundwater	NQ	2E-11
	Ingestion of Groundwater	2E+01	3E-06
	Dermal Contact to Groundwater	7E-01	2E-06
	TOTAL RECEPTOR RISK (Nc & Car)	*2E+01*	*6E-06*
RESIDENT (CHILD)	Inhalation of Dust Ambient Air	6E-06	3E-10
	Ingestion of Soil	7E-02	3E-06
	Dermal Contact to Soil	2E-03	5E-07
	Inhalation of Groundwater	NQ	3E-11
	Ingestion of Groundwater	4E+01	2E-06
	Dermal Contact to Groundwater	1E+00	7E-07
	TOTAL RECEPTOR RISK (Nc & Car)	*4E+01*	*6E-06*
TOTAL LIFETIME CANCER RISK	Inhalation of Dust in Ambient Air		8E-10
	Ingestion of Soil		4E-06
	Dermal Contact to Soil		9E-07
	Inhalation of Ground Water		5E-11
	Ingestion of Ground Water		5E-06
	Dermal Contact to Ground Water		2E-06
	TOTAL RECEPTOR RISK (Nc & Car)		*1E-05*

Table 2
Summary of Surface Soil Analysis Results - SEAD-13

PARAMETER [1]	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYSDEC TAGM 4046 [2]	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS									
Acetone	UG/KG	86		SB13-6-1	8%	200	0	1	13
Chloroform	UG/KG	2	J	SB13-7-1	8%	300	0	1	13
Methyl ethyl ketone	UG/KG	26		SB13-6-1	8%	300	0	1	13
Toluene	UG/KG	6	J	SB13-2-1	8%	1500	0	1	13
SEMIVOLATILE ORGANICS									
1,4-Dichlorobenzene	UG/KG	3300	J	SB13-10-1	3%	8500	0	1	30
2,4,5-Trichlorophenol	UG/KG	9.5	J	SB13-12	3%	100	0	1	30
2,4,6-Trichlorophenol	UG/KG	10	J	SB13-12	7%		0	2	30
2,4-Dinitrotoluene	UG/KG	1600		SS13-9	3%		0	1	30
2,6-Dinitrotoluene	UG/KG	120		SS13-9	3%	1000	0	1	30
2-Chloronaphthalene	UG/KG	5.4	J	SB13-12	3%		0	1	30
2-Methylnaphthalene	UG/KG	42	J	SS13-9	13%	36400	0	4	30
4-Chlorophenyl phenyl ether	UG/KG	5.9	J	SB13-12	3%		0	1	30
4-Methylphenol	UG/KG	9200	J	SB13-10-1	20%	900	1	6	30
Acenaphthene	UG/KG	650	J	SB13-10-1	10%	50000	0	3	30
Acenaphthylene	UG/KG	16	J	SS13-6	7%	41000	0	2	30
Anthracene	UG/KG	16	J	SS13-6	7%	50000	0	2	30
Benzo(a)anthracene	UG/KG	100		SS13-6	27%	224	0	8	30
Benzo(a)pyrene	UG/KG	110		SS13-6	30%	61	1	9	30
Benzo(b)fluoranthene	UG/KG	89		SS13-6	30%	1100	0	9	30
Benzo(ghi)perylene	UG/KG	86		SS13-6	27%	50000	0	8	30
Benzo(k)fluoranthene	UG/KG	74		SS13-6	27%	1100	0	8	30
Bis(2-Chloroethoxy)methane	UG/KG	5.6	J	SB13-12	3%		0	1	30
Bis(2-Ethylhexyl)phthalate	UG/KG	1900	J	SB13-10-1	17%	50000	0	5	30
Carbazole	UG/KG	180	J	SB13-10-1	17%		0	5	30
Chrysene	UG/KG	190		SS13-6	40%	400	0	12	30
Di-n-butylphthalate	UG/KG	140		SS13-9	7%	8100	0	2	30
Di-n-octylphthalate	UG/KG	210	J	SB13-1-1	7%	50000	0	2	30
Dibenz(a,h)anthracene	UG/KG	15	J	SS13-6	7%	14	1	2	30
Dibenzofuran	UG/KG	340	J	SB13-10-1	20%	6200	0	6	30
Diethyl phthalate	UG/KG	7	J	SB13-12	3%	7100	0	1	30
Fluoranthene	UG/KG	800	J	SB13-10-1	47%	50000	0	14	30
Fluorene	UG/KG	18	J	SS13-6	7%	50000	0	2	30
Hexachlorobenzene	UG/KG	210		SS13-9	7%	410	0	2	30
Indeno(1,2,3-cd)pyrene	UG/KG	53	J	SS13-6	20%	3200	0	6	30
N-Nitrosodiphenylamine	UG/KG	99		SS13-9	3%		0	1	30
Naphthalene	UG/KG	510	J	SB13-10-1	17%	13000	0	5	30
Nitrobenzene	UG/KG	5.7	J	SB13-12	3%	200	0	1	30
Phenanthrene	UG/KG	1400	J	SB13-10-1	40%	50000	0	12	30
Phenol	UG/KG	14000	J	SB13-10-1	7%	30	1	2	30
Pyrene	UG/KG	540	J	SB13-10-1	47%	50000	0	14	30
PESTICIDES/PCBS									
4,4'-DDE	UG/KG	3.6	J	SB13-2-1	8%	2100	0	1	13
METALS									
Aluminum	MG/KG	21200		SB13-4-1	100%	19300	2	30	30
Antimony	MG/KG	5.1	J	SB13-1-1	37%	5.9	0	11	30
Arsenic	MG/KG	10		SB13-7-1	100%	8.2	2	30	30
Barium	MG/KG	157		SB13-10-10	100%	300	0	30	30
Beryllium	MG/KG	1.2		SB13-13	100%	1.1	1	30	30
Cadmium	MG/KG	1		SS13-9	57%	2.3	0	17	30
Calcium	MG/KG	83900		SB13-3-1	100%	121000	0	30	30
Chromium	MG/KG	30.5		SS13-9	100%	29.6	2	30	30
Cobalt	MG/KG	19.3		SB13-13	100%	30	0	30	30
Copper	MG/KG	84.2		SS13-1	100%	33	9	30	30
Iron	MG/KG	33700		SS13-9	100%	36500	0	30	30
Lead	MG/KG	75.6		SS13-6	83%	24.8	9	25	30
Magnesium	MG/KG	25600		SB13-3-1	100%	21500	1	30	30
Manganese	MG/KG	1150		SB13-13	100%	1060	1	30	30
Mercury	MG/KG	0.09	J	SS13-1	47%	0.1	0	14	30
Nickel	MG/KG	71.1		SB13-13	100%	49	8	30	30
Potassium	MG/KG	2800		SB13-13	100%	2380	1	30	30
Selenium	MG/KG	1.4		SB13-9-1	70%	2	0	21	30
Silver	MG/KG	0.35	J	SS13-9	7%	0.75	0	2	30
Sodium	MG/KG	186		SB13-14	63%	172	2	19	30
Thallium	MG/KG	0.91	J	SB13-3-1	20%	0.7	1	6	30
Vanadium	MG/KG	35.8		SB13-4-1	100%	150	0	30	30
Zinc	MG/KG	152		SS13-6	100%	110	3	30	30
OTHER ANALYSES									
Nitrate/Nitrite Nitrogen	MG/KG	27.9		SB13-13	94%		0	16	17
Percent Solids	%	96.7			100%		0	17	17
Fluoride	MG/KG	0							

NOTES:

J = reported value is an estimated concentration

(1) Only compounds that were detected were included in this list of parameters.

(2) NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.

Table 3
Summary of Subsurface Soil Anlaysis Results - SEAD-13

PARAMETER [1]	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYSDEC TAGM 4046 [2]	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS									
Carbon disulfide	UG/KG	2	J	SB13-1-4	5%	2700	0	1	20
Methylene chloride	UG/KG	4	J	SB13-1-4	15%	100	0	3	20
Toluene	UG/KG	2	J	SB13-5-5	5%	1500	0	1	20
SEMIVOLATILE ORGANICS									
Benzo(b)fluoranthene	UG/KG	4.9			4%	1100	0	1	25
Benzo(ghi)perylene	UG/KG	20	J	SB13-4-2	4%	50000	0	1	25
Bis(2-Ethylhexyl)phthalate	UG/KG	24	J	SB13-4-2	12%	50000	0	3	25
Chrysene	UG/KG	6.6	J	134021	16%	400	0	4	25
Di-n-butylphthalate	UG/KG	20	J	SB13-1-4	8%	8100	0	2	25
Di-n-octylphthalate	UG/KG	110	J	SB13-1-4	8%	50000	0	2	25
Fluoranthene	UG/KG	7.5	J	134021	4%	50000	0	1	25
Phenanthrene	UG/KG	5.1	J	134013	12%	50000	0	3	25
Pyrene	UG/KG	4.6	J	134013	4%	50000	0	1	25
METALS									
Aluminum	MG/KG	20400		SB13-4-3	100%	19300	2	25	25
Antimony	MG/KG	5.8	J	SB13-9-4	32%	5.9	0	8	25
Arsenic	MG/KG	10.2		SB13-8-2	100%	8.2	2	25	25
Barium	MG/KG	584		SB13-10-5	100%	300	1	25	25
Beryllium	MG/KG	1		SB13-4-3	100%	1.1	0	25	25
Cadmium	MG/KG	0.9	J	134021	20%	2.3	0	5	25
Calcium	MG/KG	98100		SB13-9-4	100%	121000	0	25	25
Chromium	MG/KG	35.8		SB13-4-3	100%	29.6	3	25	25
Cobalt	MG/KG	18.9		SB13-8-2	100%	30	0	25	25
Copper	MG/KG	44		SB13-9-4	100%	33	2	25	25
Iron	MG/KG	42500		SB13-4-3	100%	36500	4	25	25
Lead	MG/KG	18.6	J	134021	68%	24.8	0	17	25
Magnesium	MG/KG	21700		SB13-3-3	100%	21500	1	25	25
Manganese	MG/KG	708		SB13-10-4	100%	1060	0	25	25
Mercury	MG/KG	0.07	J	SB13-1-3	32%	0.1	0	8	25
Nickel	MG/KG	57.1		SB13-10-4	100%	49	4	25	25
Potassium	MG/KG	2790		134015	100%	2380	3	25	25
Selenium	MG/KG	0.66	J	134019	80%	2	0	20	25
Silver	MG/KG	1	J	SB13-10-5	12%	0.75	1	3	25
Sodium	MG/KG	252	J	134015	100%	172	9	25	25
Thallium	MG/KG	0.78	J	SB13-7-2	32%	0.7	4	8	25
Vanadium	MG/KG	30.7		SB13-4-3	100%	150	0	25	25
Zinc	MG/KG	108		134019	100%	110	0	25	25
OTHER ANALYSES									
Nitrate/Nitrite Nitrogen	MG/KG	0		SB13-2-5	100%		0	5	5
Percent Solids	%	96.8		134021	100%		0	5	5
Fluoride		0		SB13-5-5					

NOTES:
J = reported value is an estimated concentration
(1) Only compounds that were detected were included in this list of parameters.
(2) NYSDEC Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046, Revised January 24, 1994.

Table 4
Summary of Groundwater Analysis Results - SEAD-13

PARAMETER [1]	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	CRITERIA VALUE [2]		NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
SEMIVOLATILE ORGANICS										
2-Methylnaphthalene	UG/L	0.069	J	MW13-5	5%	NA		0	1	22
Bis(2-Ethylhexyl)phthalate	UG/L	23		MW13-5	18%	5		2	4	22
Butylbenzylphthalate	UG/L	0.1	J	MW13-2	18%	NA		0	4	22
Diethyl phthalate	UG/L	0.16	J	MW13-11	41%	NA		0	9	22
Pyrene	UG/L	0.06	J	MW13-13	5%	NA		0	1	22
METALS										
Aluminum	UG/L	70900	J	MW13-13	82%	50	(a)	16	18	22
Antimony	UG/L	52.7	J	MW13-6	32%	3		5	7	22
Arsenic	UG/L	15.1		MW13-13	32%	10	(b)	1	7	22
Barium	UG/L	459		MW13-13	100%	1000		0	22	22
Beryllium	UG/L	3.6	J	MW13-13	23%	4	(c)	0	5	22
Cadmium	UG/L	0.57	J	MW13-4	5%	5		0	1	22
Calcium	UG/L	1140000		MW13-13	100%	NA		0	22	22
Chromium	UG/L	109		MW13-13	41%	50		3	9	22
Cobalt	UG/L	47.7	J	MW13-13	50%	NA		0	11	22
Copper	UG/L	35		MW13-13	50%	200		0	11	22
Cyanide	UG/L	124		MW13-13	27%	NA		0	6	22
Iron	UG/L	97900	J	MW13-13	86%	300		13	19	22
Lead	UG/L	34.8		MW13-1	45%	15	(c)	3	10	22
Magnesium	UG/L	314000		MW13-13	100%	35000		19	22	22
Manganese	UG/L	3210		MW13-13	100%	300		13	22	22
Mercury	UG/L	0.05	J	MW13-1	5%	0.7		0	1	22
Nickel	UG/L	134		MW13-13	77%	100		1	17	22
Potassium	UG/L	42000	J	MW13-11	100%	NA		0	22	22
Selenium	UG/L	17.8	J	MW13-11	41%	10		1	9	22
Silver	UG/L	1.6	J	MW13-1	5%	50		0	1	22
Sodium	UG/L	52700		MW13-11	100%	20000		8	22	22
Vanadium	UG/L	115		MW13-13	32%	NA		0	7	22
Zinc	UG/L	223		MW13-13	86%	5000	(a)	0	19	22
OTHER ANALYSES										
NITRATE	MG/L	731		MW13-13	100%	10		5	10	10
NITRITE	MG/L	2.1		MW13-11	50%	1		2	5	10
Nitrate/Nitrite Nitrogen	MG/L	731		MW13-13	100%	NA		0	21	22
Fluoride	MG/L	0.45		MW13-1	100%	1.5		0	6	6
Turbidity	NTU	999		MW13-13	100%			0	21	21

NOTES:
J = reported value is an estimated concentration
(1) Only compounds that were detected were included in this list of parameters.
(2) NY State Class GA Groundwater Standard (TOGS 1.1.1, June 1998), except as noted below.
a) US EPA Secondary Drinking Water Regulation, non-enforceable (EPA 822-B-00-001, Summer 2000)
b) US EPA Maximum Contaminant Limit announced 10/31/01. Source http://www.epa.gov/safewater/arsenic.html
c) US EPA National Primary Drinking Water Standards, EPA 816-F-01-007 March 2001

Table 5
Summary of Surface Water Analysis Results - SEAD-13

PARAMETER [1]	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYS AWQS CLASS C (AQUATIC) [2]	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
SEMIVOLATILE ORGANICS									
4-Methylphenol	UG/L	23	J	SW13-3	33%	NA	0	3	9
Isophorone	UG/L	0.057	J	SW13-5	11%	NA	0	1	9
Phenol	UG/L	9.3	J	SW13-3	22%	5	1	2	9
METALS									
Aluminum	UG/L	3830		SW/SD13-1	88%	100	8	14	16
Antimony	UG/L	3	J	SW13-5	11%	NA	0	1	9
Arsenic	UG/L	6.7	J	SW13-5	56%	150	0	5	9
Barium	UG/L	91.6	J	SW/SD13-1	100%	NA	0	9	9
Calcium	UG/L	75300		SW/SD13-1	100%	NA	0	9	9
Chromium	UG/L	5.4	J	SW/SD13-1	11%	139	0	1	9
Cobalt	UG/L	1.6	J	SW13-3	11%	5	0	1	9
Copper	UG/L	6.6	J	SW/SD13-1	78%	17	0	7	9
Iron	UG/L	5870		SW13-3	100%	300	9	9	9
Lead	UG/L	7.5		SW/SD13-2	56%	223	0	5	9
Magnesium	UG/L	14200		SW/SD13-1	100%	NA	0	9	9
Manganese	UG/L	1850		SW13-4	100%	NA	0	9	9
Mercury	UG/L	0.11	J	SW13-5	11%	1.4	0	1	9
Nickel	UG/L	7.1	J	SW/SD13-1	56%	100	0	5	9
Potassium	UG/L	7200		SW/SD13-1	89%	NA	0	8	9
Sodium	UG/L	70000		SW/SD13-3	100%	NA	0	9	9
Vanadium	UG/L	6.2	J	SW/SD13-1	33%	14	0	3	9
Zinc	UG/L	27.7		SW/SD13-1	89%	159	0	8	9
OTHER ANALYSES									
Nitrate/Nitrite Nitrogen	MG/L	0.11	J	SW13-5	67%	NA	0	6	9
Fluoride	MG/KG	0.39			100%		0	3	3
Turbidity	NTU	5.7			100%		0	6	6

NOTES:
J = reported value is an estimated concentration
(1) Only compounds that were detected were included in this list of parameters.
(2) Hardness dependent values assume a hardness of 217 mg/l.

