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May 21, 2009

Mr. John Nohrstedt
U.S. Army Corps of Engineers
Engineering and Support Center, Huntsville
Attn: CEHNC-FS-IS
4820 University Square
Huntsville, Alabama 35816-1822

Subject: **Final Record of Decision for Five Former SWMUs – SEADs 1, 2, 5, 24 and 48; Seneca Army Depot Activity; Contract DACA87-02-D-0005, Task Order 33**

Dear Mr. Nohrstedt:

Parsons Infrastructure & Technology Group, Inc. (Parsons) is pleased to submit the signed Final Record of Decision for Five Solid Waste Management Units, SEADs 1, 2, 5, 24, and 48 at the Seneca Army Depot Activity located in Seneca County, New York. The work was performed in accordance with the Scope of Work (SOW) for Task Order 33 under Contract DACA87-02-D-0005.

Parsons appreciates the opportunity to provide the Army with this document. Should you have any questions about the material presented and summarized in this document, please do not hesitate to call me at (617) 449-1405 or Jeff Adams at 617-449-1570 to discuss them.

Sincerely,

Todd M. Heino, P.E.
Program Manager

Enclosures

cc: Mr. S. Absolom, SEDA
Mr. K. Hoddinott, USACHPPM
Mr. R. Battaglia, USACE, NY
Mr. R. Walton, USAEC

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May 21, 2009

Mr. Julio F. Vazquez, Project Manager
U.S. Environmental Protection Agency, Region II
Superfund Federal Facilities Section
290 Broadway, 18th Floor
New York, NY 10007-1866

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

Mr. Mark Sergott
Bureau of Environmental Exposure Investigation, Room 300
New York State Department of Health
Flanigan Square, 547 River Street
Troy, NY 12180

Subject: **Final Record of Decision for Five Former SWMUs – SEADs 1, 2, 5, 24 and 48; Seneca Army Depot Activity, Romulus, NY**
EPA Site ID# NY0213820830; NY Site ID# 8-50-006

Dear Mr. Vazquez/Mr. Gupta/Mr. Sergott:

Parsons Infrastructure & Technology Group, Inc. (Parsons) is pleased to submit the signed Final Record of Decision for Five Solid Waste Management Units, SEADs 1, 2, 5, 24, and 48 at the Seneca Army Depot Activity located in Seneca County, New York (EPA Site ID# NY0213820830 and NY Site ID# 8-50-006).

Should you have any questions about the material presented and summarized in this document, please do not hesitate to call me at (617) 449-1405 or Jeff Adams at 617-449-1570 to discuss them.

Sincerely,

Todd M. Heino, P.E.
Program Manager

Enclosures
cc: Mr. J. Nohrstedt, USACE, Huntsville
Mr. S. Absolom, SEDA
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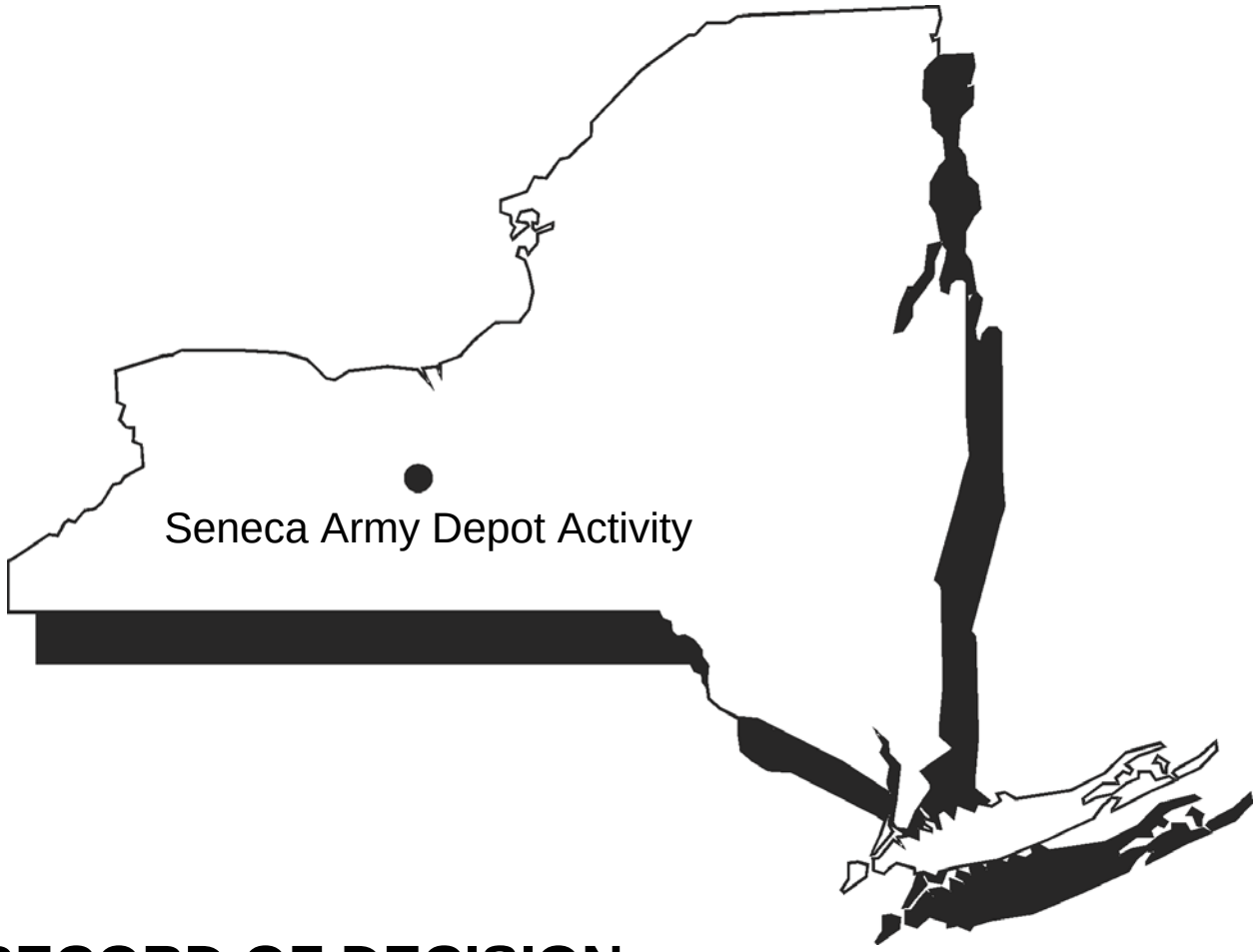
Mr. R. Walton, USAEC

US Army, Engineering & Support Center
Huntsville, AL

Seneca Army Depot Activity
Romulus, NY



RECORD OF DECISION

FOR FIVE FORMER SOLID WASTE MANAGEMENT UNITS
SEAD-1, 2, 5, 24, & 48
SENECA ARMY DEPOT ACTIVITY

Contract No. DACA87-02-D-0005
Delivery Order No. 0033
EPA Site ID# NY0213820830
NY Site ID# 8-50-006

PARSONS
April 2009

RECORD OF DECISION

For

Five Former Solid Waste Management Units (SWMUs)
SEAD-1, Hazardous Waste Container Storage Facility; SEAD-2, PCB Transformer Storage Facility; SEAD-5, Sewage Sludge Waste Piles; SEAD-24, Abandoned Powder Burn Pit; and, SEAD-48, Row E0800 Pitchblende Storage Igloos

SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

Prepared for:

SENECA ARMY DEPOT ACTIVITY
5786 STATE ROUTE 96
ROMULUS, NEW YORK 14541

and

UNITED STATES ARMY CORPS OF ENGINEERS
4820 UNIVERSITY SQUARE
HUNTSVILLE, ALABAMA 35816

Prepared By:

PARSONS
150 Federal St., 4th Floor
Boston, Massachusetts 02110

Contract Number: DACA87-02-D-0005
Delivery Orders: 0033
EPA Site ID: NY0213820830
NY Site ID: 8-50-006 **April 2009**

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1.0 DECLARATION FOR THE RECORD OF DECISION

Areas of Concern Names and Site Location

SEAD-1 – the former Hazardous Waste Container Storage Facility (Building 307)
SEAD-2 – the former PCB Transformer Storage Facility (Building 301)
SEAD-5 – Sewage Sludge Waste Piles
SEAD-24 – the Abandoned Powder Burn Pit
SEAD-48 – Row E0800 Pitchblende Ore Storage Igloos

Seneca Army Depot Activity
5786 State Route 96
Romulus, New York 14541
CERCLIS ID# NY0213820830; New York Site ID# 8-50-0006

Statement of Basis and Purpose

This Record of Decision (ROD) documents the U.S Army's (Army's) and U.S Environmental Protection Agency's (EPA's) selected remedies for five historic solid waste management units (SWMUs) at the former Seneca Army Depot Activity (the Site, SEDA, or Depot) in the Towns of Varick and Romulus, Seneca County, New York. The decisions were developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended, 42 U.S.C. § 9601, *et seq.*, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Title 40, Protection of Environment, Code of Federal Regulations (CFR) Part 300. The Base Realignment and Closure (BRAC) Environmental Coordinator; the Chief, Consolidation Branch, Army BRAC Division; and, the Emergency and Remedial Response Division Director, EPA Region II have been delegated the authority to approve this ROD.

This ROD is based on the Administrative Record that has been developed in accordance with Section 113(k) of CERCLA. The Administrative Record is available for public review at the Seneca Army Depot Activity, 5786 State Route 96, Building 123, Romulus, NY 14541. The Administrative Record Index identifies each of the items considered during the selection of the remedial actions for these historic SWMUs. This index is included in **Appendix A**.

The State of New York, through the New York State Department of Environmental Conservation (NYSDEC), has concurred with the selected remedies. The NYSDEC Declaration of Concurrence is provided in **Appendix B** of this ROD.

AOC Assessment

The selected remedies for three of the historic SWMUs (i.e., SEADs 1, 2, and 5) address contaminated soil and groundwater. The selected remedies for these SEADs will limit soil and groundwater as exposure pathways for potential receptors. The response actions selected in this ROD for SEADs 1, 2, and 5 are necessary to protect human health and the environment from actual or threatened releases of hazardous substances into the environment or from actual or threatened releases of pollutants or contaminants, which may present an imminent and substantial endangerment to public health or welfare.

No Further Action (NFA) is called for at SEAD-24 where a time-critical removal action (TCRA) previously removed soil contaminated with hazardous substances, and where conditions now indicate that the land is suitable for unrestricted use and unlimited exposures. Finally, NFA is also selected for SEAD-48 where radiological decontamination and remedial actions completed as part of the SEDA's Nuclear Regulatory Commission (NRC) radiological license termination process have shown that soils, groundwater, and building surfaces are suitable for unrestricted use and unlimited exposures.

Description of the Selected Remedies

The selected remedies for SEAD-24 (the Abandoned Powder Burning Pit) and SEAD-48 (Row E0800 Pitchblende Ore Storage Igloos) are No Further Action. These selections are based on the Army's and EPA's determination that these sites do not pose a significant threat to human health or the environment. The locations of SEADs 24 and 48 are shown in **Figure 1-1**.

The response actions selected in this ROD for SEAD-1 (the Hazardous Waste Container Storage Facility), SEAD-2 (the PCB Transformer Storage Facility), and SEAD-5 (Sewage Sludge Waste Piles) address contaminated soil and groundwater.

The common elements of the selected remedies at SEADs 1, 2, and 5 include:

- Establishing, maintaining, monitoring, and reporting on a land use control (LUC) that prohibits residential housing, elementary and secondary schools, childcare facilities and playgrounds until unrestricted use and unlimited exposure criteria are attained within the areas of concern (AOCs); and,
- Establishing, maintaining, monitoring, and reporting on a second LUC that prohibits access to and use of groundwater at the AOCs until its quality allows for unrestricted use and unlimited exposures.