Table 6
Summary of Sediment Analysis Results - SEAD-13

PARAMETER [1]	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYS Benthic Aquatic Life Chronic Toxicity [2]	NYS Lowest Effect Level [2]	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS										
Acetone	UG/KG	380	J	SW/SD13-1	100%	NA		0	4	4
Methyl ethyl ketone	UG/KG	140	J	SW/SD13-1	25%	NA		0	1	4
SEMIVOLATILE ORGANICS										
2-Methylnaphthalene	UG/KG	10	J	SD13-6	10%	1330		0	1	10
4-Methylphenol	UG/KG	58	J	SD13-4	50%	19.6		1	5	10
Acenaphthylene	UG/KG	8.8	J	SD13-6	10%	NA		0	1	10
Anthracene	UG/KG	8.3	J	SD13-6	20%	4184		0	2	10
Benzo(a)anthracene	UG/KG	90		SD13-6	20%	469		0	2	10
Benzo(a)pyrene	UG/KG	88		SD13-6	20%	NA		0	2	10
Benzo(b)fluoranthene	UG/KG	86		SD13-6	20%	NA		0	2	10
Benzo(ghi)perylene	UG/KG	57	J	SD13-6	20%	NA		0	2	10
Benzo(k)fluoranthene	UG/KG	55	J	SD13-6	20%	NA		0	2	10
Chrysene	UG/KG	190		SD13-6	20%	NA		0	2	10
Di-n-octylphthalate	UG/KG	9.9	J	SD13-5	10%	NA		0	1	10
Dibenz(a,h)anthracene	UG/KG	16	J	SD13-6	20%	NA		0	2	10
Dibenzofuran	UG/KG	4.3	J	SD13-6	10%	NA		0	1	10
Fluoranthene	UG/KG	120		SD13-6	40%	39887		0	4	10
Fluorene	UG/KG	6.4	J	SD13-6	10%	313		0	1	10
Indeno(1,2,3-cd)pyrene	UG/KG	44	J	SD13-6	20%	NA		0	2	10
Naphthalene	UG/KG	6.8	J	SD13-6	10%	1173		0	1	10
Phenanthrene	UG/KG	160	J	SD13-6	30%	4693		0	3	10
Pyrene	UG/KG	270		SD13-6	40%	37580		0	4	10
NITROAROMATICS										
Tetryl	UG/KG	200	J	SW/SD13-2	25%	NA		0	1	4
METALS										
Aluminum	MG/KG	18400		SD13-3	100%	NA	NA	0	10	10
Antimony	MG/KG	0.65	J	SD13-5	10%	NA	2	0	1	10
Arsenic	MG/KG	4.8		SD13-3	60%	NA	6	0	6	10
Barium	MG/KG	164			100%	NA	NA	0	10	10
Beryllium	MG/KG	1	J	SD13-4	100%	NA	NA	0	10	10
Cadmium	MG/KG	0.96	J	SD13-4	60%	NA	0.6	5	6	10
Calcium	MG/KG	42200		SD13-6	100%	NA		0	10	10
Chromium	MG/KG	27.7		SD13-4	100%	NA	26	3	10	10
Cobalt	MG/KG	13.5	J	SD13-4	100%	NA	NA	0	10	10
Copper	MG/KG	20.7		SD13-4	100%	NA	16	10	10	10
Iron	MG/KG	29400		SD13-4	100%	NA	20000	9	10	10
Lead	MG/KG	33.3		SD13-6	100%	NA	31	1	10	10
Magnesium	MG/KG	7110		SD13-6	100%	NA		0	10	10
Manganese	MG/KG	778		SD13-3	100%	NA	460	3	10	10
Mercury	MG/KG	0.09	J	SW/SD13-2	40%	NA	0.15	0	4	10
Nickel	MG/KG	35.4		SD13-4	100%	NA	16	10	10	10
Potassium	MG/KG	2830		SD13-4	100%	NA		0	10	10
Selenium	MG/KG	0.49	J	SW/SD13-1	30%	NA	NA	0	3	10
Silver	MG/KG	3.2	J	SW/SD13-1	10%	NA		0	1	10
Sodium	MG/KG	326	J	SW/SD13-1	40%	NA	1	4	4	10
Vanadium	MG/KG	33.6	J	SW/SD13-1	100%	NA	NA	0	10	10
Zinc	MG/KG	114		SD13-4	60%	NA	120	0	6	10
OTHER ANALYSES										
Nitrate/Nitrite Nitrogen	MG/KG	6.4	J	SD13-6	70%	NA		0	7	10
Percent Solids	%	90.3			100%			0	10	10
Fluoride	MG/KG	270			100%	NA		0	4	4

NOTES:
J = reported value is an estimated concentration
(1) Only compounds that were detected were included in this list of parameters.
(2) Note that for the COPCs, there are no values for NYSDEC Sediment Criteria for Human Health and Sediment Criteria for Wildlife.

Table 7
Summary of Soil Analysis Results - SEAD-39
Limited Sampling Program

Compounds	Matrix Location Depth (ft) Date ES ID Lab ID Units	Soil SEAD-39 0-0.2 1/12/1994 SS39-1 208403	Soil SEAD-39 0-0.2 1/12/1994 SS39-1 209343	Soil SEAD-39 0-0.2 1/12/1994 SS39-2 208404	Soil SEAD-39 0-0.2 1/12/1994 SS39-3 208405	Soil SEAD-39 0-0.2 1/12/1994 SS39-4 208406	Soil SEAD-39 3-5 12/16/1993 SB39-1.1 207131	Soil SEAD-39 0-0.2 1/24/1994 SS39-5 209345 (SS39-1 dup)	Soil SEAD-39 3-5 12/16/1993 SB39-1.2 207133 (SB39-1.1 dup)
Total Petroleum Hydrocarbons	mg/Kg	98	118	71	63	65	89	90	72
pH	standard units	7.9	7.91	8.9	8.34	8.03	7.2	8.18	7.39
Total Solids	% W/W	83.2	82.1	79.8	84.6	83.9	85.8	82.5	84.7

Table 8
Seneca Army Depot
SEAD39
August/October 2003 Confirmatory Soil Sample Results for PAHs and Metals

Analyte	Recommended Soil Cleaup Objective (NY TAGM) [1]	SEAD39-FX-SS-001FS	SEAD39-FX-SS-002FS	SEAD39-PX-SS-003FS	SEAD39-PX-SS-003-FS1	SEAD39-PX-SS-004FS	SEAD39-PX-SS-004-FS1	SEAD39-PX-SS-004-FS2	SEAD39-PX-SS-004-FS3	SEAD39-PX-SS-005FS	SEAD39-PX-SS-006FS	SEAD39-PX-SS-006-FS1	SEAD39-PX-SS-007FS	SEAD39-PX-SS-008FS	SEAD39-PX-SS-008-FS1	SEAD39-PX-SS-008-FS2	SEAD39-PX-SS-008-FS3	Avg Result	Max Result
Depth		0" - 6"	0" - 6"	0" - 6"	6" - 12"	0" - 6"	6" - 12"	0" - 6"	6" - 12"	0" - 6"	0" - 6"	6" - 12"	0" - 6"	0" - 6"	6" - 12"	0" - 6"	6" - 12"		
Date		8/20/2003	8/20/2003	8/20/2003	10/16/2003	8/20/2003	10/16/2003	10/16/2003	10/16/2003	8/20/2003	8/20/2003	10/16/2003	8/20/2003	8/20/2003	10/16/2003	10/16/2003	10/16/2003		
Polyaromatic Hydrocarbons [2] (ug/Kg - dry)																			
2-Methylnaphthalene	NE	ND	ND	14000	1400	120 J	120 J	470	280	ND	ND	ND	ND	2300	220 J	150 J	540	1,960	14,000
Acenaphthene	50,000	ND	ND	35000	4500	550	280 J	170 J	ND	81 J	110 J	180 J	62 J	4900	870	310	760	3,675	35,000
Acenaphthylene	41,000	ND	ND	1200 J	400	ND	73 J	ND	390	ND	57 J	80 J	ND	290	170 J	190 J	120	297	1,200
Anthracene	50,000	97 J	72 J	50000	6900	950	540	250 J	830	160 J	270 J	370	150 J	7800	960	700	1400	4,466	50,000
Benz(a)anthracene	224	300 J	290	110000	17000	2700	1400	940	2700	600	990	1100	540	14000	2600	1600	2800	9,973	110,000
Benzo(a)pyrene	61	270 J	260 J	79000	13000	2000	1000	750	1900	500	840	900	460	10000	2000	1400	2300	7,286	79,000
Benzo(b)fluoranthene	1,100	350	350	110000	19000	2800	1500	1200	2800	690	1100	1300	600	13000	3000	1900	3200	10,174	110,000
Benzo(g,h,I)perylene	50,000	150 J	160 J	37000	6800	1100	590	460	1100	310	460	520	250 J	5400	1100	700	1300	3,588	37,000
Benzo(k)fluoranthene	1,100	140 J	150 J	46000	6100	1100	400	390	1100	250 J	460	420	250 J	5200	940	470	970	4,021	46,000
Chrysene	400	320	310	100000	15000	2800	1200	1000	2700	630	1100	1100	540	12000	2300	1500	2600	9,069	100,000
Dibenzo(a,h)anthracene	14	ND	ND	14000	2300	370	160 J	130 J	360	96 J	150 J	140 J	85 J	2000	360	210 J	420	1,484	14,000
Flouranthene	50,000	610	580	250000	32000	6600	2700	2100	6600	1200	2000	2200	1100	30000	4900	3100	6500	22,012	250,000
Flourene	50,000	ND	ND	38000	4100	430	270 J	110 J	270 J	69 J	110 J	160 J	60 J	5700	660	360	760	3,647	38,000
Indeo(1,2,3-cd)pyrene	3,200	160 J	170 J	47000	8400	1300	640	510	1300	360	560	590	310	6600	1200	840	1500	4,465	47,000
Naphthalene	3,700	59 J	ND	30000	3600	240 J	270 J	420	310	ND	55 J	64 J	130 J	6600	310	300	1600	3,140	30,000
Phenanthrene	50,000	490	380	240000	28000	5200	2100	1500	4300	720	1200	1400	800	29000	4200	2400	6700	20,524	240,000
Pyrene	50,000	560	590	190000	28000	5600	2400	1900	5100	1100	1800	2000	970	23000	4700	3000	4800	17,220	190,000
Benzo(a)pyrene TEQ [3]	**10,000**	**356**	**346**	**121,160**	**19,951**	**3,089**	**1,530**	**1,159**	**2,978**	**770**	**1,271**	**1,354**	**698**	**15,532**	**3,072**	**2,064**	**3,506**	**11,177**	**121,160**
ICP Metals (mg/Kg - dry)																			
Arsenic	7.5	6.9 J	7.2 J	7.2 J	11	9	7.6	8.8	9.1	9.4	7.5	8	7.9	7.2	8.8	8.6	10	8.4	11.0
Barium	300	110	91	100	330	89	110	110	96	100	86	100	100	96	99	110	95	114	330
Cadmium	2.3	0.24 J	0.18 J	0.31 J	1.6	0.35 J	0.2 J	0.35 J	0.26 J	0.26 J	0.31 J	0.29 J	0.2 J	0.2 J	0.18 J	0.2 J	ND	0.3	1.6
Chromium	29	19	19	19	20	18	20	19	19	22	18	19	22	19	23	21	20	20	23
Copper	29.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead [4]	400	18	16	34	32	28	28	32	31	35	44	44	23	19	25	25	18	28	44
Silver	0.763	ND	ND	ND	ND	ND	ND	1.8 J	0.56 J	ND	ND	ND	ND	ND	ND	ND	ND	1.2	1.8
Zinc	108.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury [5] (mg/Kg - dry)																			
Mercury	0.13	0.068	0.05 J	0.06	0.059 J	0.13	0.099	0.77	0.26	0.075	0.11	0.091	0.059	0.052 J	0.046 J	0.045 J	0.049 J	0.13	0.77
Selenium, Soil (mg/Kg - dry)																			
Selenium	2	0.35 J	0.37 J	ND	0.73 J	0.38 J	0.43 J	0.54 J	0.52 J	ND	0.55 J	0.58 J	0.4 J	ND	0.65 J	0.52 J	0.38	0.49	0.73

Table 9
Summary of Soil Analysis Results - SEAD-39

PARAMETER	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYSDEC TAGM	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES
Volatile Organic Carbons									
1,2,4-Trimethylbenzene	ug/Kg	46		SEAD39-PX-SS-004-FS2	8%	-	0	1	13
Ethylbenzene	ug/Kg	20	J	SEAD39-PX-SS-004-FS2	8%	5,500	0	1	13
Isopropylbenzene	ug/Kg	23	J	SEAD39-PX-SS-004-FS2	8%	-	0	1	13
m,p-Xylene	ug/Kg	61		SEAD39-PX-SS-004-FS2	8%	-	0	1	13
Methylene chloride	ug/Kg	43		SEAD39-PX-SS-004-FS2	8%	100	0	1	13
Naphthalene	ug/Kg	990		SEAD39-PX-SS-003FS	100%	3,700	0	13	13
n-Propylbenzene	ug/Kg	46		SEAD39-PX-SS-004-FS2	8%	-	0	1	13
o-Xylene	ug/Kg	70		SEAD39-PX-SS-004-FS2	8%	-	0	1	13
sec-Butylbenzene	ug/Kg	18	J	SEAD39-PX-SS-004-FS2	8%	-	0	1	13
Toluene	ug/Kg	40		SEAD39-PX-SS-004-FS2	8%	1,500	0	1	13
Polyaromatic Hydrocarbons [2]									
2-Methylnaphthalene	ug/Kg	14,000		SEAD39-PX-SS-003FS	100%	NE		10	10
Acenaphthene	ug/Kg	35,000		SEAD39-PX-SS-003FS	100%	50,000	0	14	14
Acenaphthylene	ug/Kg	1,200	J	SEAD39-PX-SS-003FS	100%	41,000	0	10	10
Anthracene	ug/Kg	50,000		SEAD39-PX-SS-003FS	100%	50,000	0	16	16
Benz(a)anthracene	ug/Kg	110,000		SEAD39-PX-SS-003FS	100%	224	16	16	16
Benzo(a)pyrene	ug/Kg	79,000		SEAD39-PX-SS-003FS	100%	61	16	16	16
Benzo(b)fluoranthene	ug/Kg	110,000		SEAD39-PX-SS-003FS	100%	1,100	11	16	16
Benzo(g,h,I)perylene	ug/Kg	37,000		SEAD39-PX-SS-003FS	100%	50,000	0	16	16
Benzo(k)fluoranthene	ug/Kg	46,000		SEAD39-PX-SS-003FS	100%	1,100	3	16	16
Chrysene	ug/Kg	100,000		SEAD39-PX-SS-003FS	100%	400	14	16	16
Dibenzo(a,h)anthracene	ug/Kg	14,000		SEAD39-PX-SS-003FS	100%	14	14	14	14
Flouranthene	ug/Kg	250,000		SEAD39-PX-SS-003FS	100%	50,000	1	16	16
Flourene	ug/Kg	38,000		SEAD39-PX-SS-003FS	100%	50,000	0	14	14
Indeo(1,2,3-cd)pyrene	ug/Kg	47,000		SEAD39-PX-SS-003FS	100%	3,200	3	16	16
Naphthalene	ug/Kg	30,000		SEAD39-PX-SS-003FS	100%	3,700	2	15	15
Phenanthrene	ug/Kg	240,000		SEAD39-PX-SS-003FS	100%	50,000	1	16	16
Pyrene	ug/Kg	190,000		SEAD39-PX-SS-003FS	100%	50,000	1	16	16
ICP Metals									
Arsenic	mg/Kg	11		SEAD39-PX-SS-003-FS1	100%	7.5	8	16	16
Barium	mg/Kg	330		SEAD39-PX-SS-003-FS1	100%	300	1	16	16
Cadmium	mg/Kg	2		SEAD39-PX-SS-003-FS1	100%	2.3	0	15	15
Chromium	mg/Kg	23		SEAD39-PX-SS-008-FS1	100%	29	0	16	16
Lead[4]	mg/Kg	44		SEAD39-PX-SS-006FS	100%	400	0	16	16
Mercury	mg/Kg	1		SEAD39-PX-SS-004-FS2	100%	0.13	2	16	16
Selenium	mg/Kg	1	J	SEAD39-PX-SS-003-FS1	100%	2	0	13	13
Silver	mg/Kg	2	J	SEAD39-PX-SS-004-FS2	100%	0.763	1	2	2

Note:

1. The Cleanup goal is based on the New York Technical Administrative Guidance Memorandum (TAGM) No.4046 Recommended Soil Cleanup Objectives. Values denoted as Site Background ("SB") in TAGM 4046 were compared with the highlighted values (95th percentile of Seneca Army Depot (SEDA) Site Background) in lieu of the TAGM "SB" since no background cleanup objectives exist for certain parameters.

mg/kg= milligram per kilogram
µg/kg= microgram per kilogram
J= Result is less than the RL, but greater than or equal to the MDL.

Table 10
Summary of Soil Analysis Results - SEAD-40
Limited Sampling Program

Compounds	Matrix Location Depth (ft) Date ES ID Lab ID Units	Soil SEAD-40 4-6 12/16/1993 SB40-1.1 207134	Soil SEAD-40 0-0.2 12/17/1993 SS40-1 207139	Soil SEAD-40 0-0.2 12/17/1993 SS40-2 207141	Soil SEAD-40 0-0.2 12/17/1993 SS40-3 207142	Soil SEAD-40 0-0.2 12/17/1993 SS40-4 207143	Soil SEAD-40 0-0.2 12/17/1993 SS40-5 207144 (SS40-1 dup)
Total Petroleum Hydrocarbons	mg/Kg	1270	300	420	1640	680	270
pH	standard units	7.37	7.86	7.64	7.54	7.29	8.15
Total Solids	% W/W	85.4	90.8	89.2	81.1	69.9	91.8

Table 11
Seneca Army Depot
SEAD 40
August/October 2003 Confirmatory Soil Sample Results for PAHs and Metals