In addition, at SEAD-5, the selected remedy requires:

- Covering of contaminated soils (including those originating at SEADs-59 and 71) with at least one foot of clean fill that meets New York's Restricted Commercial Use soil cleanup objectives (SCOs);
- Placing demarcation fabric (e.g., colored "snow" or safety fence) between the contaminated soil and the clean fill; and,
- Establishing, maintaining, monitoring, and reporting on a third LUC that prohibits unauthorized excavations or activities that might compromise the integrity of the engineered cover.

As the selected remedies for the latter three AOCs (i.e., SEADs 1, 2, and 5) do not allow unrestricted use and unlimited exposures, the Army or its successors will be required to complete a review of the selected remedies at least once every 5 years, in accordance with Section 121(c) of the CERCLA.

Land Use Control (LUC) Performance Objectives:

The common LUC performance objectives for SEADs 1, 2, and 5 are to:

- Prohibit access to, or use of, the groundwater until groundwater cleanup standards are achieved; and,
- Prohibit the use of the land within the AOCs for residential housing, elementary and secondary schools, childcare facilities, and playground activities.

At SEAD-5, the additional LUC performance objective is to:

- Prohibit unauthorized excavation or other activities that could compromise the integrity of the engineered cover.

SEADs 1, 2, and 5 represent a small portion of a larger tract of land located in the east-central portion of the former SEDA that comprises the Planned Industrial / Office Development and Warehousing (PID) Area that has been transferred to the Seneca County Industrial Development Agency (SCIDA), exclusive of any Army retained property. Based on an agreement reached between the Army, the EPA, and the NYSDEC, the entire PID Area, exclusive of Army retained property, is subject to equivalent LUCs (i.e., prohibit groundwater access/use; prohibit residential housing/elementary and secondary schools/childcare facilities/playgrounds) as are proposed for imposition at SEADs 1, 2, and 5. The referenced LUCs comprised the remedy selected in a 2004 ROD [*Final ROD for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas* (Parsons, 2004)] for SEADs 27, 64A, and 66, three other AOCs within the PID Area, due to levels of contaminants that were identified at those AOCs. At the time of the 2004 ROD, the Army, EPA, and NYSDEC agreed that these LUCs should be applied to all land within the greater PID Area, pending the provision and evaluation of new data for specific sites within the PID Area if a future owner or occupant wished to apply for a variance from the specified LUCs. The PID Area LUCs were implemented when the PID Area was transferred to the SCIDA by the Army, but they are not applied to the land comprising SEADs 1, 2, or 5, as these parcels were retained by the Army at the time of the greater PID Area's transfer, pending completion of necessary investigations and studies, the evaluation of potential remedial actions, and the selection of an approved remedy for SEADs 1, 2, and 5. The Army will ensure that the LUCs selected in this ROD will be maintained and enforced, until such time as the Army transfers these properties to other owners. The locations of SEADs 1, 2, and 5, and the land that is subject to institutional controls in the PID Area are shown in **Figure 1-1**.

The unauthorized excavation LUC for SEAD-5 will be implemented only at that location where the protective cover is established over SEAD-5 soils. The location where engineered cover is installed will be documented during the Remedial Design phase, and formally documented subsequent to the completion of the remedial action at this AOC.

The Army shall, through the on-site Commander's representative or other designated official, implement, maintain, inspect, report on, and enforce the remedy described in this ROD. This ROD selects as the remedy for SEAD-1, SEAD-2, and SEAD-5, LUCs (i.e., prohibit unauthorized excavations, SEAD-5 only; and groundwater access/use and land use limitations, SEAD-1, SEAD-2, and SEAD-5) to be imposed by an environmental easement at the time when land comprising SEAD-1, SEAD-2, or SEAD-5 is transferred from Army ownership to another party, as well as the prohibition of any pre-transfer use inconsistent with the LUCs. Although the Army may later transfer these responsibilities to another party, the Army shall retain ultimate responsibility for remedy integrity.

To implement the remedies selected in this Record of Decision, which will include the imposition of LUCs at SEAD-1, SEAD-2, and SEAD-5, a LUC Remedial Design will be prepared which will provide for the recording of an environmental easement which is consistent with Paragraphs (a) and (c) of the

New York State Environmental Conservation Law (ECL) Article 27, Section 1318: Institutional and Engineering Controls. In addition, the Army will prepare an environmental easement for SEAD-1, SEAD-2, and SEAD-5, consistent with Section 27-1318(b) and Article 71, Title 36 of ECL, in favor of the State of New York, which will be recorded at the time of the property's transfer from Federal ownership and which will require the owner and/or any person responsible for implementing the LUCs set forth in this ROD to periodically certify that such institutional controls are in place. The Army and the EPA will be named as third-party beneficiaries on the environmental easement. A schedule for completion of the draft SEAD-1, SEAD-2, and SEAD-5 LUC Remedial Design Plan (LUC RD) will be completed within 21 days of the ROD signature, consistent with Section 14.4 of the Federal Facilities Agreement (FFA). To implement the remedy prior to transfer, the Army, as the owner and operator of the property at SEAD-1, SEAD-2, and SEAD-5, will through the on-site Commander's representative or other designated official, ensure that the LUCs are implemented by monitoring the property at SEAD-1, SEAD-2, and SEAD 5 and restricting development or use on this property if inconsistent with the LUCs.

State Concurrence

NYSDEC forwarded a letter of concurrence to the EPA regarding the selection of the remedial actions. This letter of concurrence has been placed in **Appendix B**.

Declaration

The remedies selected in this ROD are, as required by CERCLA and the NCP, protective of human health and the environment; cost effective; compliant with applicable or relevant and appropriate requirements, criteria or limitations promulgated under federal or state laws (ARARs) unless waived; and, use permanent solutions, alternative treatment technologies, and resource recovery options to the maximum extent possible. CERCLA and the NCP also state a preference for treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

The remedies identified for SEADs 1, 2, and 5 will result in hazardous substances and pollutants or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure for an indeterminate period. A review of the AOCs and the selected remedies will be conducted within five years after the signing of this ROD to ensure that the remedy is, or will be, protective of human health and the environment, with consideration given to each AOC's continuing and planned future use.

The remedies identified for SEAD-24 and SEAD-48 do not result in hazardous substances and pollutants or contaminants remaining on-site. The selected remedies for SEAD-24 and SEAD-48 (NFA) are protective of human health and the environment, comply with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and are cost effective. The remedy uses permanent solutions. Insofar as contamination does not remain at these SWMUs at concentrations above levels that provide for unrestricted use and unlimited exposure, institutional controls and five-year reviews are not necessary.

The estimated cost associated with implementing, monitoring, assessing and reporting on the continued suitability of the actions selected for SEADs 1, 2, and 5 is $379,380 in total. There are no estimated costs for the implementation of remedies selected (i.e., NFA) for SEADs 24 and 48.

The foregoing represents the selection of a remedial action by the U.S. Department of the Army and the U.S. Environmental Protection Agency, with the concurrence of the New York State Department of Environmental Conservation.

Concur and recommend for immediate implementation:

Stephen M Absolom April 20, 2009

STEPHEN M. ABSOLOM
BRAC Environmental Coordinator

Date

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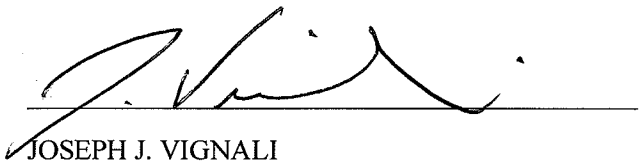
The foregoing represents the selection of a remedial action by the U.S. Department of the Army and the U.S. Environmental Protection Agency, with the concurrence of the New York State Department of Environmental Conservation.

Concur and recommend for immediate implementation:



21 Apr 09

JOSEPH J. VIGNALI
Chief, Consolidations Branch
BRAC Division

Date

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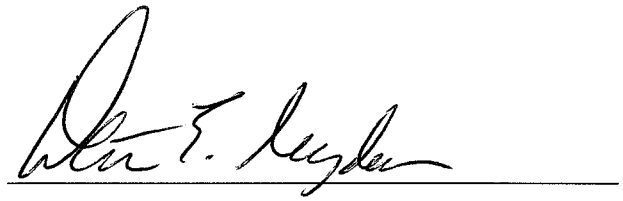

5/6/09

WALTER E. MUGDAN
Director, Emergency and Remedial Response Division
U.S. Environmental Protection Agency, Region II

Date

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2.0 SITE NAME, LOCATION AND DESCRIPTION

2.1 SEDA BACKGROUND

The Seneca Army Depot previously occupied approximately 10,600 acres of land in Seneca County in the Towns of Varick and Romulus, New York. The property was acquired by the United States Government in 1941, and was operated by the Department of the Army from that time until approximately September 2000 when the installation closed. Prior to the acquisition of the land and the construction of the Depot, the land was used for agriculture, farming, and residential purposes.

A location map for SEDA is provided as **Figure 2-1**. **Figure 2-1** also shows that SEDA is bordered by New York State Highway 96 on the east and New York State Highway 96A on the west. SEDA is located in an uplands area, which forms a divide that separates two of New York's Finger Lakes; Cayuga Lake on the east and Seneca Lake on the west. Ground surface elevations are generally higher along the eastern and southern borders of the Depot, and lower along the northern and western borders. The approximate elevation at the southeastern corner of the SEDA site is 740 feet (ft., National Geodetic Vertical Datum [NGVD] 1929), while the approximate elevation at the southwestern and northeastern corners is 650 ft. (NGVD, 1929). The approximate elevation at the southwestern corner of the Depot is 590 ft. (NGVD, 1929). Much of the land surrounding the Depot is sparsely populated farmland.

Figure 1-1 shows the location of the five SWMUs (SEADs 1, 2, 5, 24, and 48) that are discussed in this ROD, along with the documented future land use for the areas of the former Depot. SEADs 1, 2, and 5 are all located in the east-central portion of the former SEDA, within the greater Planned Industrial / Office Development and Warehousing (PID) Area where the planned future use of the land is commercial or industrial development. SEAD-24 is located in the west-central portion of the former Depot and is within land that is designated as Development Reserve; an Ethanol Plant is currently proposed for this site. SEAD-48 is located in the south-central portion of the former Depot in the area where the future land use is described as Training.

2.2 AOC DESCRIPTIONS

2.2.1 SEAD-1: Hazardous Waste Container Storage Facility

SEAD-1 (Building 307, the former Hazardous Waste Container Storage Facility) is located approximately 3,500 feet southwest of the Depot's main entrance off State Route 96. Building 307 was constructed in 1981 and it was used for temporary storage of containerized hazardous wastes prior to their shipment off-site for disposal. Hazardous wastes stored at SEAD-1 included spent solvents; still bottoms; sludge from oil/grease separations; cleaning compounds; paper filters; waste polychlorinated biphenyls; and, spent battery acids. Most wastes stored within the building were stored in 55-gallon drums, but 5-gallon pails were also occasionally used. The storage of hazardous waste in Building 307 was subject to regulations promulgated under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§6901-63992k.

Building 307 is 40 feet wide by 50 feet long, with rafters located approximately 10 feet above the floor, while the peak of the roof is 18 feet above the floor. The building's floor is a 6-inch thick, monolithic reinforced concrete slab, surrounded by an integral, 6-inch thick and high concrete curb. The floor and

containment curb are coated with chemical-resistant sealant and are level, except where a sloped access/egress ramp is located at the main entrance door (south side) of the structure. The floor and curb are surrounded by an exterior mounted, wooden-framed, pole barn structure, and the exterior walls and roof are constructed of zinc-coated, corrugated metal sheets. The building's roof is fabricated of single sheets of metal that extend from the roof's center ridge to a point beyond the exterior edge of the building's eastern and western walls. The eastern and western sheet metal walls begin 1 foot below the building's headers and continue to a point that is 6 inches below the top of the containment curb. The wall/roof and wall/containment curb air gaps provide passive ventilation for the building.