Analyte	Recommended Soil Cleaup Objective (NY TAGM) [1]	SEAD40-FX-SS-001FS	SEAD40-FX-SS-001-FS1	SEAD40-FX-SS-002FS	SEAD40-FX-SS-003FS	SEAD40-FX-SS-004FS	SEAD40-FX-SS-004-FS1	SEAD40-PX-SS-005FS	SEAD40-PX-SS-005-FS1	SEAD40-PX-SS-005-FS2	SEAD40-PX-SS-005-FS3	SEAD40-PX-SS-006FS	SEAD40-PX-SS-006-FS1	SEAD40-PX-SS-006-FS2
Depth		0" - 6"	6" -12"	0" - 6"	0" - 6"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"
Date		8/21/2003	10/16/2003	8/21/2003	8/21/2003	8/21/2003	10/16/2003	8/21/2003	10/16/2003	10/16/2003	10/16/2003	8/21/2003	10/16/2003	10/16/2003
Polyaromatic Hydrocarbons [2] (ug/Kg - dry)														
2-Methylnaphthalene	36,400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	270 J	ND	320
Acenaphthene	50,000	64 J	ND	ND	ND	ND	ND	210 J	ND	61 J	ND	340	90 J	850
Acenaphthylene	41,000	920	130 J	ND	93 J	450	ND	830	160 J	1,400	180 J	6,100	680	22,000
Anthracene	50,000	660	120 J	ND	83 J	250 J	ND	1,100	97 J	700	93 J	3,700	460	13,000
Benz(a)anthracene	224	2,000	310 J	ND	240 J	620	ND	3,700	310	1,500	260 J	5,800	1,200	22,000
Benzo(a)pyrene	61	2,500	330 J	60 J	290 J	1,000	ND	3,700	400	2,400	400	7,400	1,500	33,000
Benzo(b)fluoranthene	1,100	2,900	460	72 J	330	1,200	ND	4,800	470	2,800	460	8,500	1,800	36,000
Benzo(g,h,I)perylene	50,000	1,700	250 J	ND	220 J	780	ND	2,300	280 J	2,200	360	6,800	1,200	30,000
Benzo(k)fluoranthene	1,100	1,200	92 J	ND	160 J	360	ND	1,500	160 J	770	160 J	2,900	600	13,000
Chrysene	400	1,800	240 J	ND	240 J	610	ND	3,400	310	1,400	260 J	5,300	1,100	21,000
Dibenzo(a,h)anthracene	14	440	ND	ND	ND	180 J	ND	610	ND	490	72 J	1,500	250 J	6,500
Flouranthene	50,000	3,000	440	64 J	380	710	ND	7,900	370	1,600	310	8,000	2,100	29,000
Flourene	50,000	130 J	ND	ND	ND	ND	ND	250 J	ND	120 J	ND	760	130 J	1,900
Indeo(1,2,3-cd)pyrene	3,200	1,800	240 J	ND	220 J	760	ND	2,500	250 J	2,000	330	6,300	1,200	28,000
Naphthalene	13,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	190 J	ND	390
Phenanthrene	50,000	680	140 J	ND	110 J	120 J	ND	3,600	110 J	250 J	91 J	3,100	1,100	4,800
Pyrene	50,000	3,400	550	69 J	360	1,000	ND	7,000	500	2,500	370	9,600	2,400	45,000
Benzo(a)pyrene TEQ[3]	10,000	**3,640**	**434**	**67**	**373**	**1,448**	**ND**	**5,459**	**508**	**3,542**	**581**	**11,042**	**2,187**	**48,440**
ICP Metals (mg/Kg - dry)														
Arsenic	7.5	4.6 J	9.1	5.3 J	4.7 J	4.7 J	9.2	6 J	8.4	6.5 J	11	4.8 J	9.9	3.8 J
Barium	300	84	95	62	120	140	140	83	70	120	73	120	100	250
Cadmium	2.3	0.26 J	0.29 J	ND	0.2 J	ND	ND	0.16 J	ND	0.26 J	ND	0.25 J	ND	0.87
Chromium	29	25	29	18	22	21	22	20	18	14	19	16	23	16
Lead[4]	400	30	41	12	22	14	17	19	14	22	13	25	15	85
Silver	0.763	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.31 J	ND	ND
Mercury [5] (mg/Kg - dry)														
Mercury	0.13	0.041 J	0.039 J	0.046 J	0.052	0.07	0.031 J	0.033 J	0.029 J	0.023 J	0.026 J	0.034 J	0.029 J	0.019 J
Selenium, Soil (mg/Kg - dry)														
Selenium	2	0.34 J	0.7 J	ND	0.4 J	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND

Table 11
Seneca Army Depot
SEAD 40
August/October 2003 Confirmatory Soil Sample Results for PAHs and Metals

Analyte	Recommended Soil Cleaup Objective (NY TAGM) [1]	SEAD40-PX-SS-006-FS3	SEAD40-PX-SS-007FS	SEAD40-PX-SS-007-FS1	SEAD40-PX-SS-007-FS2	SEAD40-PX-SS-007-FS3	SEAD40-PX-SS-008FS	SEAD40-PX-SS-008-FS1	SEAD40-PX-SS-008-FS2	SEAD40-PX-SS-008-FS3	SEAD40-PX-SS-009FS	SEAD40-PX-SS-009-FS1	SEAD40-PX-SS-009-FS2
Depth		6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"
Date		10/16/2003	8/21/2003	10/16/2003	10/16/2003	10/16/2003	8/21/2003	10/16/2003	10/16/2003	10/16/2003	8/21/2003	10/16/2003	10/16/2003
Polyaromatic Hydrocarbons [2] (ug/Kg - dry)													
2-Methylnaphthalene	36,400	370	240 J	ND	200 J	220	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	50,000	380	470	150 J	580	4,200	68 J	ND	88 J	ND	ND	ND	89 J
Acenaphthylene	41,000	9,200	7,100	1,200	12,000	220	1,100	170 J	1,600	830	730	230 J	690
Anthracene	50,000	6,900	4,900	900	5,800	3,100	510	61 J	750	370	520	100 J	390
Benz(a)anthracene	224	8,700	15,000	1,900	11,000	7,000	980	110 J	1,400	680	1,500	290 J	1,100
Benzo(a)pyrene	61	15,000	15,000	2,200	18,000	9,600	1,600	130 J	2,300	1,500	1,900	380	1,400
Benzo(b)fluoranthene	1,100	18,000	15,000	2,800	20,000	11,000	1,900	150 J	2,700	1,600	2,400	430	1,600
Benzo(g,h,I)perylene	50,000	8,400	10,000	1,700	17,000	5,800	1,400	110 J	2,400	1,700	1,400	280 J	1,100
Benzo(k)fluoranthene	1,100	4,400	5,600	890	6,800	3,300	600	ND	720	540	750	150 J	570
Chrysene	400	8,100	13,000	1,600	10,000	6,200	1,000	110 J	1,200	720	1,400	250 J	970
Dibenzo(a,h)anthracene	14	2,200	2,500	430	3,500	1,400	300	ND	500	320	320	ND	230 J
Flouranthene	50,000	11,000	20,000	3,000	9,200	8,000	1,300	150 J	1,300	720	2,200	370	1,400
Flourene	50,000	910	830	290	920	400	120 J	ND	150 J	78 J	93 J	ND	99 J
Indeo(1,2,3-cd)pyrene	3,200	8,400	10,000	1,700	15,000	6,400	1,200	120 J	2,000	1,400	1,400	280 J	1,100
Naphthalene	13,000	350	240 J	ND	190 J	250	ND	ND	ND	60 J	ND	ND	ND
Phenanthrene	50,000	2,300	3,200	1,800	1,300	2,600	320	ND	260 J	160 J	560	91 J	480
Pyrene	50,000	15,000	23,000	3,600	16,000	8,800	1,600	190 J	2,200	990	2,500	510	2,000
Benzo(a)pyrene TEQ[3]	10,000	**20,835**	**21,686**	**3,295**	**26,268**	**13,535**	**2,324**	**169**	**3,429**	**2,201**	**2,772**	**484**	**2,025**
ICP Metals (mg/Kg - dry)													
Arsenic	7.5	21	7.1	9	8.9	11	7.3	7.7	8.2	9.1	6.8 J	9.2	8.9
Barium	300	280	140	110	240	160	100	79	140	100	93	67	87
Cadmium	2.3	0.74	0.66	0.44 J	1.4	0.51 J	0.32 J	0.13 J	0.74	0.33 J	0.47 J	0.21 J	0.36 J
Chromium	29	10	28	21	18	16	34	18	22	22	31	18	23
Lead[4]	400	67	45	26	73	34	120	15	46	45	69	19	49
Silver	0.763	0.31 J	0.35 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mercury [5] (mg/Kg - dry)													
Mercury	0.13	0.025 J	0.03 J	0.034 J	0.046 J	0.027 J	0.033 J	0.024 J	0.038 J	0.035 J	0.053 J	0.032 J	0.04 J
Selenium, Soil (mg/Kg - dry)													
Selenium	2	ND	ND	ND	ND	ND	ND	0.34 J	ND	ND	0.53 J	0.48 J	0.5 J

Table 11
Seneca Army Depot
SEAD 40
August/October 2003 Confirmatory Soil Sample Results for PAHs and Metals

Analyte	Recommended Soil Cleaup Objective (NY TAGM) [1]	SEAD40-PX-SS-009-FS3	SEAD40-PX-SS-010FS	SEAD40-PX-SS-010-FS1	SEAD40-PX-SS-010-FS2	SEAD40-PX-SS-010-FS3	SEAD40-PX-SS-011FS	SEAD40-PX-SS-011-FS1	SEAD40-PX-SS-011-FS2	SEAD40-PX-SS-011-FS3	SEAD40-PX-SS-012FS	SEAD40-PX-SS-012-FS1	SEAD40-PX-SS-012-FS2	SEAD40-PX-SS-012-FS3
Depth		6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	6" -12"
Date		10/16/2003	8/21/2003	10/16/2003	10/16/2003	10/16/2003	8/21/2003	10/16/2003	10/16/2003	10/16/2003	8/21/2003	10/16/2003	10/16/2003	10/16/2003
Polyaromatic Hydrocarbons [2] (ug/Kg - dry)														
2-Methylnaphthalene	36,400	ND	63 J	ND	ND	ND	64 J	ND	110 J	ND	80 J	130 J	70 J	ND
Acenaphthene	50,000	ND	210 J	ND	85 J	93	210 J	ND	100 J	74 J	190 J	270 J	140 J	86 J
Acenaphthylene	41,000	330	1,400	440	780	910	1,800	540	940	950	2,100	1,700	1,200	980
Anthracene	50,000	190 J	1,300	380	990	1,000	1,500	330	740	870	1,800	2,100	1,100	910
Benz(a)anthracene	224	510	5,200	1,800	2,000	2,000	5,000	1,400	2,400	2,000	6,700	6,900	3,900	2,700
Benzo(a)pyrene	61	640	5,400	2,000	2,100	2,200	5,300	1,700	2,500	2,300	7,000	6,800	4,100	2,800
Benzo(b)fluoranthene	1,100	750	6,600	2,500	3,600	3,300	6,600	2,000	3,400	3,400	9,200	8,800	5,400	3,600
Benzo(g,h,I)perylene	50,000	370	3,200	1,400	2,000	1,400	3,600	1,200	2,100	1,200	4,600	5,300	3,000	1,300
Benzo(k)fluoranthene	1,100	270 J	2,600	990	1,200	1,200	2,100	580	1,200	1,300	2,600	2,400	1,700	1,400
Chrysene	400	490	4,400	1,700	2,300	2,200	4,400	1,300	2,500	2,300	6,200	6,500	3,900	2,700
Dibenzo(a,h)anthracene	14	100 J	930	350	470	410	960	290	510	390	1,300	1,300	770	420
Flouranthene	50,000	760	8,300	3,000	3,500	3,500	7,800	1,900	3,500	4,100	11,000	12,000	6,700	4,500
Flourene	50,000	ND	330	75 J	130 J	150	540	76 J	220 J	120 J	470	780	220 J	180 J
Indeo(1,2,3-cd)pyrene	3,200	420	3,600	1,400	2,100	1,600	3,600	1,200	2,200	1,600	5,000	5,800	3,200	1,600
Naphthalene	13,000	ND	99 J	ND	82 J	68 J	74 J	ND	72 J	ND	96 J	160 J	94 J	ND
Phenanthrene	50,000	240 J	2,800	690	1,500	1,500	3,500	590	2,100	1,500	4,000	6,800	2,400	1,800
Pyrene	50,000	860	8,200	2,700	3,300	3,300	7,900	2,000	4,200	3,500	11,000	11,000	6,600	4,200
Benzo(a)pyrene TEQ[3]	10,000	**916**	**7,940**	**2,947**	**3,375**	**3,334**	**7,845**	**2,469**	**3,847**	**3,426**	**10,478**	**10,339**	**6,176**	**4,051**
ICP Metals (mg/Kg - dry)														
Arsenic	7.5	10	6.4 J	9.8	22	21	6.2 J	7.6	14	24	5.5 J	10	29	29
Barium	300	99	400	110	77	79	89	93	36	59	110	110	71	82
Cadmium	2.3	ND	0.39 J	0.23 J	0.63 J	0.47 J	0.3 J	0.19 J	0.33 J	0.37 J	0.42 J	0.38 J	0.53 J	0.46 J
Chromium	29	21	28	28	26	24	22	21	15	22	140	22	22	23
Lead[4]	400	29	180	48	130	130	73	37	55	91	110	61	97	98
Silver	0.763	ND	0.5 J	ND	ND	ND	0.29 J	ND	ND	ND	0.43 J	ND	ND	ND
Mercury [5] (mg/Kg - dry)														
Mercury	0.13	0.035 J	0.042 J	0.035 J	0.061	0.055	0.043 J	0.026 J	0.03 J	0.04 J	0.044 J	0.03 J	0.055 J	0.058
Selenium, Soil (mg/Kg - dry)														
Selenium	2	ND	ND	0.46 J	0.72 J	ND	ND	ND	ND	ND	ND	ND	0.35 J	ND

Table 11
Seneca Army Depot
SEAD 40
August/October 2003 Confirmatory Soil Sample Results for PAHs and Metals

Analyte	Recommended Soil Cleaup Objective (NY TAGM) [1]	SEAD40-PX-SS-013FS	SEAD40-PX-SS-013-FS1	SEAD40-PX-SS-013-FS2	SEAD40-PX-SS-013-FS3	SEAD40-FX-SS-014FS	SEAD40-PX-SS-015FS	SEAD40-PX-SS-016FS	SEAD40-PX-SS-017FS	SEAD40-PX-SS-018FS	Avg Result	Max Result
Depth		0" - 6"	6" -12"	0" - 6"	6" -12"	0" - 6"	0" - 6"	0" - 6"	0" - 6"	0" - 6"		
Date		8/21/2003	10/16/2003	10/16/2003	10/16/2003	8/21/2003	8/21/2003	8/21/2003	8/21/2003	8/21/2003		
Polyaromatic Hydrocarbons [2] (ug/Kg - dry)												
2-Methylnaphthalene	36,400	150 J	210 J	64 J	ND	ND	ND	ND	ND	ND	171	370
Acenaphthene	50,000	420	530	180 J	120 J	ND	ND	ND	ND	ND	380	4,200
Acenaphthylene	41,000	4,800	4,700	1,800	1,700	ND	ND	ND	ND	61 J	2,321	22,000
Anthracene	50,000	4,000	4,800	1,500	1,300	ND	ND	ND	ND	ND	1,734	13,000
Benz(a)anthracene	224	13,000	17,000	5,100	4,200	ND	ND	ND	ND	70 J	4,134	22,000
Benzo(a)pyrene	61	14,000	19,000	5,600	4,600	ND	ND	ND	ND	120 J	5,004	33,000
Benzo(b)fluoranthene	1,100	17,000	23,000	6,900	6,000	ND	ND	ND	ND	120 J	5,941	36,000
Benzo(g,h,l)perylene	50,000	9,300	13,000	3,800	2,000	ND	ND	ND	ND	120 J	3,811	30,000
Benzo(k)fluoranthene	1,100	5,900	6,800	2,000	1,700	ND	ND	ND	ND	ND	2,081	13,000
Chrysene	400	12,000	17,000	5,000	4,000	ND	ND	ND	ND	68 J	3,882	21,000
Dibenzo(a,h)anthracene	14	2,400	3,400	1,100	650	ND	ND	ND	ND	ND	1,071	6,500
Flouranthene	50,000	22,000	30,000	8,100	6,000	ND	ND	ND	ND	73 J	5,934	30,000
Flourene	50,000	970	1,300	370	240 J	ND	ND	ND	ND	ND	417	1,900
Indeo(1,2,3-cd)pyrene	3,200	9,700	14,000	4,200	2,600	ND	ND	ND	ND	100 J	3,818	28,000
Naphthalene	13,000	190 J	290	83 J	74 J	ND	ND	ND	ND	ND	161	390
Phenanthrene	50,000	8,200	12,000	3,400	1,900	ND	ND	ND	ND	ND	2,105	12,000
Pyrene	50,000	22,000	30,000	8,500	6,100	ND	ND	ND	ND	110 J	6,776	45,000
Benzo(a)pyrene TEQ[3]	**10,000**	**20,549**	**28,038**	**8,390**	**6,587**	**ND**	**ND**	**ND**	**ND**	**150**	**7,324**	**48,440**
ICP Metals (mg/Kg - dry)												
Arsenic	7.5	6 J	11	11	17	7.4 J	8.4	7.9	8.1	6.7 J	10.2	29.0
Barium	300	89	76	77	98	130	200	100	200	82	117	400
Cadmium	2.3	0.38 J	0.33 J	0.55 J	0.39 J	ND	0.35 J	ND	0.43 J	ND	0.43	1.40
Chromium	29	21	20	24	25	18	23	24	21	15	24	140
Lead[4]	400	67	45	96	98	11	13	12	14	11	52	180
Silver	0.763	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND	0.356	0.500
Mercury [5] (mg/Kg - dry)												
Mercury	0.13	0.049 J	0.043 J	0.042 J	0.042 J	0.025 J	0.088	0.088	0.093	0.038 J	0.0415	0.093
Selenium, Soil (mg/Kg - dry)												
Selenium	2	ND	ND	0.46 J	ND	ND	0.35 J	ND	ND	ND	0.46	0.72