During Building 307's active life, the ground surrounding the building was kept clear of vegetation. Currently, the ground located immediately exterior to the building is a mixture of gravel and dirt, sparsely covered with native grass and weed vegetation. The gravel and dirt perimeter extends outwardly from the building for distances varying between 2 to 15 feet on all sides. Evidence of soil erosion is present along the exterior eastern and western sides of the building, where storm water run-off from the walls and the roof drops to the ground. Lesser erosion impacts are evident along the northern and southern faces of the building, which are perpendicular to the slope of the building's roof line. The soil and gravel located between the building's exterior walls and the erosion gullies are discolored. South of the building, the ground shows evidence of wear from vehicular and pedestrian traffic that enters/leaves the building.

On December 30, 1991, the Army submitted a RCRA Part A and Part B Permit Application for the Depot which included storage operations at Building 307. The Army's permit application was not processed or approved, and operations performed at Building 307 continued under Interim Status until September 2005 when NYSDEC accepted the Army's Closure Certificate for SEAD-1.

In April 1991, the Army reported a spill (Spill Number 9100990) inside Building 307 totaling approximately 45 gallons of material, which may have included PCB containing oil. The spill was contained within the building's monolithic concrete floor and curb, and it was cleaned up using a Speedi-Dri® adsorbent followed by a soap and water wash of the floor. Recovered adsorbent and liquids were containerized and disposed off-site as hazardous waste. The NYSDEC indicated that no further action was needed and closed the incident once the cleanup was completed.

2.2.2 SEAD-2: PCB Transformer Storage Facility

SEAD-2, Building 301, is located in the east-central portion of SEDA, roughly 6,000 feet west, southwest of the Depot's main entrance off of State Route 96. The building is located on the eastern side of Fayette Road, which separates the PID Area from the former munitions igloo storage area, which occupies the inner core of the former Depot.

Building 301 was originally constructed in 1942. It was upgraded in 1986 to meet hazardous waste storage requirements required by RCRA. Building 301 was used as a PCB Transformer Storage Facility beginning in 1980 and continuing until the Depot closed in 2000.

During its period of operations, Building 301 was used for the storage of materials associated with unserviceable transformers or other electrical equipment that were known, or suspected, to contain PCBs. Subsequent to their delivery to Building 301, the pieces were inspected, and if they were found to be

leaking, they were placed into an overpack drum and surrounded by absorbent material to prevent the spread of contaminants. Any spilled material from the equipment was captured via application of absorbent that was swept up, containerized in a drum or similar suitable receptacle, and sent to Building 307 (SEAD-1) for storage pending characterization and disposal.

Non-leaking units were placed on pallets and stored, pending subsequent sampling of the contained fluid for determination of the concentration of PCBs present. Units containing PCB fluids were stored in Building 301 pending their final disposal by the Army.

The exterior of Building 301 measures approximately 35 feet 4 inches long by 23 feet 4 inches wide. The structure is partially bounded on its east and west sides, and completely on its north side, by a raised concrete loading dock, and access ramp and stairway assembly. The ramp slopes from the loading dock to the ground surface along the building's west side, and a stairway provides pedestrian access to the loading dock partway along the east side of the building. The loading dock's and ramp's surfaces were previously coated with a gravel/asphalt mixture to improve traction; the coating was removed during decontamination operations performed as part of the RCRA Closure of this building. However, inspection of the vertical edge of the loading dock and ramp structure show numerous locations where the asphalt/gravel mix extended over the side and dripped onto the adjacent soil.

Building 301's roof is constructed of pre-cast concrete planks supported by steel trusses. The roof is pitched to promote precipitation runoff away from the loading dock, ramp, stairway and entrance doors. A gravel and tar coating covers the roof's concrete planks. Visual evidence exists and indicates that asphaltic roofing material dripped over the edge of the roof at the time it was applied.

Access into the building is gained through two, 8-foot by 8-foot overhead doors; one door is located on the north side, while the second is located on the east side of the building. When Building 301 was first constructed, it did not include secondary containment within the building. This design inadequacy was corrected in 1986 during the Building 301 Upgrade Program when ramps were installed outside both access doors, and inside the building on the north side. Additionally, a new 6-inch thick, monolithic concrete slab floor with an integral 6-inch curb was added to the building during the upgrade effort. Once the improvements were completed, the estimated secondary containment volume within Building 301 was approximately 2,500 gallons.

Hard-packed, fractured asphalt, gravel, and dirt parking areas are located adjacent to the northern, western, and southern faces of Building 301. Beyond the western parking area is Fayette Road, a major north-south running road adjacent to the Depot's former munitions storage area. The northern parking area extends a distance of approximately 35 to 50 feet, before being bordered by grass, and then trees and shrub vegetation. Sporadic weeds are seasonally evident in the northern parking area. Land immediately east of the building is gravel covered, and this open area immediately abuts north-south running railroad tracks underlain by railroad ties and ballast. One of these tracks is located close enough to the eastern edge of the Building 301 to allow it to be used for delivery and shipment of goods by rail. The land to the south of Building 301 is inconsistently vegetated with weeds and native grasses, but is generally open for a distance of approximately 35 to 50 feet before becoming wooded and shrub covered. The grass and weeds are emerging through a surface predominated by gravel and shale.

2.2.3 SEAD-5: Sewage Sludge Waste Piles

SEAD-5 is located in the east-central portion of SEDA, approximately 3,000 ft. west-southwest of the Depot's main entrance off State Route 96. SEAD-5 encompasses an area measuring approximately 150 ft. by 250 ft. in size. Between 1980 and roughly June 1992, sewage sludge from two Army wastewater treatment plants was stockpiled at this SWMU. The AOC previously contained five or six sewage sludge piles that ranged in height from 5 to 10 feet and that were covered with native grasses, weeds, and small scrub vegetation. This area was also used as a location where the Depot's Department of Public Works (DPW) type storage and staging area for heavy equipment, materials and supplies was located.

The northern boundary of SEAD-5 is defined by an east-west oriented, unnamed dirt road that runs from the intersection of South Avenue and Administration Avenue in the Depot's former administration area (east of SEAD-5) towards Building 311 and SEAD-16 (west of SEAD-5). A small wooded area is located to the west of the AOC in SEAD-59 and a grassy area is located to its south. Buildings 130 and 128 are located in the area north and northeast of SEAD-5, respectively.

The topography surrounding SEAD-5 suggests a planned man-made, variable terrain. An intermittent drainage ditch originates at the northwestern corner of SEAD-5 (south of the unnamed dirt road) and slopes to the west towards SEAD-59. This ditch intersects a second, larger drainage ditch running north-south along the western boundary of SEAD-59. South of the AOC, the local terrain remains flat and grassy, interrupted by an intermittent east-west trending drainage ditch located roughly 250 ft. south of the AOC. South of this drainage ditch, the area remains flat and grassy until it is interrupted by railroad tracks that provide access into the southern PID Area of the Depot.

2.2.4 SEAD-24: Abandoned Powder Burning Pit

The location occupied by SEAD-24 is in the west-central portion of SEDA, midway between North-South Baseline Road and West Patrol Road on the southern side of West Kendaia Road. The former Abandoned Powder Burning Pit encompassed an area measuring approximately 325 feet by 150 feet in size that was bound to the east, south and west by a U-shaped, earthen berm that was approximately 4 feet in height. Native grasses and weeds partially covered the top and sides of the berm.

The limit of the AOC was bound by West Kendaia Road to the north and by areas of open grassland and low brush to the east, south, and west. Railroad tracks are located approximately 400 feet east of the former location of the U-shaped berm. Kendaia Creek is located approximately 150 feet north of West Kendaia Road. Generally, the local topography slopes gently to the west; however, north of West Kendaia Road, the land slopes more steeply to the north-northwest and the creek.

SEAD-24 was active during the 1940s and 1950s. The Army reports that black powder[1], M10 and M16 solid propellants, and explosive trash were disposed by burning at this location. It is presumed that petroleum hydrocarbon fuel was used to initiate the burn.

[1] Gunpowder (also called black powder) is a pyrotechnic composition, an explosive mixture of sulfur, charcoal and potassium nitrate (also known as saltpetre or saltpeter) that burns rapidly, producing volumes of hot solids and gases which can be used as a propellant in firearms and fireworks. (Source: http://en.wikipedia.org/wiki/Gunpowder)

2.2.5 SEAD-48: Row E0800 Pitchblende Ore Storage Igloos

SEAD-48 consists of 11 ammunition storage bunkers (igloos) identified as Igloos E0801 though E0811, which are located in the southern part of the former Depot along the southern side of Igloo Road No. 39 (E0800 Row). SEAD-48 is bounded to the east by Fayette Road and to the west by Seneca Road. The land to the south of SEAD-48 is a mixture of wooded and open land that is largely unoccupied.

Each igloo is constructed of reinforced concrete that is shaped like a half-cylinder and measure 26.8 feet wide by 81 feet long by 13 feet high at their highest point. Each igloo's entry door opens outwards over a concrete entrance pad that then connects with an asphalt parking pad that merges with the access road (Igloo Road 39).

The eastern, southern, western and top sides of each igloo are covered with a minimum of 2 feet of soil, starting at a point immediately behind the northern reinforced wall. This soil covering is graded from the peak of the igloo off to the east, south and west. The top and three soil covered sides of each igloo are further covered with growths of native grasses and weeds, and small shrubs. The area surrounding the igloos is field grass.

Inside, each igloo has a vent located at the upper rear (i.e., southern) wall that discharges to the outside through a concrete stack protruding above the soil and vegetation that overlies the unit. Two drainage troughs that are integral components of the igloo's concrete floor traverse its entire north-south length along its eastern and western edges. The troughs discharge to outlets that are located in the northern face of the igloo near the northeastern and northwestern corners of the structure.

The following is a brief historical summary of events that occurred at SEAD-48:

- During the 1940s, 1,823 barrels of pitchblende, a uranium containing ore, were stored in the igloos for approximately three months.
- Upon the removal of the pitchblende, the igloos became a storage site for non-radioactive munitions through the late 1970s.
- Licensed radioactive commodities were stored in Igloos E0801 and E0802 until the late 1970s.

3.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

3.1 LAND USE

Prior to the acquisition of the land and construction of SEDA in 1941, the property was privately owned and was used principally as homesteads and for agriculture and farming. Between 1941 and 2000, SEDA was owned by the United States Government and operated by the Department of the Army. The Depot began its primary mission of receipt, maintenance, and supply of ammunition in 1943. After the end of World War II, the Depot's mission shifted from supply to storage, maintenance, and disposal of ammunition. SEDA was selected for closure by the Department of Defense (DoD) in 1995, and SEDA's military mission terminated in September 1999 and the installation was closed in September 2000.

To address employment and economic impacts associated with the SEDA's closure, the Seneca County Board of Supervisors established the Seneca Army Depot Local Redevelopment Authority (LRA) in October 1995. The primary responsibility assigned to the LRA was to prepare a plan for redevelopment of the SEDA property. Following a comprehensive planning process, a *Reuse Plan and Implementation Strategy for Seneca Army Depot* was completed and adopted by the LRA on October 8, 1996. The Seneca County Board of Supervisors subsequently approved this *Reuse Plan* on October 22, 1996. In 2005, after it had acquired portions of the former Depot from the Army, the SCIDA changed the planned use of land in many portions of the Depot. **Figure 1-1** depicts the intended future land uses for SEDA, as modified by the SCIDA, in 2005. The planned future land use within the greater PID Area, which encompasses SEAD-1, SEAD-2 and SEAD-5, remains unchanged, and calls for its use for Planned Industrial/Office Development or Warehousing.