Table 12
Summary of Soil Analyses Results - SEAD-40

PARAMETER	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYSDEC TAGM	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES
Volatile Organic Carbons									
1,1,1-Trichloroethane	ug/Kg	22	J	SEAD40-PX-SS-008FS	3%	800	0	1	38
1,2,4-Trimethylbenzene	ug/Kg	31		SEAD40-PX-SS-007FS	11%	-	0	4	38
1,2-Dichlorobenzene	ug/Kg	53		SEAD40-PX-SS-016FS	3%	7,900	0	1	38
1,3,5-Trimethylbenzene	ug/Kg	24		SEAD40-PX-SS-008FS	8%	-	0	3	38
1,4-Dichlorobenzene	ug/Kg	28	J	SEAD40-PX-SS-016FS	3%	8,500	0	1	38
4-Isopropyltoluene	ug/Kg	15	J	SEAD40-PX-SS-008FS	3%	-	0	1	38
Ethylbenzene	ug/Kg	160		SEAD40-PX-SS-007-FS2	5%	5,500	0	2	38
m,p-Xylene	ug/Kg	860		SEAD40-PX-SS-007-FS2	16%	-	0	6	38
Methylene chloride	ug/Kg	130		SEAD40-FX-SS-004FS	8%	100	1	3	38
Naphthalene	ug/Kg	280		SEAD40-PX-SS-007FS	45%	3,700	0	17	38
o-Xylene	ug/Kg	290		SEAD40-PX-SS-007-FS2	8%	-	0	3	38
Toluene	ug/Kg	110		SEAD40-PX-SS-013FS	16%	1,500	0	6	38
Polyaromatic Hydrocarbons									
2-Methylnaphthalene	ug/Kg	370		SEAD40-PX-SS-006-FS3	32%	36,400	0	15	47
Acenaphthene	ug/Kg	4,200		SEAD40-PX-SS-007-FS3	55%	50,000	0	26	47
Acenaphthylene	ug/Kg	22,000		SEAD40-PX-SS-006-FS2	87%	41,000	0	41	47
Anthracene	ug/Kg	13,000		SEAD40-PX-SS-006-FS2	85%	50,000	0	40	47
Benz(a)anthracene	ug/Kg	22,000		SEAD40-PX-SS-006-FS2	87%	224	10	41	47
Benzo(a)pyrene	ug/Kg	33,000		SEAD40-PX-SS-006-FS2	89%	61	11	42	47
Benzo(b)fluoranthene	ug/Kg	36,000		SEAD40-PX-SS-006-FS2	89%	1,100	10	42	47
Benzo(g,h,I)perylene	ug/Kg	30,000		SEAD40-PX-SS-006-FS2	87%	50,000	0	41	47
Benzo(k)fluoranthene	ug/Kg	13,000		SEAD40-PX-SS-006-FS2	83%	1,100	10	39	47
Chrysene	ug/Kg	21,000		SEAD40-PX-SS-006-FS2	87%	400	10	41	47
Dibenzo(a,h)anthracene	ug/Kg	6,500		SEAD40-PX-SS-006-FS2	74%	14	10	35	47
Flouranthene	ug/Kg	30,000		SEAD40-PX-SS-013-FS1	89%	50,000	0	42	47
Flourene	ug/Kg	1,900		SEAD40-PX-SS-006-FS2	68%	50,000	0	32	47
Indeo(1,2,3-cd)pyrene	ug/Kg	28,000		SEAD40-PX-SS-006-FS2	87%	3,200	5	41	47
Naphthalene	ug/Kg	390		SEAD40-PX-SS-006-FS2	40%	13,000	0	19	47
Phenanthrene	ug/Kg	12,000		SEAD40-PX-SS-013-FS1	85%	50,000	0	40	47
Pyrene	ug/Kg	45,000		SEAD40-PX-SS-006-FS2	89%	50,000	0	42	47
ICP Metals									
Arsenic	mg/Kg	29		SEAD40-PX-SS-012-FS2 / FS3	100%	7.5	9	47	47
Barium	mg/Kg	400		SEAD40-PX-SS-010FS	100%	300	0	47	47
Cadmium	mg/Kg	1.4		SEAD40-PX-SS-007-FS2	79%	2.3	0	37	47
Chromium	mg/Kg	140		SEAD40-PX-SS-012FS	100%	29	1	47	47
Lead[2]	mg/Kg	180		SEAD40-PX-SS-010FS	100%	400	0	47	47
Mercury[3]	mg/Kg	0.093		SEAD40-PX-SS-017FS	19%	0.13	0.00	9	47
Selenium	mg/Kg	0.72	J	SEAD40-PX-SS-010-FS2	4%	2	0	2	47
Silver	mg/Kg	0.5	J	SEAD40-PX-SS-010FS	15%	0.763	0	7	47

Notes:

1. The Cleanup goal is based on the New York Technical Administrative Guidance Memorandum (TAGM) No.4046 Recommended Soil Cleanup Objectives. Values denoted as Site Background ("SB") in TAGM 4046 were compared with the highlighted values (95th percentile of Seneca Army Depot (SEDA) Site Background) in lieu of the TAGM "SB" since no background cleanup objectives exist for certain parameters.
2. U.S. Environmental Protection Agency Risk Based Residential Cleanup Goal for lead
3. Site-specific cleanup goal for mercury is 0.13 mg/kg

mg/kg= milligram per kilogram

µg/kg= microgram per kilogram

J= Result is less than the RL, but greater than or equal to the MDL.

Table 13
Summary of Soil Analyses Results - SEADs-43, 56, 69

COMPOUND	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM DETECTION	FREQUENCY OF DETECTION	TAGM	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS									
MethyleneChloride	ug/Kg	11	UR	SB43-2-06	26%	100	0	7	27
Acetone	ug/Kg	16	UR	SB43-2-06	23%	200	0	6	26
Chloroform	ug/Kg	11	UR	SB43-2-06	23%	300	0	6	26
Toluene	ug/Kg	27	J	SB69-2-07	32%	1500	0	9	28
Xylene(total)	ug/Kg	12	J	SB43-4.07	27%	1200	0	7	26
HERBICIDES									
2,4,5-T	ug/Kg	12	J	SB43-1-00	3%	1900	0	1	30
Dicamba	ug/Kg	11	J	SB43-1-00	3%		0	1	30
Dichloroprop	ug/Kg	72	J	SB43-1-00	3%		0	1	30
MCPP	ug/Kg	7,700	J	SB43-3-02	10%		0	3	30
SEMIVOLATILE ORGANICS									
4-Methylphenol	ug/Kg	580	J	SB69-2.01	3%	900	0	1	30
Naphthalene	ug/Kg	200	J	SB43-4.02	7%	13,000	0	2	30
2-Methylnaphthalene	ug/Kg	88	J	SB43-4.02	7%	36,400	0	2	30
Acenaphthene	ug/Kg	570	J	SB43-4.02	7%	50,000	0	2	30
Dibenzofuran	ug/Kg	310	J	SB43-4.02	7%	6,200	0	2	30
Fluorene	ug/Kg	610	J	SB43-4.02	7%	50,000	0	2	30
Phenanthrene	ug/Kg	5,200	J	SB43-4.02	13%	50,000	0	4	30
Anthracene	ug/Kg	1,300	J	SB43-4.02	10%	50,000	0	3	30
Carbazole	ug/Kg	620	J	SB43-4.02	10%	50,000	0	3	30
Di-n-butylphthalate	ug/Kg	62	J	SB69-3.01	10%	8,100	0	3	30
Fluoranthene	ug/Kg	6,300	J	SB43-4.02	13%	50,000	0	4	30
Pyrene	ug/Kg	4,700	J	SB43-4.02	13%	50,000	0	4	30
Benzo(a)anthracene	ug/Kg	2,400	J	SB43-4.02	13%	224	2	4	30
Chrysene	ug/Kg	2,400	J	SB43-4.02	13%	400	2	4	30
bis(2-Ethylhexyl)phthalate	ug/Kg	2,700		SB43-4.01	70%	50,000	0	21	30
Benzo(b)fluoranthene	ug/Kg	1,600	J	SB43-4.02	10%	1,100	1	3	30
Benzo(k)fluoranthene	ug/Kg	2,000	J	SB43-4.02	10%	1,100	1	3	30
Benzo(a)pyrene	ug/Kg	2,000	J	SB43-4.02	10%	61	3	3	30
Indeno(1,2,3-cd)pyrene	ug/Kg	1,200	J	SB43-4.02	10%	3,200	0	3	30
Dibenz(a,h)anthracene	ug/Kg	520	J	SB43-4.02	10%	14	3	3	30
Benzo(g,h,i)perylene	ug/Kg	1,300	J	SB43-4.02	10%	50,000	0	3	30
PESTICIDES/PCBs									
Endosulfan I	ug/Kg	1	J	SB43-3-00	3%	900	0	1	30
alpha-Chlordane	ug/Kg	2	J	SB43-4.01	3%	540	0	1	30
METALS									
Aluminum	mg/Kg	27,000	J	SB43-3-02	100%	19,300	2	30	30
Antimony	mg/Kg	7	J	SB43-4.02	30%	6	1	9	30
Arsenic	mg/Kg	7	J	SB69-2-07	100%	8	0	30	30
Barium	mg/Kg	175	J	SB43-3-02	100%	300	0	30	30
Beryllium	mg/Kg	1	J	SB43-3-02	100%	1	1	30	30
Cadmium	mg/Kg	2		SB56-1-00	87%	2	0	26	30
Calcium	mg/Kg	141,000	J	SB69-3.04	100%	121,000	1	30	30
Chromium	mg/Kg	31	J	SB43-3-02	100%	30	2	30	30
Cobalt	mg/Kg	21	J	SB69-2-07	100%	30	0	30	30
Copper	mg/Kg	28		SB43-4.07	100%	33	0	30	30
Iron	mg/Kg	40,300		SB69-2-07	100%	36,500	1	30	30
Lead	mg/Kg	30		SB56-1-00	100%	25	2	30	30
Magnesium	mg/Kg	47,500		SB69-1-06	100%	21,500	3	30	30
Manganese	mg/Kg	782		SB43-1-00	87%	1,060	0	26	30
Mercury	mg/Kg	0		SB43-3-00	80%	0	0	24	30
Nickel	mg/Kg	57		SB69-2-07	100%	49	2	30	30
Potassium	mg/Kg	3,560	J	SB43-1-00	100%	2,380	5	30	30
Selenium	mg/Kg	2	J	SB43-4.07	63%	2	0	19	30
Sodium	mg/Kg	151	J	SB43-2-06	87%	172	0	26	30
Vanadium	mg/Kg	42	J	SB43-3-02	100%	150	0	30	30
Zinc	mg/Kg	338	J	SB69-2.01	100%	110	10	30	30
Cyanide	mg/Kg	2		SB56-3-04	3%	0	0	1	30
OTHERANALYSES									
Nitrate/Nitrite-Nitrogen	mg/Kg								
TotalSolids	%W/W								

Table 14
Summary of Groundwater Anlaysis Results - SEAD-43/56/67

COMPOUND	UNITS	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	CRITERIA LEVEL	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
HERBICIDES									
2,4,5-TP (Silvex)	ug/L	0.44	J	MW43-3	25%	0.26 (b)	1	1	4
METALS									
Aluminum	ug/L	2870		MW43-3	100%	50 (a)	4	4	4
Antimony	ug/L	1.5	J	MW43-2	25%	3 (b)	0	1	4
Arsenic	ug/L	1.5	J	MW43-3	25%	10 (c)	0	1	4
Barium	ug/L	113	J	MW43-3	100%	1000 (b)	0	4	4
Calcium	ug/L	138000		MW43-3	100%	NA	0	4	4
Chromium	ug/L	5.3	J	MW43-3	75%	50 (b)	0	3	4
Cobalt	ug/L	4.2	J	MW43-4	75%	NA	0	3	4
Copper	ug/L	4	J	MW43-3	75%	200 (b)	0	3	4
Iron	ug/L	7170		MW43-3	100%	300 (b)	4	4	4
Lead	ug/L	2.4	J	MW43-3	25%	25 (b)	0	1	4
Magnesium	ug/L	46800		MW43-2	100%	NA	0	4	4
Manganese	ug/L	297		MW43-4	100%	50 (a)	4	4	4
Mercury	ug/L	0.04	J	MW43-1	25%	0.7 (b)	0	1	4
Nickel	ug/L	9.4	J	MW43-4	75%	100 (b)	0	3	4
Potassium	ug/L	3280	J	MW43-3	100%	NA	0	4	4
Silver	ug/L	0.7	J	MW43-1	25%	50 (b)	0	1	4
Sodium	ug/L	13400		MW43-4	100%	20000 (b)	0	4	4
Thallium	ug/L	2.2	J	MW43-1	25%	2 (c)	1	1	4
Vanadium	ug/L	5.2	J	MW43-3	75%	NA	0	3	4
Zinc	ug/L	22.5	J	MW43-3	100%	5000 (a)	0	4	4
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/L	0		MW43-1	75%		0	3	4
Turbidity	NTU	431		MW43-3	100%		0	4	4

NOTES:

a) Secondary Drinking Water Regulation

b) NY State Class GA Groundwater Regulations

c) Maximum Contaminant Level

J = The reported value is an estimated concentration.

Table 15
Summary of Surface Water Analysis Results - SEAD 43/56/67

COMPOUND	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYS GUIDELINES CLASS C (a,b)	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS									
Acetone	ug/L	5	J	SW43-2-1	17%		0	1	6
SEMIVOLATILE ORGANICS									
4-Methylphenol	ug/L	1	J	SW43-2-1	17%		0	1	6
bis(2-Ethylhexyl)phthalate	ug/L	150		SW43-1-1	17%	0.6	1	1	6
METALS									
Aluminum	ug/L	1190		SW43-2-1	100%	100	4	6	6
Barium	ug/L	55.2	J	SW43-3-1	100%		0	6	6
Beryllium	ug/L	0.1	J	SW43-1-1	17%	1100	0	1	6
Cadmium	ug/L	0.34	J	SW43-4-1	33%	3.85	0	2	6
Calcium	ug/L	92900		SW43-3-1	100%		0	6	6
Chromium	ug/L	3.3	J	SW43-3-20	83%	140	0	5	6
Copper	ug/L	2.5	J	SW43-2-1	100%	17.36	0	6	6
Iron	ug/L	1750		SW43-2-1	100%	300	3	6	6
Lead	ug/L	1.4	J	SW43-4-1	17%	8.7	0	1	6
Magnesium	ug/L	15900		SW43-3-1; SW43-3-20	100%		0	6	6
Manganese	ug/L	94.6		SW43-2-1	100%		0	6	6
Mercury	ug/L	0.06	J	SW43-2-1; SW43-3-1	100%	0.77	0	6	6
Nickel	ug/L	277		SW43-4-1	100%	100.16	1	6	6
Potassium	ug/L	2660	J	SW43-4-1	100%		0	6	6
Sodium	ug/L	5180		SW43-5-1	100%		0	6	6
Vanadium	ug/L	2.1	J	SW43-2-1	33%	14	0	2	6
Zinc	ug/L	1040		SW43-4-1	100%	159.6	1	6	6
		0			0%		0	0	6
OTHER ANALYSES									
Turbidity	NTU	31.2		SW43-2-1					

NOTES:

a) The New York State Ambient Water Quality standards and guidelines for Class C surface water (1998).

b) Hardness dependent values assume a hardness of 217 mg/L.

c) J = The reported value is an estimated concentration.

d) NYSDEC guidance value

Table 16
Summary of Sediment Analysis Results - SEAD-43/56/67

COMPOUND	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYSDEC SEDIMENT CRITERIA	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS									
Acetone	ug/Kg	220		SD43-3	14%		0	1	5
2-Butanone	ug/Kg	49		SD43-3	29%		0	2	5
HERBICIDES									
2,4-DB	ug/Kg	110		SD43-2	14%		0	1	5
2,4,5-T	ug/Kg	23	J	SD43-3	57%		0	4	5
MCPP	ug/Kg	17000		SD43-2	29%		0	2	5
NITROAROMATICS									
HMX	ug/Kg	110	J	SD43-2	29%		0	2	5
METALS									
Aluminum	mg/Kg	19600		SD43-1	71%		0	5	5
Antimony	mg/Kg	0.37	J	SD43-3	167%	2	0	5	5
Arsenic	mg/Kg	9		SD43-1	71%	6	2	5	5
Barium	mg/Kg	158		SD43-1	71%		0	5	5
Beryllium	mg/Kg	0.99	J	SD43-1	71%		0	5	5
Cadmium	mg/Kg	0.63	J	SD43-1	71%	0.6	1	5	5
Calcium	mg/Kg	68900		SD43-4	71%		0	5	5
Chromium	mg/Kg	27.4		SD43-1	71%	26	1	5	5
Cobalt	mg/Kg	19.7		SD43-1	71%		0	5	5
Copper	mg/Kg	30.1		SD43-1	71%	16	5	5	5
Iron	mg/Kg	37100		SD43-1	71%	20000	5	5	5
Lead	mg/Kg	28.7		SD43-1	71%	31	0	5	5
Magnesium	mg/Kg	10500		SD43-4	71%		0	5	5
Manganese	mg/Kg	1480		SD43-1	71%	460	3	5	5
Mercury	mg/Kg	0.07	J	SD43-5	71%	0.15	0	5	5
Nickel	mg/Kg	44.3		SD43-1	71%	16	5	5	5
Potassium	mg/Kg	2440		SD43-5	71%		0	5	5
Selenium	mg/Kg	1	J	SD43-3	14%		0	1	5
Sodium	mg/Kg	50	J	SD43-4	14%		0	1	5
Thallium	mg/Kg	0.75	J	SD43-5	43%		0	3	5
Vanadium	mg/Kg	37.4		SD43-1	71%		0	5	5
Zinc	mg/Kg	178		SD43-5	71%	120	3	5	5
		0			0%				
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/Kg	0	J	SD43-3	80%				
Total Solids	%								

NOTES:

a) NYSDEC Sediment Criteria - 1994

b) A sediment is considered contaminated if either criterion is exceeded.

c) 2% = 20,000 mg/Kg; 4% = 40,000 mg/Kg

d) J = The reported value is an estimated concentration.

TABLE 17

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS
REASONABLE MAXIMUM EXPOSURE (RME)
SEAD-43, 56, 69
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX	CANCER RISK
PRISON INMATE	Inhalation of Dust in Ambient Air	6E-07	1E-08
	Ingestion of Onsite Soils	2E-02	6E-06
	Dermal Contact to Onsite Soils	2E-02	NQ
	Ingestion of Groundwater	2E-03	NQ
	Inhalation of Groundwater	NQ	NQ
	Dermal Contact to Groundwater	6E-04	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*5E-02*	*6E-06*
PRISON WORKER	Inhalation of Dust Ambient Air	2E-07	4E-09
	Ingestion of Onsite Soils	1E-02	5E-06
	Dermal Contact to Onsite Soils	2E-02	NQ
	Ingestion of Groundwater	1E-03	NQ
	Inhalation of Groundwater	NQ	NQ
	Dermal Contact to Groundwater	4E-04	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*3E-02*	*5E-06*
ON-SITE CONSTRUCTION WORKERS	Inhalation of Dust in Ambient Air	8E-07	5E-10
	Ingestion of Onsite Soils	6E-03	1E-07
	Dermal Contact to Onsite Soils	2E-03	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*8E-03*	*1E-07*
DAY CARE CENTER CHILD	Inhalation of Dust in Ambient Air	5E-07	3E-09
	Ingestion of Onsite Soils	1E-01	1E-05
	Dermal Contact to Onsite Soils	3E-02	NQ
	Ingestion of Groundwater	3E-03	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*1E-01*	*1E-05*
DAY CARE CENTER WORKER	Inhalation of Dust in Ambient Air	2E-07	4E-09
	Ingestion of Onsite Soils	1E-02	5E-06
	Dermal Contact to Onsite Soils	2E-02	NQ
	Ingestion of Groundwater	1E-03	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*3E-02*	*5E-06*

NQ = Not Quantified

TABLE 18

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-44A
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX	CANCER RISK
PRISON INMATE	Inhalation of Dust in Ambient Air	0E+00	5E-09
	Ingestion of Onsite Soils	5E-03	8E-07
	Dermal Contact to Onsite Soils	8E-03	NQ
	Ingestion of Groundwater	2E-03	6E-06
	Dermal Contact to Groundwater	9E-06	8E-07
	Inhalation of Groundwater	NQ	1E-07
	TOTAL RECEPTOR RISK (Nc & Car)	*2E-02*	*8E-06*
PRISON WORKER	Inhalation of Dust Ambient Air	1E-10	2E-09
	Ingestion of Onsite Soils	4E-03	6E-07
	Dermal Contact to Onsite Soils	5E-03	NQ
	Ingestion of Groundwater	2E-03	4E-06
	Dermal Contact to Groundwater	6E-06	6E-07
	Inhalation of Groundwater	NQ	9E-08
	TOTAL RECEPTOR RISK (Nc & Car)	*1E-02*	*5E-06*
ON-SITE CONSTRUCTION WORKERS	Inhalation of Dust in Ambient Air	2E-06	3E-10
	Ingestion of Onsite Soils	3E-03	1E-07
	Dermal Contact to Onsite Soils	7E-04	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*3E-03*	*1E-07*
DAY CARE CENTER CHILD	Inhalation of Dust in Ambient Air	3E-10	1E-09
	Ingestion of Onsite Soils	3E-02	1E-06
	Dermal Contact to Onsite Soils	1E-02	NQ
	Ingestion of Groundwater	4E-03	2E-06
	TOTAL RECEPTOR RISK (Nc & Car)	*5E-02*	*4E-06*
DAY CARE CENTER WORKER	Inhalation of Dust in Ambient Air	1E-10	2E-09
	Ingestion of Onsite Soils	4E-03	6E-07
	Dermal Contact to Onsite Soils	5E-03	NQ
	Ingestion of Groundwater	2E-03	4E-06
	TOTAL RECEPTOR RISK (Nc & Car)	*1E-02*	*5E-06*

NQ= Not Quantified due to lack of toxicity data.