Land within the Planned Industrial/Office-Development and Warehousing (PID) Area is subject to LUCs that prohibit the use of the land for residential housing, elementary and secondary schools, childcare facilities, and playgrounds, and that prohibit access to, and use of, groundwater. These LUCs were implemented on the PID Area via a separate Proposed Plan and ROD, which included ICs ["Final ROD for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas" (Parsons, 2004) signed on September 30, 2004]. The PID Area, exclusive of retained property, was transferred to the SCIDA in March 2008, and an environmental easement for this portion of the former Depot was recorded at the time of its transfer from the Army to the SCIDA. This ROD selects equivalent LUCs for SEAD-1, SEAD-2, and SEAD-5, as part of the remedial action.

The planned future use for land surrounding SEAD-24 and SEAD-48 was both initially (i.e., in 1995) designated by the LRA as Conservation/Recreational. These future uses were changed by the SCIDA in 2005 after it acquired land at the former Depot that surrounded these AOCs from the U.S. Government. The planned future use of over 1,500 acres that surrounds SEAD-24 is now defined as Development Reserve, and the area immediately surrounding SEAD-24 is a proposed location for a new facility the will produce ethanol from corn, willows, or other bio-feedstock. The current future use of more than 1,800 acres of land along the southwestern border of the former Depot, including SEAD-48, is Training. Specific forms of training include Homeland Security training, training for first responders, and special warfare training.

3.2 RESPONSE AND ENFORCEMENT HISTORY

On July 14, 1989, the EPA proposed SEDA for inclusion on the National Priorities List (NPL). 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 SEDA was listed on the NPL, the Army, EPA, and NYSDEC identified 57 SWMUs where historic data or information suggested, or evidence existed to support, that hazardous substances or hazardous wastes had been handled and may have been released to the environment. Each of these SWMUs was identified in the Federal Facilities Agreement (FFA) signed by the Army, EPA, and NYSDEC in 1993. The general purposes of the FFA were to:

- "Ensure that the environmental impacts associated with past and present activities at the Site are thoroughly investigated and that appropriate remedial action is taken as necessary to protect human health and the environment;
- Establish a procedural framework and schedule for developing, implementing and monitoring appropriate response actions at the Site in accordance with CERCLA, the NCP, Superfund guidance and policy, RCRA, RCRA guidance and policy and applicable State law; and
- Facilitate cooperation, exchange of information and participation of the Parties in such actions."[2]

The list of 57 SWMUs was subsequently expanded to include 72 SWMUs when the Army completed the *SWMU Classification Report* (Parsons, 1994), which was prepared as required by terms of the FFA.

The SEDA was a generator and a treatment, storage, and disposal facility (TSDF) for hazardous wastes and thus, subject to regulation under RCRA. Under RCRA's permit system, corrective action is required at all SWMUs, if necessary. Remedial goals are the same for CERCLA and RCRA; thus when the 72 SWMUs were classified in the *SWMU Classification Report* (Parsons, 1994), the Army recommended that they be listed either as No Action (NA) sites or Areas of Concern (AOCs). SWMUs listed as AOCs in the *SWMU Classification Report* (Parsons, 1994) were then scheduled for further investigations based upon data and their assessed potential risks to the environment.

When the *SWMU Classification Report* (Parsons, 1994) was issued, SEADs 1 and 2 were classified as "No Action" sites, while SEAD-5 was listed as a Medium Low Priority AOC, SEAD-24 was listed as a High Priority AOC, and SEAD-48 was a Moderate Priority AOC. Future action for SEADs 1 and 2 was required under RCRA however, because these facilities were specifically designated as temporary storage locations for hazardous and toxic materials in SEDA's Part B RCRA permit application. As a minimum, each RCRA storage unit must be "closed" in accordance with specific requirements identified in Title 40 CFR Part 264 or 265 (interim status).

When SEDA was designated for closure by the DoD as part of its 1995 BRAC process, the Army's emphasis expanded from expediting necessary investigations and remedial actions at prioritized AOCs to include the release of non-affected portions of the Depot to the surrounding community for their reuse for non-military purposes (i.e., industrial, municipal, and residential).

[2] Federal Facility Agreement under CERCLA Section 120 in the Matter of Seneca Army Depot, Romulus, New York, Docket Number: II-CERCLA-FFA-00202, Section 3, Page 4, January 1993.

Once all of the SWMUs were categorized, the Army implemented investigations at two of the SWMUs (SEADs 5 and 24) discussed in this ROD, and continued work that had been previously implemented at SEAD-48 to address residual levels of radioactivity that were present. RCRA-required post use site closure requirements for SEADs 1 and 2 were deferred until such time as their use for storage of hazardous and toxic materials was terminated.

Expanded Site Inspections (ESIs) were designed, implemented, and completed for SEADs 5 and 24 in 1993 - 1994. Subsequent to these initial investigations, interim removal actions were planned and performed to mitigate levels of contaminants that were found to be present in the soil at these AOCs. The removal actions for SEADs 5 and 24 were initiated in 2002/2003 and were completed in 2006.

The Army began radiological contaminant investigations at SEAD-48 in 1976, and during the next decade returned to the AOC to conduct decontamination and remediation activities, as well as periodic post activity inspections. In 1987, the Nuclear Regulatory Commission (NRC) conducted a follow-up inspection and released the AOC for unrestricted use. However, a subsequent radiological constituent investigation performed by the New York State Department of Health (NYSDOH) suggested that selected areas of SEAD-48 still contained elevated levels of radioactive contamination inside and exterior of some of the storage igloos. In response to this finding, the Army implemented and completed additional radioactive surveys and decontamination activities between 2003 and 2005. This work was performed in accordance with the Multi Agency Radiation Survey and Site Investigation Manual (MARSSIM), which is the EPA's NRC's and Department of the Energy's (DOE's) consensus document for planning, conducting, evaluating, and documenting environmental radiological surveys.