Table 19
Summary of Soil Analysis Results - SEAD-44A

COMPOUND	UNITS	MAXIMUM	Q	LOCATION OF MAXIMUM DETECTION	FREQUENCY OF DETECTION	TAGM	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANIC COMPOUNDS									
Acetone	ug/Kg	200		SS44A-5	40%	200	0	6	15
2-Butanone	ug/Kg	28		SS44A-5	7%	300	0	1	15
4-Methyl-2-Pentanone	ug/Kg	4	J	TP44A-9	7%	1000	0	1	15
2-Hexanone	ug/Kg	4	J	TP44A-9	7%		0	1	15
1,1,2,2-Tetrachloroethane	ug/Kg	2	J	TP44A-9	7%	600	0	1	15
Toluene	ug/Kg	1	J	TP44A-7	7%	1500	0	1	15
NITROAROMATIC COMPOUDS									
2,4,6-Trinitrotoluene	ug/Kg	110	J	SS44A-5	7%		0	1	15
SEMIVOLATILE ORGANIC COMPOUNDS									
4-Methylphenol	ug/Kg	250	J	SS44A-3	13%	900	0	2	15
Naphthalene	ug/Kg	330	J	TP44A-1	13%	13000	0	2	15
2-Methylnaphthalene	ug/Kg	150	J	TP44A-1	7%	36400	0	1	15
Acenaphthylene	ug/Kg	72	J	TP44A-7	20%	41000	0	3	15
Acenaphthene	ug/Kg	380	J	TP44A-1	40%	50000	0	6	15
Dibenzofuran	ug/Kg	280	J	TP44A-1	7%	6200	0	1	15
Fluorene	ug/Kg	410		TP44A-1	40%	50000	0	6	15
Hexachlorobenzene	ug/Kg	36	J	TP44A-5	13%	410	0	2	15
Phenanthrene	ug/Kg	2100		TP44A-1	67%	50000	0	10	15
Anthracene	ug/Kg	640		TP44A-1	47%	50000	0	7	15
Carbazole	ug/Kg	370	J	TP44A-1	40%		0	6	15
Di-n-butylphthalate	ug/Kg	53	J	SS44A-5	13%	8100	0	2	15
Fluoranthene	ug/Kg	2400		TP44A-7	73%	50000	0	11	15
Pyrene	ug/Kg	2000		TP44A-7	73%	50000	0	11	15
Benzo(a)anthracene	ug/Kg	990		TP44A-7	67%	224	4	10	15
Chrysene	ug/Kg	1200		TP44A-7	67%	400	4	10	15
bis(2-Ethylhexyl)phthalate	ug/Kg	940		TP44A-8	67%	50000	0	10	15
Benzo(b)fluoranthene	ug/Kg	1100		TP44A-7	67%	1100	0	10	15
Benzo(k)fluoranthene	ug/Kg	1100		TP44A-7	67%	1100	0	10	15
Benzo(a)pyrene	ug/Kg	1100		TP44A-7	67%	61	9	10	15
Indeno(1,2,3-cd)pyrene	ug/Kg	490		TP44A-7	67%	3200	0	10	15
Dibenz(a,h)anthracene	ug/Kg	160	J	TP44A-1	27%	14	4	4	15
Benzo(g,h,i)perylene	ug/Kg	510		TP44A-7	60%	50000	0	9	15
PESTICIDES/PCBs									
Heptachlor epoxide	ug/Kg	1.2	J	TP44A-1	7%	20	0	1	15
Endosulfan I	ug/Kg	5.4		TP44A-1	27%	900	0	4	15
Dieldrin	ug/Kg	70		SS44A-6	47%	44	2	7	15
4,4'-DDE	ug/Kg	3.1	J	TP44A-9	20%	2100	0	3	15
Endrin	ug/Kg	3.5	J	TP44A-7	7%	100	0	1	15
Endosulfan II	ug/Kg	2.8	J	TP44A-7	13%	900	0	2	15
4,4'-DDT	ug/Kg	5.6		TP44A-7	20%	2100	0	3	15
Endrin ketone	ug/Kg	5.2	J	TP44A-8	7%		0	1	15
Endrin aldehyde	ug/Kg	4.5	J	TP44A-7	13%		0	2	15
METALS									
Aluminum	mg/Kg	17500		TP44A-6	100%	19300	0	15	15
Antimony	mg/Kg	10.8		TP44A-3	60%	5.9	2	9	15
Arsenic	mg/Kg	7.7		TP44A-6	100%	8.2	0	15	15
Barium	mg/Kg	164		SS44A-5	100%	300	0	15	15
Beryllium	mg/Kg	0.91	J	SS44A-5	100%	1.1	0	15	15
Cadmium	mg/Kg	0.48	J	SS44A-5	87%	2.3	0	13	15
Calcium	mg/Kg	77400	J	TP44A-5	100%	121000	0	15	15
Chromium	mg/Kg	27.1		TP44A-6	100%	29.6	0	15	15
Cobalt	mg/Kg	14.5		TP44A-6	100%	30	0	15	15
Copper	mg/Kg	29		TP44A-6	100%	33	0	15	15
Iron	mg/Kg	34900		TP44A-6	100%	36500	0	15	15
Lead	mg/Kg	24.9	J	TP44A-7	100%	24.8	1	15	15
Magnesium	mg/Kg	40200		TP44A-5	100%	21500	1	15	15
Manganese	mg/Kg	956	J	TP44A-9	87%	1060	0	13	15
Mercury	mg/Kg	0.17		TP44A-5	93%	0.1	2	14	15
Nickel	mg/Kg	41.8	J	TP44A-4	100%	49	0	15	15
Potassium	mg/Kg	2530	J	TP44A-8	100%	2380	1	15	15
Selenium	mg/Kg	1.7		SS44A-5	100%	2	0	15	15
Sodium	mg/Kg	142	J	TP44A-5	60%	172	0	9	15
Vanadium	mg/Kg	30.2		SS44A-5	100%	150	0	15	15
Zinc	mg/Kg	115		TP44A-6	100%	110	1	15	15
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/Kg	13		TP44A-7	100%	NA	0	15	15
Total Solids	%W/W	85.1		TP44A-4	1		0	15	15

NOTES:
a) * = As per proposed TAGM, total VOCs < 10 ppm, total SVOs < 500 ppm, and individual SVOs < 50 ppm.
b) J = The reported value is an estimated concentration.
c) UJ = The compound may have been present above this concentration, but was not detected due to problems with the analysis.

Table 20
Summary of Groundwater Analysis Results - SEAD-44A

COMPOUND	UNITS	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	CRITERIA LEVEL	NUMBER ABOVE STANDARD	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS									
Acetone	ug/L	8	J	MW44A-2	33%	50 (b)	0	1	3
1,1,2,2-Tetrachloroethane	ug/L	3	J	MW44A-2	33%	5 (b)	0	1	3
METALS									
Aluminum	ug/L	2240		MW44A-2	100%	50 (a)	3	3	3
Arsenic	ug/L	4.1	J	MW44A-2	33%	10 (c)	0	1	3
Barium	ug/L	104	J	MW44A-1	100%	1000 (b)	0	3	3
Beryllium	ug/L	0.23	J	MW44A-2	33%	4 (c)	0	1	3
Calcium	ug/L	132000		MW44A-2	100%	NA	0	3	3
Chromium	ug/L	4.8	J	MW44A-2	67%	50 (b)	0	2	3
Cobalt	ug/L	4	J	MW44A-2	67%	NA	0	2	3
Copper	ug/L	4.5	J	MW44A-2	67%	200 (b)	0	2	3
Iron	ug/L	4810		MW44A-2	100%	300 (b)	2	3	3
Lead	ug/L	4.1		MW44A-2	33%	25 (b)	0	1	3
Magnesium	ug/L	75600		MW44A-2	100%	NA	0	3	3
Manganese	ug/L	217		MW44A-2	100%	50 (a)	2	3	3
Mercury	ug/L	0.06	J	MW44A-2	67%	0.7 (b)	0	2	3
Nickel	ug/L	12.3	J	MW44A-2	67%	100 (b)	0	2	3
Potassium	ug/L	6160		MW44A-2	100%	NA	0	3	3
Silver	ug/L	0.63	J	MW44A-1	33%	50 (b)	0	1	3
Sodium	ug/L	18900		MW44A-2	100%	20000 (b)	0	3	3
Vanadium	ug/L	4.7	J	MW44A-2	100%	NA	0	3	3
Zinc	ug/L	12.8	J	MW44A-2	100%	5000 (a)	0	3	3
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/L	0.10			67%	10 (b)	0	2	3
Turbidity	NTU	0							3

NOTES:
a) Secondary Drinking Water Regulation
b) NY State Class GA Groundwater Regulations
c) Maximum Contaminant Level
J = The reported value is an estimated concentration.

Table 21
Summary of Surface Water Analysis Results - SEAD-44A

COMPOUND	UNITS	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYS GUIDELINES CLASS C (a,b)	NUMBER ABOVE STANDARD	NUMBER OF DETECTS	NUMBER OF ANALYSES
METALS									
Aluminum	ug/L	476		SW44A-1	100%	100	4	4	4
Barium	ug/L	50.4	J	SW44A-4	100%		0	4	4
Cadmium	ug/L	0.23	J	SW44A-1	25%	3.85	0	1	4
Calcium	ug/L	156000		SW44A-4	100%		0	4	4
Chromium	ug/L	1	J	SW44A-3	100%	140	0	4	4
Cobalt	ug/L	1.1	J	SW44A-4	25%	5	0	1	4
Copper	ug/L	4.7	J	SSW44A-1	100%	17.36	0	4	4
Iron	ug/L	632		SW44A-1	100%	300	4	4	4
Lead	ug/L	2.2	J	SW44A-1	50%	8.7	0	2	4
Magnesium	ug/L	22500		SW44A-4	100%		0	4	4
Manganese	ug/L	165		SW44A-4	100%		0	4	4
Mercury	ug/L	0.05	J	SW44A-1; SW44A-2; SW44A-3	75%	0.77	0	3	4
Nickel	ug/L	174		SW44A-1	100%	100.16	1	4	4
Potassium	ug/L	3600	J	SW44A-4	100%		0	4	4
Sodium	ug/L	3420	J	SW44A-1	100%		0	4	4
Vanadium	ug/L	1	J	SW44A-1; SW44A-3	50%	14	0	2	4
Zinc	ug/L	1050		SW44A-1	100%	159.6	1	4	4
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/L	0.06		SW44A-4	100%	NA	NA		
Turbidity	NTU	14.2							

NOTES:

a) The New York State Ambient Water Quality standards and guidelines for Class C surface water (1998).
b) Hardness dependent values assume a hardness of 217 mg/L.
e) J = The reported value is an estimated concentration.
f) NYSDEC guidance value

Table 22
Summary of Sediment Analysis Results - SEAD-44A

COMPOUND	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYSDEC SEDIMENT CRITERIA	NUMBER ABOVE STANDARD	NUMBER OF DETECTS	NUMBER OF ANALYSES
SEMIVOLATILE ORGANICS									
Di-n-butylphthalate	ug/Kg	72	J	SD44A-1	25%		0	1	4
bis(2-Ethylhexyl)phthalate	ug/Kg	34	J	SD44A-2	25%	7300	0	1	4
METALS									
Aluminum	mg/Kg	14000		SD44A-2	100%		0	4	4
Antimony	mg/Kg	0.4	J	SD44A-1	50%	2	0	2	4
Arsenic	mg/Kg	5.4		SD44A-2	100%	6	0	4	4
Barium	mg/Kg	121		SD44A-1	100%		0	4	4
Beryllium	mg/Kg	0.71	J	SD44A-1	100%		0	4	4
Cadmium	mg/Kg	0.41	J	SD44A-2	100%	0.6	0	4	4
Calcium	mg/Kg	79400		SD44A-2	100%		0	4	4
Chromium	mg/Kg	20.7		SD44A-2	100%	26	0	4	4
Cobalt	mg/Kg	11		SD44A-2	100%		0	4	4
Copper	mg/Kg	25.6		SD44A-2	100%	16	4	4	4
Iron	mg/Kg	26300		SD44A-2	100%	20000	3	4	4
Lead	mg/Kg	13.6		SD44A-4	100%	31	0	4	4
Magnesium	mg/Kg	12900		SD44A-2	100%		0	4	4
Manganese	mg/Kg	510		SD44A-2	100%	460	2	4	4
Mercury	mg/Kg	0.07	J	SD44A-1	100%	0.15	0	4	4
Nickel	mg/Kg	31.9		SD44A-2	100%	16	4	4	4
Potassium	mg/Kg	2760		SD44A-2	100%		0	4	4
Sodium	mg/Kg	69.7	J	SD44A-2	50%		0	2	4
Thallium	mg/Kg	0.53	J	SD44A-1	25%		0	1	4
Vanadium	mg/Kg	24		SD44A-2	100%		0	4	4
Zinc	mg/Kg	83.9		SD44A-1	100%	120	0	4	4
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/Kg	1.39		SD44A-1	100%	NA	NA	NA	NA
Total Solids	%W/W								

NOTES:

a) NYSDEC Sediment Criteria - 1994
(based on average organic carbon level of 3.65% in sediment determined in Seneca SEAD 16/17 RI Report, Parsons ES, 1998)

b) A sediment is considered contaminated if either criterion is exceeded.

c) Chronic toxicity sediment criteria for benthic aquatic life.

d) J = The reported value is an estimated concentration.

TABLE 23

CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-44B
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX	CANCER RISK
PRISON INMATE	Inhalation of Dust in Ambient Air	6E-10	4E-09
	Ingestion of Onsite Soils	5E-03	1E-06
	Dermal Contact to Onsite Soils	6E-03	NQ
	Ingestion of Groundwater	NQ	NQ
	Dermal Contact to Groundwater	NQ	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*1E-02*	*1E-06*
PRISON WORKER	Inhalation of Dust Ambient Air	2E-10	1E-09
	Ingestion of Onsite Soils	3E-03	7E-07
	Dermal Contact to Onsite Soils	4E-03	NQ
	Ingestion of Groundwater	NQ	NQ
	Dermal Contact to Groundwater	NQ	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*7E-03*	*7E-07*
ON-SITE CONSTRUCTION WORKERS	Inhalation of Dust in Ambient Air	7E-11	2E-11
	Ingestion of Onsite Soils	2E-04	2E-09
	Dermal Contact to Onsite Soils	5E-05	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*3E-04*	*2E-09*
DAY CARE CENTER CHILD	Inhalation of Dust in Ambient Air	5E-10	8E-10
	Ingestion of Onsite Soils	3E-02	2E-06
	Dermal Contact to Onsite Soils	7E-03	NQ
	Ingestion of Groundwater	NQ	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*4E-02*	*2E-06*
DAY CARE CENTER WORKER	Inhalation of Dust in Ambient Air	2E-10	1E-09
	Ingestion of Onsite Soils	3E-03	7E-07
	Dermal Contact to Onsite Soils	4E-03	NQ
	Ingestion of Groundwater	NQ	NQ
	TOTAL RECEPTOR RISK (Nc & Car)	*7E-03*	*7E-07*

NQ= Not Quantified due to lack of toxicity data.

Table 24
Summary of Soil Anlaysis Results - SEAD-44B

COMPOUND	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	TAGM	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS									
Acetone	ug/Kg	47		SS44B-3	100%	200	0	3	3
2-Butanone	ug/Kg	10	J	SS44B-1	33%	300	0	1	3
SEMIVOLATILE ORGANICS									
Phenanthrene	ug/Kg	330	J	SS44B-3	67%	50000	0	2	3
Anthracene	ug/Kg	35	J	SS44B-3	33%	50000	0	1	3
Fluoranthene	ug/Kg	350	J	SS44B-3	67%	50000	0	2	3
Pyrene	ug/Kg	380	J	SS44B-3	67%	50000	0	2	3
Benzo(a)anthracene	ug/Kg	130	J	SS44B-3	67%	224	0	2	3
Chrysene	ug/Kg	150	J	SS44B-3	67%	400	0	2	3
bis(2-Ethylhexyl)phthalate	ug/Kg	42	J	SS44B-3	67%	50000	0	2	3
Benzo(b)fluoranthene	ug/Kg	99	J	SS44B-3	67%	1100	0	2	3
Benzo(k)fluoranthene	ug/Kg	110	J	SS44B-3	67%	1100	0	2	3
Benzo(a)pyrene	ug/Kg	98	J	SS44B-3	67%	61	1	2	3
Indeno(1,2,3-cd)pyrene	ug/Kg	64	J	SS44B-3	67%	3200	0	2	3
Dibenz(a,h)anthracene	ug/Kg	28	J	SS44B-3	33%	14	1	1	3
Benzo(g,h,i)perylene	ug/Kg	56	J	SS44B-3	33%	50000	0	1	3
PESTICIDES/PCB									
Endosulfan I	ug/Kg	2	J	SS44B-1	33%	900	0	1	3
Dieldrin	ug/Kg	57		SS44B-3	33%	44	1	1	3
4,4'-DDE	ug/Kg	48		SS44B-1	33%	2100	0	1	3
4,4'-DDD	ug/Kg	28		SS44B-1	33%	2900	0	1	3
4,4'-DDT	ug/Kg	27		SS44B-1	33%	2100	0	1	3
METALS									
Aluminum	mg/Kg	16400		SS44B-2	100%	19300	0	3	3
Arsenic	mg/Kg	13.1		SS44B-3	100%	8.2	1	3	3
Barium	mg/Kg	136		SS44B-2	100%	300	0	3	3
Beryllium	mg/Kg	0.77	J	SS44B-2	100%	1.1	0	3	3
Cadmium	mg/Kg	0.34	J	SS44B-2	100%	2.3	0	3	3
Calcium	mg/Kg	33300		SS44B-3	100%	121000	0	3	3
Chromium	mg/Kg	20.7		SS44B-2	100%	29.6	0	3	3
Cobalt	mg/Kg	10.8	J	SS44B-1	100%	30	0	3	3
Copper	mg/Kg	26.2		SS44B-1	100%	33	0	3	3
Iron	mg/Kg	24100		SS44B-1	100%	36500	0	3	3
Lead	mg/Kg	39.5		SS44B-1	100%	24.8	1	3	3
Magnesium	mg/Kg	9660		SS44B-3	100%	21500	0	3	3
Manganese	mg/Kg	372	J	SS44B-1	100%	1060	0	3	3
Mercury	mg/Kg	0.04	J	SS44B-2	100%	0.1	0	3	3
Nickel	mg/Kg	34.8		SS44B-1	100%	49	0	3	3
Potassium	mg/Kg	1880		SS44B-2	100%	2380	0	3	3
Selenium	mg/Kg	1.2		SS44B-2	100%	2	0	3	3
Sodium	mg/Kg	43.2	J	SS44B-3	33%	172	0	1	3
Vanadium	mg/Kg	28		SS44B-2	100%	150	0	3	3
Zinc	mg/Kg	145		SS44B-1	100%	110	1	3	3
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/Kg	0		SS44B-1	100%	NA	NA		
Total Solids	%W/W								

NOTES:

a) * = As per proposed TAGM, total VOCs < 10 ppm, total SVOs < 500 ppm, and individual SVOs <50 ppm.

b) J = The reported value is an estimated concentration.

Table 25
Summary of Groundwater Analysis Results - SEAD-44B

COMPOUND	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	CRITERIA LEVEL	NUMBER ABOVE STANDARD	NUMBER OF DETECTS	NUMBER OF ANALYSES
METALS									
Aluminum	ug/L	1230		MW44B-2	100%	50 (a)	3	3	3
Barium	ug/L	77.7	J	MW44B-2	100%	1000 (b)	0	3	3
Calcium	ug/L	120000		MW44B-1	100%	NA	0	3	3
Chromium	ug/L	2.5	J	MW44B-2	33%	50 (b)	0	1	3
Cobalt	ug/L	1.8	J	MW44B-2	67%	NA	0	2	3
Copper	ug/L	2.4	J	MW44B-2	33%	200 (b)	0	1	3
Iron	ug/L	2340		MW44B-2	100%	300 (b)	2	3	3
Magnesium	ug/L	32900		MW44B-3	100%	NA	0	3	3
Manganese	ug/L	219		MW44B-1	100%	50 (a)	2	3	3
Nickel	ug/L	4.4	J	MW44B-2	67%	100 (b)	0	2	3
Potassium	ug/L	2910	J	MW44B-3	100%	NA	0	3	3
Silver	ug/L	0.7	J	MW44B-2	67%	50 (b)	0	2	3
Sodium	ug/L	8350		MW44B-2	100%	20000 (b)	0	3	3
Thallium	ug/L	4.7	J	MW44B-1	33%	2 (c)	1	1	3
Vanadium	ug/L	2.7	J	MW44B-2	67%	NA	0	2	3
Zinc	ug/L	10.4	J	MW44B-2	67%	5000 (a)	0	2	3
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/L	0.13		MW44B-3	100%	10			0
Turbidity	NTU	67.0							

NOTES:

a) Secondary Drinking Water Regulations

b) NY State Class GA Groundwater Regulations

c) Maximum Contaminant Level

J = The reported value is an estimated concentration.

Table 26
Summary of Surface Water Analysis Results - SEAD-44B

COMPOUND	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYS GUIDELINES CLASS C	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
METALS									
Aluminum	ug/L	76.5	J	SW44B-1	100%	100	0	2	2
Arsenic	ug/L	11.6		SW44B-2	100%	150	0	2	2
Barium	ug/L	34	J	SW44B-1	100%		0	2	2
Calcium	ug/L	93000		SW44B-2	100%		0	2	2
Copper	ug/L	2.2	J	SW44B-2	100%	17.36	0	2	2
Iron	ug/L	79.8	J	SW44B-1	100%	300	0	2	2
Magnesium	ug/L	9070		SW44B-2	100%		0	2	2
Manganese	ug/L	5.3	J	SW44B-2	100%		0	2	2
Mercury	ug/L	0.05	J	SW44B-1; SW44B-2	100%	0.77	0	2	2
Nickel	ug/L	0.68	J	SW44B-1	100%	100.16	0	2	2
Potassium	ug/L	3290	J	SW44B-2	100%		0	2	2
Sodium	ug/L	73200		SW44B-1	100%		0	2	2
Zinc	ug/L	2.2	J	SW44B-2	100%	159.6	0	2	2
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/L	0.01		SW44B-1	50%	NA	NA		
Turbidity	NTU	2.9							

NOTES:

a) The New York State Ambient Water Quality standards and guidelines for Class C surface water (1998).
b) Hardness dependent values assume a hardness of 217 mg/L.
c) J = The reported value is an estimated concentration.

Table 27
Summary of Sediment Anlaysis Results - SEAD-44B

COMPOUND	UNIT	MAXIMUM	Q	LOCATION OF MAXIMUM CONCENTRATIONS	FREQUENCY OF DETECTION	NYSDEC SEDIMENT CRITERIA	NUMBER ABOVE STANDARD	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS									
2-Butanone	ug/Kg	12	J	SD44B-2	50%		0	1	2
SEMIVOLATILE ORGANICS									
Di-n-butylphthalate	ug/Kg	110	J	SD44B-2	100%		0	2	2
METALS									
Aluminum	mg/Kg	13000		SD44B-1	100%		0	2	2
Antimony	mg/Kg	0.37	J	SD44B-1	50%	2	0	1	2
Arsenic	mg/Kg	58.3		SD44B-1	100%	6	2	2	2
Barium	mg/Kg	93.8		SD44B-1	100%		0	2	2
Beryllium	mg/Kg	0.66	J	SD44B-1	100%		0	2	2
Cadmium	mg/Kg	0.38	J	SD44B-1	100%	0.6	0	2	2
Calcium	mg/Kg	8780		SD44B-2	100%		0	2	2
Chromium	mg/Kg	19.8		SD44B-1	100%	26	0	2	2
Cobalt	mg/Kg	11.9		SD44B-1	100%		0	2	2
Copper	mg/Kg	19.1		SD44B-1	100%	16	1	2	2
Iron	mg/Kg	28400		SD44B-1	100%	20000	1	2	2
Lead	mg/Kg	17.7		SD44B-1	100%	31	0	2	2
Magnesium	mg/Kg	4880		SD44B-2	100%		0	2	2
Manganese	mg/Kg	679		SD44B-1	100%	460	1	2	2
Mercury	mg/Kg	0.06	J	SD44B-2	100%	0.15	0	2	2
Nickel	mg/Kg	28.4		SD44B-1	100%	16	2	2	2
Potassium	mg/Kg	1500		SD44B-1	100%		0	2	2
Sodium	mg/Kg	378	J	SD44B-1	100%		0	2	2
Vanadium	mg/Kg	23.8		SD44B-1	100%		0	2	2
Zinc	mg/Kg	76.3		SD44B-1	100%	120	0	2	2
OTHER ANALYSES									
Nitrate/Nitrite-Nitrogen	mg/Kg	0.06			100%	NA	NA	NA	NA
Total Solids	%W/W								

NOTES:

a) NYSDEC Sediment Criteria - 1994

b) A sediment is considered contaminated if either criterion is exceeded.

c) 2% = 20,000 mg/Kg; 4% = 40,000 mg/Kg

d) J = The reported value is an estimated concentration.

Table 28
Summary of Soil Analysis Results - SEAD-67

PARAMETER	UNITS	MAXIMUM DETECT	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	CRITERIA VALUE (a)	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF SAMPLES
Semivolatile Organics									
2-Methylnaphthalene	ug/Kg	44	J	TP67-1	25%	36400	0	2	8
Acenaphthene	ug/Kg	50	J	TP67-1	13%	50000*	0	1	8
Acenaphthylene	ug/Kg	210	J	TP67-3	50%	41000	0	4	8
Anthracene	ug/Kg	140	J	TP67-3	50%	50000*	0	4	8
Benzo(a)anthracene	ug/Kg	610		TP67-3	63%	220	4	5	8
Benzo(a)pyrene	ug/Kg	830		TP67-3	63%	61	4	5	8
Benzo(b)fluoranthene	ug/Kg	1300	J	TP67-3	63%	1100	1	5	8
Benzo(g,h,i)perylene	ug/Kg	620		TP67-3	63%	50000*	0	5	8
Benzo(k)fluoranthene	ug/Kg	28	J	TP67-4	13%	1100	0	1	8
bis(2-Ethylhexyl)phthalate	ug/Kg	250	J	MW67-2.02	38%	50000*	0	3	8
Carbazole	ug/Kg	80	J	TP67-1	38%	50000*	0	3	8
Chrysene	ug/Kg	690		TP67-3	63%	400	1	5	8
Dibenz(a,h)anthracene	ug/Kg	310	J	TP67-3	50%	14	4	4	8
Dibenzofuran	ug/Kg	50	J	TP67-1	13%	6200	0	1	8
Di-n-butylphthalate	ug/Kg	47	J	MW67-2.02	13%	8100	0	1	8
Fluoranthene	ug/Kg	860		TP67-3	75%	50000*	0	6	8
Fluorene	ug/Kg	110	J	TP67-1	38%	50000*	0	3	8
Indeno(1,2,3-cd)pyrene	ug/Kg	620		TP67-3	63%	3200	0	5	8
Naphthalene	ug/Kg	34	J	TP67-1	25%	13000	0	2	8
Phenanthrene	ug/Kg	740		TP67-1	63%	50000*	0	5	8
Pyrene	ug/Kg	950		TP67-3	75%	50000*	0	6	8
Pesticides/PCB									
4,4'-DDE	ug/Kg	4.8	J	TP67-3	50%	2100	0	4	8
4,4'-DDT	ug/Kg	9.4		TP67-3	38%	2100	0	3	8
alpha-Chlordane	ug/Kg	2.1	J	TP67-3	38%	540	0	3	8
Aroclor-1254	ug/Kg	72	J	TP67-2	13%	1000	0	1	8
Endosulfan I	ug/Kg	25	J	TP67-3	75%	900	0	6	8
Endosulfan sulfate	ug/Kg	2.1	J	TP67-3	13%	1000	0	1	8
Heptachlor epoxide	ug/Kg	5.5		MW67-2.00	25%	20	0	2	8
Metals									
Aluminum	mg/Kg	19100		TP67-4	100%	19300	0	8	8
Antimony	mg/Kg	0.44	J	TP67-3	63%	5.9	0	5	8
Arsenic	mg/Kg	6		TP67-4	100%	8.2	0	8	8
Barium	mg/Kg	182		TP67-5	100%	300	0	8	8
Beryllium	mg/Kg	0.87	J	TP67-4	100%	1.1	0	8	8
Cadmium	mg/Kg	0.73	J	TP67-5	100%	2.3	0	8	8
Calcium	mg/Kg	139000		TP67-3	100%	121000	1	8	8
Chromium	mg/Kg	24.8		TP67-4	100%	29.6	0	8	8
Cobalt	mg/Kg	12.8		TP67-5	100%	30	0	8	8
Copper	mg/Kg	29.7		TP67-4	100%	33	0	8	8
Iron	mg/Kg	27300		TP67-5	100%	36500	0	8	8
Lead	mg/Kg	40.9		TP67-3	100%	24.8	1	8	8
Magnesium	mg/Kg	20900		MW67-2.03	100%	21500	0	8	8
Manganese	mg/Kg	1380		TP67-5	100%	1060	1	8	8
Mercury	mg/Kg	4	J	TP67-1	100%	0.1	3	8	8
Nickel	mg/Kg	32.3		MW67-2.02	100%	49	0	8	8
Potassium	mg/Kg	3160	J	MW67-2.02	100%	2380	2	8	8
Selenium	mg/Kg	2		TP67-5	75%	2	0	6	8
Sodium	mg/Kg	112	J	MW67-2.02	75%	172	0	6	8
Thallium	mg/Kg	0.48	J	MW67-2.00	13%	0.7	0	1	8
Vanadium	mg/Kg	31.8		TP67-4	100%	150	0	8	8
Zinc	mg/Kg	100		TP67-4	100%	110	0	8	8
Other Analyses									
Total Solids	%W/W	90.2		MW67-2.03	1		0	8	8

NOTES:
a) NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046.
* = As per TAGM #4046, total VOCs < 10 ppm; total Semi-VOCs < 500 ppm; individual semi-VOCs < 50 ppm.
J = the reported value is an estimated concentration.

Table 29
Summary of Groundwater Analysis Results - SEAD-67

PARAMETER	UNITS	MAXIMUM DETECT	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	CRITERIA VALUE (a)	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
METALS									
Aluminum	ug/L	3		MW67-1	100%	50 (b)	3	3	3
Arsenic	ug/L	3	J	MW67-1	33%	10 (c)	0	1	3
Barium	ug/L	3		MW67-1	100%	1000	0	3	3
Beryllium	ug/L	3	J	MW67-1	33%	4 (d)	0	1	3
Calcium	ug/L	3		MW67-1	100%	NA	NA	3	3
Chromium	ug/L	3		MW67-1	100%	50	0	3	3
Cobalt	ug/L	3	J	MW67-1	100%	NA	NA	3	3
Copper	ug/L	3	J	MW67-1	100%	200	0	3	3
Iron	ug/L	3		MW67-1	100%	300	3	3	3
Lead	ug/L	3		MW67-1	33%	15 (d)	0	1	3
Magnesium	ug/L	3		MW67-1	100%	NA	NA	3	3
Manganese	ug/L	3		MW67-1	100%	50 (b)	3	3	3
Mercury	ug/L	3	J	MW67-1	67%	0.7	0	2	3
Nickel	ug/L	3	J	MW67-1	100%	100	0	3	3
Potassium	ug/L	3		MW67-1	100%	NA	NA	3	3
Sodium	ug/L	3		MW67-2	100%	20000	0	3	3
Thallium	ug/L	3	J	MW67-1	33%	2 (d)	0	1	3
Vanadium	ug/L	3	J	MW67-1	100%	NA	NA	3	3
Zinc	ug/L	3		MW67-1	100%	5000 (b)	0	3	3
OTHER ANALYSES									
Turbidity	NTU	>1000		MW67-1					

NOTES:

a) NY State Class GA Groundwater Standard (TOGS 1.1.1, June 1998), except as noted below.

b) US EPA Secondary Drinking Water Regulation, non-enforceable (EPA 822-B-00-001, Summer 2000)

c) US EPA Maximum Contaminant Limit announced 10/31/01. Source http://www.epa.gov/safewater/arsenic.html

d) US EPA National Primary Drinking Water Standards, EPA 816-F-01-007 March 2001

J = the report value is an estimated concentration

Table 30
Summary of Surface Water Analysis Results - SEAD-67

PARAMETER	UNITS	MAXIMUM DETECT	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	NYS CRITERIA VALUE (a,b)	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
METALS									
Aluminum	ug/L	0	J	SW67-1	100%	100	1	2	2
Barium	ug/L	0	J	SW67-1	100%	NA	NA	2	2
Calcium	ug/L	0		SW67-1	100%	NA	NA	2	2
Copper	ug/L	0	J	SW67-1	100%	17.3	0	2	2
Iron	ug/L	0		SW67-1	100%	300	1	2	2
Magnesium	ug/L	0		SW67-2	100%	NA	NA	2	2
Manganese	ug/L	0		SW67-1	100%	NA	NA	2	2
Potassium	ug/L	0	J	SW67-1	100%	NA	NA	2	2
Sodium	ug/L	0		SW67-2	100%	NA	NA	2	2
Thallium	ug/L	0	J	SW67-2	50%	8	0	1	2
Zinc	ug/L	0	J	SW67-2	100%	159.2	0	2	2
OTHER ANALYSES									
pH	Standard Units	7.9		SW67-1		6.5 - 9	0		
Conductivity	umhos/cm	445		SW67-1					
Temperature	°C	22.7		SW67-2					
Turbidity	NTU	1.6		SW67-2					

NOTES:

a) The New York State Ambient Water Quality Standards and Guidance Values for Class C surface water (June 1998).

b) Hardness dependent values assume a hardness of 216.4 mg/L (depot site-wide average).

J = The reported value is an estimated concentration.

Table 31
Summary of Sediment Analysis Results - SEAD-67

PARAMETER	UNITS	MAXIMUM DETECT	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	CRITERIA VALUE (a)	CRITERIA TYPE (b,c)	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES
VOLATILE ORGANICS										
2-Butanone	ug/Kg	0	J	SD67-1	50%			NA	1	2
Acetone	ug/Kg	0	J	SD67-1	50%			NA	1	2
SEMIVOLATILE ORGANICS										
Acenaphthene	ug/Kg	120	J	SD67-2	50%	5474	BALCT	0	1	2
Acenaphthylene	ug/Kg	54	J	SD67-2	50%				1	2
Anthracene	ug/Kg	600	J	SD67-2	50%	4184	BALCT	0	1	2
Benzo(a)anthracene	ug/Kg	0		SD67-2	100%	50.83	HHBC	2	2	2
Benzo(a)pyrene	ug/Kg	0		SD67-2	100%	50.83	HHBC	2	2	2
Benzo(b)fluoranthene	ug/Kg	0		SD67-2	100%	50.83	HHBC	2	2	2
Benzo(g,h,i)perylene	ug/Kg	0	J	SD67-2	100%				2	2
Benzo(k)fluoranthene	ug/Kg	0		SD67-2	100%	50.83	HHBC	2	2	2
Carbazole	ug/Kg	78	J	SD67-2	50%				1	2
Chrysene	ug/Kg	0		SD67-2	100%	50.83	HHBC	2	2	2
Dibenz(a,h)anthracene	ug/Kg	230	J	SD67-2	50%				1	2
Dibenzofuran	ug/Kg	83	J	SD67-2	50%				1	2
Fluoranthene	ug/Kg	0		SD67-2	100%	39887	BALCT	0	2	2
Fluorene	ug/Kg	270	J	SD67-2	50%	312.8	BALCT	0	1	2
Indeno(1,2,3-cd)pyrene	ug/Kg	0	J	SD67-2	100%	50.83	HHBC	2	2	2
Phenanthrene	ug/Kg	0		SD67-2	100%	4692	BALCT	0	2	2
Pyrene	ug/Kg	0		SD67-2	100%	37580	BALCT	0	2	2
PESTICIDES/PCB										
4,4'-DDT	ug/Kg	4.1	J	SD67-2	50%	0.39	HHBC	1	1	2
alpha-Chlordane	ug/Kg	0	J	SD67-1	100%	0.039	HHBC	2	2	2
Endosulfan I	ug/Kg	0	J	SD67-2	50%	1.17	BALCT	1	1	2
METALS										
Aluminum	mg/Kg	0	J	SD67-1	100%				2	2
Arsenic	mg/Kg	0	J	SD67-2	100%	6	LEL	0	2	2
Barium	mg/Kg	0	J	SD67-1	100%				2	2
Beryllium	mg/Kg	0	J	SD67-1	100%				2	2
Cadmium	mg/Kg	0	J	SD67-1	100%	0.6	LEL	0	2	2
Calcium	mg/Kg	0	J	SD67-2	100%				2	2
Chromium	mg/Kg	0	J	SD67-1	100%	26	LEL	0	2	2
Cobalt	mg/Kg	0	J	SD67-2	100%				2	2
Copper	mg/Kg	0	J	SD67-1	100%	16	LEL	2	2	2
Iron	mg/Kg	0	J	SD67-2	100%	20000	LEL	0	2	2
Lead	mg/Kg	0	J	SD67-2	100%	31	LEL	0	2	2
Magnesium	mg/Kg	0	J	SD67-2	100%				2	2
Manganese	mg/Kg	0	J	SD67-2	100%	460	LEL	1	2	2
Nickel	mg/Kg	0	J	SD67-2	100%	16	LEL	2	2	2
Potassium	mg/Kg	0	J	SD67-1	100%				2	2
Silver	mg/Kg	0	J	SD67-1	100%	1	LEL	2	2	2
Sodium	mg/Kg	0	J	SD67-2	100%				2	2
Vanadium	mg/Kg	0	J	SD67-1	100%				2	2
Zinc	mg/Kg	0	J	SD67-1	100%	120	LEL	0	2	2
OTHER ANALYSES										
Total Solids	%W/W								2	2

NOTES:
a) NYSDEC Technical Guidance for Screeing Contaminated Sediments - January 1999
b) BALCT = Benthic Aquatic Life Chronic Toxicity Criteria; HHBC = Human Health Bioaccumulation Criteria; LEL = Lowest Effect Level
c) All organic criteria values derived based on assumed Total Organic Carbon content of 39,105 mg/Kg (depot average value)
J = The reported value is an estimated concentration.

Table 32
Summary of Maximum Final Results Soil - SEAD 67
Time Critical Removal Action

AREA 1			Floor Samples			Perimeter Samples		
Compound	Cleanup Goal[1]	Total No. of Samples Collected	No. of Samples Collected	No. of Exceedences	Max Result	No. of Samples Collected	No. of Exceedences	Max Result
Metals (mg/Kg)								
Aluminum	19,200	5	1	0	12,100	4	0	16,000
Antimony	5.9	5	1	0	0.56 U	4	**1**	13.6 U
Arsenic	8.24	23	7	0	5.8	16	0	7.1
Barium	300	5	1	0	53.7	4	0	99.5
Beryllium	1.1	5	1	0	0.65 B	4	**1**	1.2
Cadmium	2.3	5	1	0	0.49 U	4	**1**	3.5 U
Calcium	120,500	5	1	0	1,770	4	0	3,440
Chromium	29	5	1	0	18.1	4	0	25.6
Cobalt	30	5	1	0	10.8	4	0	15.7
Copper	29.6	5	1	0	15.9	4	**1**	36.6
Iron	35,550	5	1	0	24,500	4	0	35,300
Lead[2]	400	5	1	0	11.6	4	0	25.8
Magnesium	21,500	5	1	0	3,810	4	0	5,200
Manganese	1,056	5	1	0	445	4	0	959
Mercury	0.1	22	7	0	0.079 B	15	**3**	0.32
Nickel	48.9	5	1	0	26.3	4	0	41.9
Potassium	2,343	5	1	0	649	4	0	1,290
Selenium	2	5	1	0	0.79 U	4	**1**	18.6 U
Silver	0.763	5	1	0	0.16 U	4	0	0.41 J
Sodium	170.3	5	1	0	56.4	4	0	82.8 J
Thallium	0.67	5	1	**1**	0.98 U	4	**4**	25.5 U
Vanadium	150	5	1	0	18.5	4	0	24.9
Zinc	108.9	23	7	0	72.8	16	0	85.1
PAHs (ug/Kg)								
2-Methylnaphthalene	36,400	10	2	0	34 U	8	0	420 U
Acenaphthene	50,000	10	2	0	18 U	8	0	420 U
Acenaphthylene	41,000	10	2	0	13 U	8	0	380 J
Anthracene	50,000	10	2	0	21 J	8	0	500 J
Benzo(a)anthracene	224	10	2	0	57 J	8	**2**	1,100 J
Benzo(a)pyrene	61	8	2	0	53	6	**3**	1,100
Benzo(b)fluoranthene	1,100	10	2	0	47 U	8	0	910 J
Benzo(g,h,i)perylene	50,000	8	2	0	30 J	6	0	630 J
Benzo(k)fluoranthene	1,100	10	2	0	51 J	8	**1**	1,300 J
Chrysene	400	10	2	0	60 J	8	**2**	1,400 J
Dibenzo(a,h)anthracene	14	10	2	0	11 M	8	**4**	220
Fluoranthene	50,000	10	2	0	110 J	8	0	2,700
Fluorene	50,000	10	2	0	24 U	8	0	420 U
Indeno(1,2,3-cd)pyrene	3,200	10	2	0	29 J	8	0	620 J
Naphthalene	13,000	10	2	0	39 U	8	0	420 U
Phenanthrene	50,000	10	2	0	87 J	8	0	2,200
Pyrene	50,000	10	2	0	110 J	8	0	2,300

Table 32
Summary of Maximum Final Results Soil - SEAD 67
Time Critical Removal Action

AREA 2			Floor Samples			Perimeter Samples		
Compound	Cleanup Goal1	Total No. of Samples Collected	No. of Samples Collected	No. of Exceedences	Max Result	No. of Samples Collected	No. of Exceedences	Max Result
Metals (mg/Kg)								
Aluminum	19,200	16	8	0	13,700	8	0	13,800
Antimony	5.9	16	8	**2**	16.9 U	8	**4**	17.2 U
Arsenic	8.2	53	28	0	6.8	25	**1**	8.7 J
Barium	300	16	8	0	146	8	0	240
Beryllium	1.1	16	8	0	0.89 B	8	**1**	2.9 U
Cadmium	2.3	16	8	**2**	4.3 U	8	**4**	4.4 U
Calcium	120,500	16	8	0	9,750	8	0	11,000
Chromium	29	16	8	0	22	8	0	24
Cobalt	30	16	8	0	12.6	8	0	12.9
Copper	30	16	8	**1**	52.5	8	**2**	78.8
Iron	35,550	16	8	0	29,800	8	0	32,800
Lead[2]	400	16	8	0	34.5	8	0	56.9
Magnesium	21,500	16	8	0	4,790	8	0	6,540
Manganese	1,056	16	8	0	928	8	0	775
Mercury	0.1	51	27	**1**	0.12	24	**4**	0.16
Nickel	48.9	16	8	0	35.6	8	0	35.9
Potassium	2,343	16	8	0	2,330	8	0	1,770
Selenium	2	16	8	**3**	23.1 U	8	**4**	23.6
Silver	0.763	16	8	**3**	4.3 U	8	**4**	4.7
Sodium	170.3	16	8	0	99.1 J	8	0	97.1 J
Thallium	0.67	16	8	**8**	31.8 U	8	**8**	32.4 U
Vanadium	150	16	8	0	23.7	8	0	23
Zinc	108.9	53	28	0	107	25	**2**	127
PAHs (ug/Kg)								
2-Methylnaphthalene	36,400	16	8	0	470 U	8	0	500 U
Acenaphthene	50,000	16	8	0	430 U	8	0	500 U
Acenaphthylene	41,000	16	8	0	430 U	8	0	500 U
Anthracene	50,000	16	8	0	430 U	8	0	500 U
Benzo(a)anthracene	224	15	7	0	90 J	8	0	200 J
Benzo(a)pyrene	61	11	6	**1**	87	5	**3**	120 J
Benzo(b)fluoranthene	1,100	16	8	0	430 U	8	0	500 U
Benzo(g,h,i)perylene	50,000	16	8	0	430 U	8	0	500 U
Benzo(k)fluoranthene	1,100	16	8	0	460 J	8	0	500 U
Chrysene	400	15	7	0	100 J	8	0	230 J
Dibenzo(a,h)anthracene	14	9	5	**1**	23 UM	4	**2**	27 M
Fluoranthene	50,000	16	8	0	890	8	0	340 J
Fluorene	50,000	16	8	0	57 J	8	0	500 U
Indeno(1,2,3-cd)pyrene	3,200	16	8	0	430 U	8	0	500 U
Naphthalene	13,000	16	8	0	470 U	8	0	500 U
Phenanthrene	50,000	16	8	0	720	8	0	250 J
Pyrene	50,000	16	8	0	1,300	8	0	420 J

Table 32
Summary of Maximum Final Results Soil - SEAD 67
Time Critical Removal Action

Table Notes:

1. The Cleanup goal is based on the New York Technical Administrative Cuidance Memorandum (TACM) No. 4046 Recommended Soil Cleanup Objectives. Values denoted as Site Background ("SB") in TACM were compared with the highlighted values (95th percentile of Seneca Army Depot (SEDA) in lieu of the TACM "SB" since no background cleanup objectives exist for certain parameters.
2. U.S. Environmental Protection Agency Risk Based Residential Cleanup Coal for lead
3. Where exceedances for individual PAHs exist, evaluation of the Benzo(a)pyrene Toxicity Equivalent for total carcinogenic PAHs (cPAHs) would not exceed the 10,000 µg/kg limit for total cPAHs for any The cPAHs include: benzo(a)pyrene; dibenzo(a,h)anthracene; benzo(a,h)anthracene; indeno(1,2,3-cd)pyrene; benzo(k)fluouranthene; and chrysene.

95th percentile of SEDA Site Background

Result Exceeds Cleanup Criteria

mg/kg= milligram per kilogram

µg/kg= microgram per kilogram

J= Result is less than the reporting limit (RL), but greater than or equal to the MDL.

U= Analyte was not detected at or above the RL.

M= Manually integrated compound.

Table 33
Summary of Soil Results - SEAD-122B

PARAMETER	UNIT	MAXIMUM VALUE	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	CRITERIA LEVEL	NUMBER OF EXCEEDANCES	NUMBER OF DETECTS	NUMBER OF ANALYSES
Aluminum	MG/KG	15100		122B-1036	100%	19300	0	26	26
Antimony	MG/KG	670	J	122B-1011A	50%	5.9	2	13	26
Arsenic	MG/KG	84.6	J	122B-1011A	100%	8.2	2	26	26
Barium	MG/KG	129		122B-1018A	100%	300	0	26	26
Beryllium	MG/KG	0.81	J	122B-1018A	100%	1.1	0	26	26
Cadmium	MG/KG	0.9	J	122B-1013A	65%	2.3	0	17	26
Calcium	MG/KG	191000		122B-1015A	100%	121000	1	26	26
Chromium	MG/KG	26.8	J	122B-1042	100%	29.6	0	26	26
Cobalt	MG/KG	13.2		122B-1042	100%	30	0	26	26
Copper	MG/KG	5690	J	122B-1011A	100%	33	5	26	26
Iron	MG/KG	28700		122B-1042	100%	36500	0	26	26
Lead	MG/KG	88700	J	122B-1011A	100%	400	6	85	85
Magnesium	MG/KG	24100		122B-1001A	100%	21500	1	26	26
Manganese	MG/KG	789		122B-1018A	100%	1060	0	26	26
Mercury	MG/KG	0.078	J	122B-1059	8%	0.1	0	2	26
Nickel	MG/KG	40.4		122B-1042	100%	49	0	26	26
Potassium	MG/KG	2350		122B-1059	100%	2380	0	26	26
Selenium	MG/KG	1.7		122B-1059	35%	2	0	9	26
Silver	MG/KG	3.4	J	122B-1011A	8%	0.75	1	2	26
Sodium	MG/KG	388	J	122B-1009A	35%	172	3	9	26
Thallium	MG/KG	1.7	J	122B-1011A	15%	0.7	2	4	26
Vanadium	MG/KG	25.3		122B-1018A	100%	150	0	26	26
Zinc	MG/KG	630	J	122B-1011A	100%	110	1	26	26
Total Organic Carbon	MG/KG	56500		122B-1015A	100%		0	43	43

Note:

Highlighted cells indicate exceedance of criteria value.

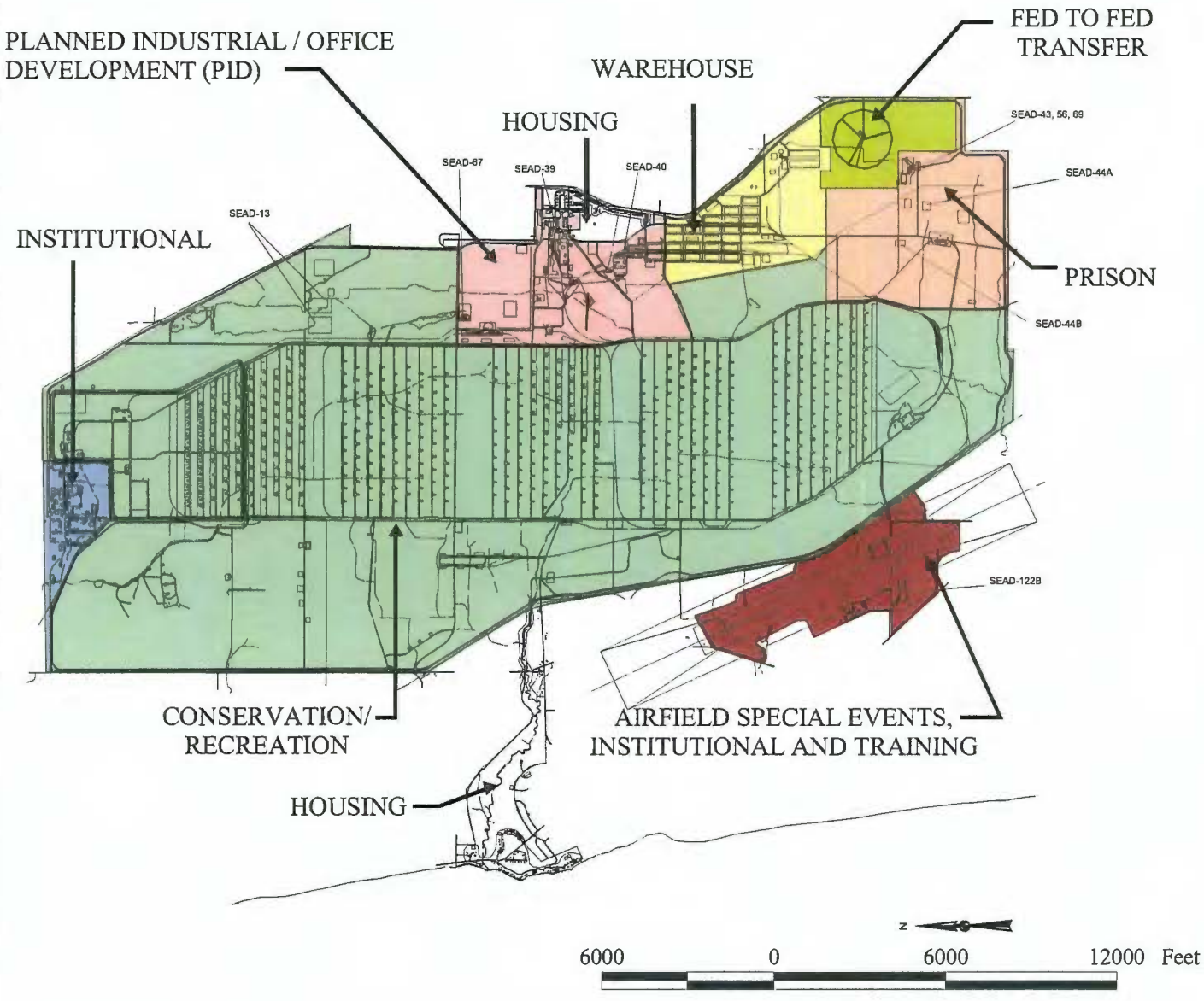
U - Not detected at reported concentration

J - Estimated Value

Table 34
Summary of Groundwater Results - SEAD-122B

PARAMETER	UNITS	MAXIMUM VALUE	Q	LOCATION OF MAXIMUM CONCENTRATION	FREQUENCY OF DETECTION	CRITERIA LEVEL	NUMBER OF EXCEEDANCES	NUMBER OF DETECTS	NUMBER OF ANALYSES
Aluminum	ug/L	508		MW-2	100%	None	0	4	4
Antimony	ug/L	19.7	J	MW-3	100%	3	4	4	4
Arsenic	ug/L	4.6	J	MW-3	50%	25	0	2	4
Barium	ug/L	49.8	J	MW-3	100%	1000	0	4	4
Beryllium	ug/L	0.32	J	MW-3	75%	3	0	3	4
Cadmium	ug/L	2.3	J	MW-3	75%	5	0	3	4
Calcium	ug/L	118000		MW-3	100%	None	0	4	4
Chromium	ug/L	12.5	J	MW-3	100%	50	0	4	4
Copper	ug/L	8.8	J	MW-2	100%	200	0	4	4
Iron	ug/L	580		MW-2	100%	300	2	4	4
Magnesium	ug/L	35800		MW-1	100%	None	0	4	4
Manganese	ug/L	293		MW-3	100%	300	0	4	4
Nickel	ug/L	3.7	J	MW-3	25%	100	0	1	4
Potassium	ug/L	9920		MW-1	100%	None	0	4	4
Sodium	ug/L	18400		MW-3	100%	None	0	4	4
Vanadium	ug/L	14.0	J	MW-3	100%	None	0	4	4
Zinc	ug/L	7.0	J	MW-3	100%	2000 (GV)	0	4	4

Note:
J-Estimated Value



Airfield

Conservation

Federal

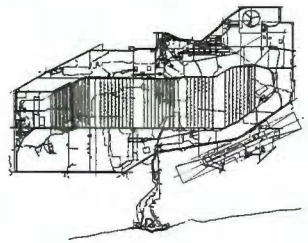
Industrial

Institutional

Prison

Warehouse

Housing



PARSONS

Seneca Army Depot Activity
Proposed Plan - NFA Sites 13, 39, 40, 43, 44A, 44B, 56, 67, 69 and 122B

Figure 1
Future Land Use

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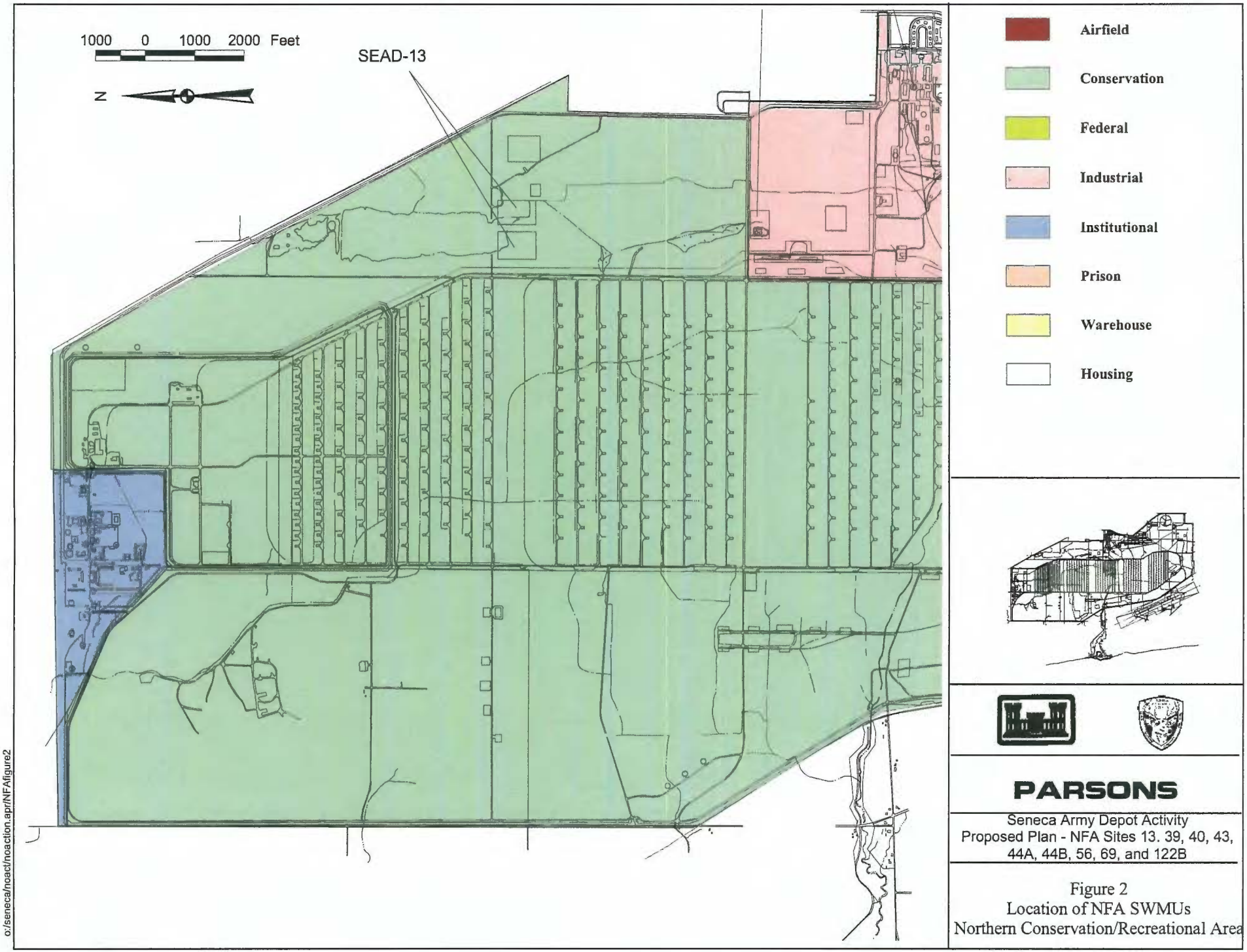
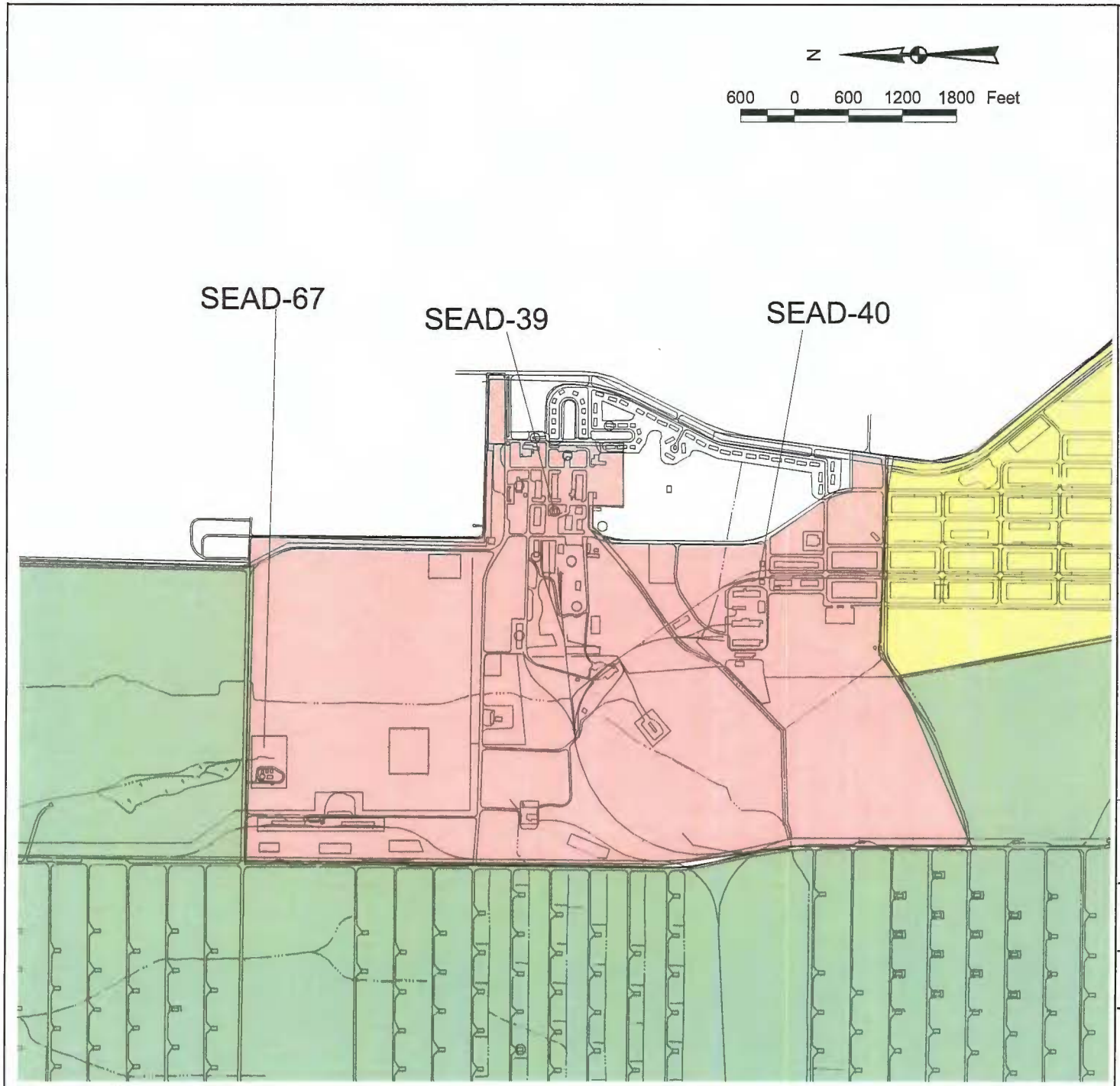
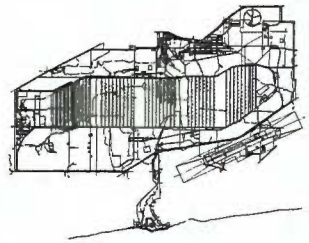

1000 0 1000 2000 Feet
N
SEAD-13
Airfield
Conservation
Federal
Industrial
Institutional
Prison
Warehouse
Housing
PARSONS
Seneca Army Depot Activity
Proposed Plan - NFA Sites 13. 39, 40, 43, 44A, 44B, 56, 69, and 122B
Figure 2
Location of NFA SWMUs
Northern Conservation/Recreational Area
o:/seneca/noact/noaction.apr/NFAfigure2



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

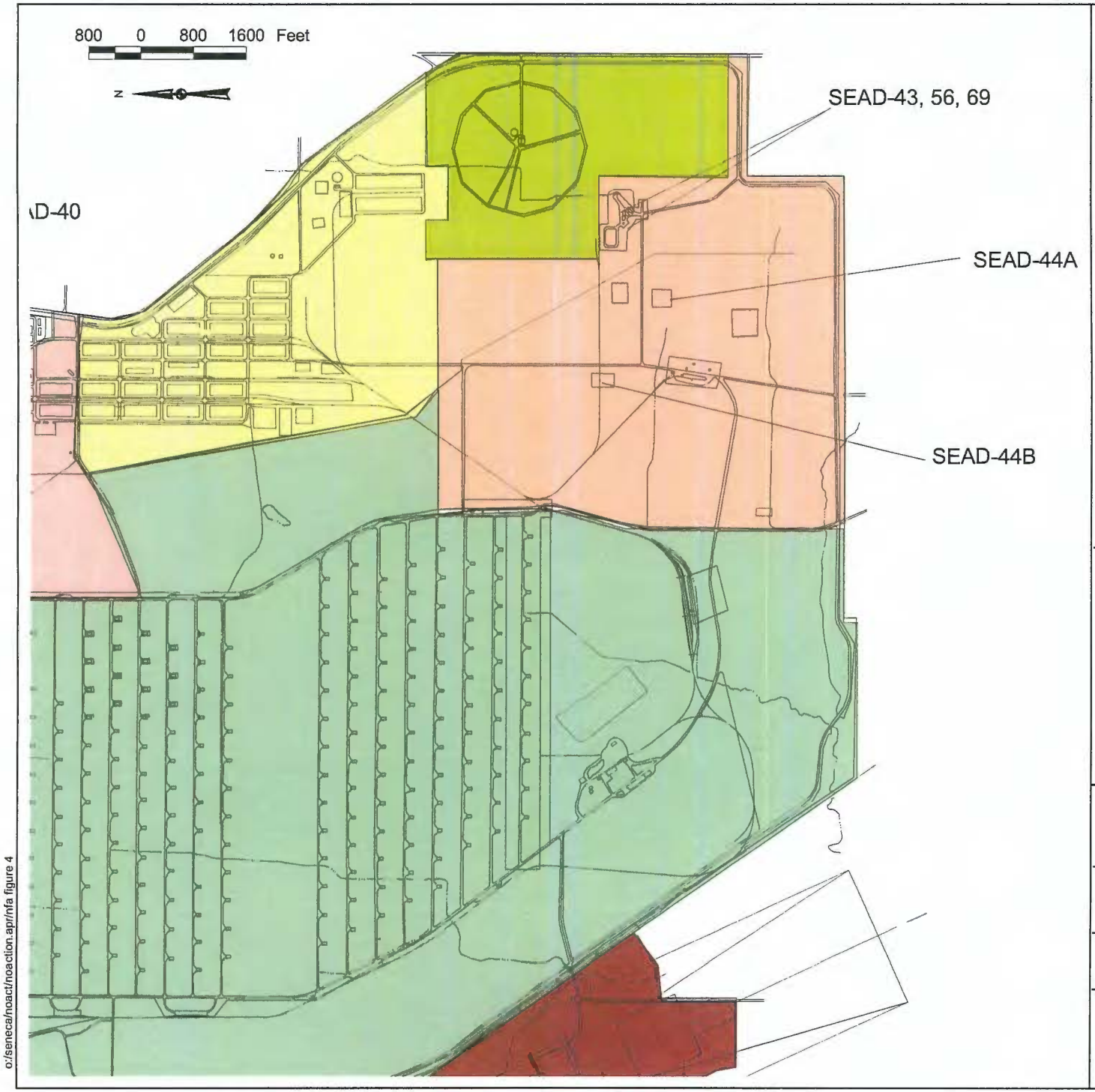


o:/seneca/noact/noaction.apr/NFAfigure 3

PARSONS

Seneca Army Depot Activity
Proposed Plan - NFA Sites 13, 39, 40, 43, 44A, 44B, 56, 69, and 122B

Figure 3
Location of NFA SWMUs
Planned Industrial / Office Development Area



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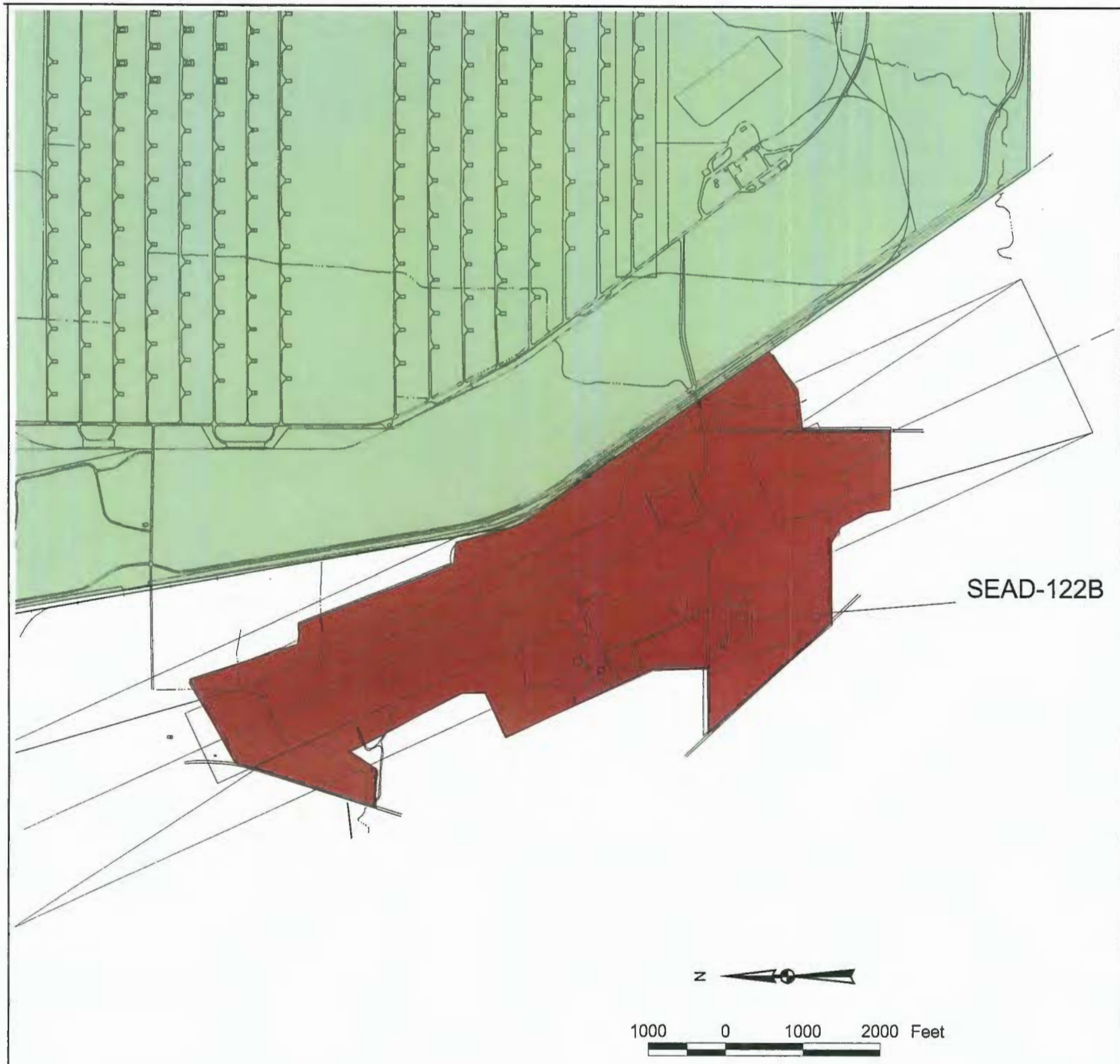
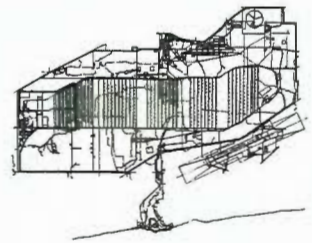
PARSONS

Seneca Army Depot Activity
Proposed Plan - NFA Sites 13, 39, 40, 43, 44A, 44B, 56, 69, and 122B

Figure 4
Location of NFA SWMUs
Warehouse, Prison, and Southern Conservation/Recreation Area



Airfield
Conservation
Federal
Industrial
Institutional
Prison
Warehouse
Housing



PARSONS

Seneca Army Depot Activity
Proposed Plan - NFA Sites 13, 39, 40, 43, 44A, 44B, 56, 69, and 122B

Figure 5
Location of NFA SWMUs
Airfield Special Events, Institutional and Training Area

o:/seneca/noact/noaction.apr/nfa figure 5