RCRA-required facility decontamination, confirmatory sampling and analysis, and closure certification operations for SEADs 1 and 2 were implemented in 2003 and completed in 2005.

The Army has prepared this ROD for SEADs 1, 2, 5, 24, and 48 to complete the CERCLA's environmental site closeout process required for these AOCs. Since SEDA's listing on the NPL in 1990, the Army has worked to develop and summarize information and data needed to support determinations relevant to whether remedial action is needed at each of the identified SWMUs to ensure that conditions there are protective of human health and the environment. These determinations comply with State and Federal requirements that are legally applicable or relevant and appropriate (ARARs) to the remedial action to the extent practical, and are cost effective. Data and information developed and evaluated by the Army for these AOCs are summarized in this ROD and are delineated in detail in Site Investigation, Remedial Investigation and Construction Completion Reports submitted for SEDA per requirements of the FFA listed in the Administrative Record provided as **Appendix A**. This ROD is submitted to fulfill the requirements of the FFA for the Seneca Army Depot Activity.

4.0 COMMUNITY PARTICIPATION

The Army, EPA, and NYSDEC rely on public input to ensure that community concerns are considered during the selection of an effective remedy for each SWMU and AOC. To this end, the Completion Reports [e.g., Remedial Investigation/Feasibility Study (RI/FS), ESI report, Removal Action reports, Final Status Survey report, etc.], the Proposed Plan and associated supporting documentation were made available for review during a public comment period, which began on September 9, 2008 and concluded on October 9, 2008. Copies of the Completion Reports, the Proposed Plan, the ROD, and supporting documentation are available at the following repository:

Seneca Army Depot Activity
Building 123
5786 State Route 96
Romulus, NY 14541
(607) 869-1309
Hours are Mon-Thurs 8:30 am to 4:30 pm

A public meeting was held during the public comment period at the Seneca County Office Building on September 16, 2008 at 7:00 p.m. During the public meeting, the Army provided a presentation of the findings and conclusions of the site investigations and interim remedial actions performed. Further, the Army elaborated on its reasons for selecting the recommended remedial action for each of the AOCs listed. Finally, the public meeting provided the community the opportunity to ask questions and seek additional information. No formal comments were received during the public meeting. One written comment was received via email during the comment period and is presented in the Public Comments and Responsiveness Summary Section of the ROD, **Appendix C**.

After SEDA was identified as a 1995 BRAC facility, the LRA was assigned the responsibility for the preparation of a plan for the redevelopment of the Depot. During the LRA's preparation of the redevelopment plan for the Depot, they received monthly presentations updating the status of work and presenting findings of ongoing actions and investigations. In addition, the SEDA Restoration Advisory Board (RAB) was established to facilitate the exchange of information between the Army, SEDA, and the community. RAB members include the representatives from the Army, EPA, NYSDEC, NYSDOH, and the community. After a comprehensive planning process, a *Reuse Plan and Implementation Strategy for Seneca Army Depot* was completed and adopted by the LRA on October 8, 1996. The Reuse Plan was subsequently approved by the Seneca County Board of Supervisors on October 22, 1996.

Some of the planned uses for portions of the SEDA have been modified by the SCIDA since 1996. The identified use for the land including SEADs 1, 2, and 5 remains unchanged, and is Planned Industrial / Office Development and Warehousing. The identified use for the areas of SEAD-24 and SEAD-48 were originally identified as Conservation and Recreation. The future use of the area including SEAD-24 is now defined as Development. The future use of the area including SEAD-48 is Training, and includes future use as a location for Homeland Security training, training of first responders, and special warfare training. Refer to **Figure 1-1** for additional land use information for SEDA.

5.0 SCOPE AND ROLE

The Army's ultimate goal for SEDA is to transfer the entire site to other private or public parties for beneficial reuse. Prior to the transfer of any property at the Depot, the Army is required to ensure that the property is suitable for release and reuse at a level that is consistent with its foreseeable intended future use. If information or evidence exists to indicate that hazardous substances may be present at any location slated for transfer, the Army is obligated to conduct investigations needed to verify the presence/absence of hazardous substances, and assess the potential risks that may exist due to the presence of hazardous substances at the site. These investigations and assessments are conducted under the oversight of, and are subject to the review and approval of, the EPA and the NYSDEC. The findings, results, and the conclusions of the investigations and assessments, and the subsequent land use decisions that are made based on the Army's investigations and assessments are also made available to the public for review and comment.

If the results and conclusions of the investigations and assessments of property at the SEDA indicate that unacceptable risks to human health or the environment exist due to the continuing presence of hazardous substances, the Army is obligated to propose, design, implement, monitor, inspect, and report on the remedial actions used to eliminate, mitigate, or control the threat. The remedial actions are also subject to review and approval by all parties.

Historically SEADs 1, 2, and 5 were used as temporary storage facilities for solid waste (e.g., sewage sludge), hazardous waste (e.g., solvents) or toxic (e.g., polychlorinated biphenyl) materials prior to off-site disposal or recycle. SEAD-5 was also the location of the Army's equivalent of a DPW supply and staging area and equipment storage yard. The planned future use for land including that is occupied by, and surrounding SEADs 1, 2, and 5 is Planned Industrial/Office Development or Warehousing, where commercial and industrial future uses, but not residential activities, are allowed.

SEAD-24 was previously used for destruction of black powder, solid propellants and explosive contaminated trash. The planned future use for land surrounding and encompassing SEAD-24 is Development Reserve. Land surrounding, but not including, SEAD-24 was recently deleted from the SEDA Superfund site to encourage the Development Reserve reuse option.

The SEAD-48 igloos were once used for the storage of pitchblende ore as part of the Manhattan Project[3], and later these igloos were used for conventional ammunition storage. The planned future use of this area is Training (Homeland Security, first responder training, and special warfare training).

RCRA Closures were implemented and completed for Building 307 (SEAD-1) and 301 (SEAD-2). The NYSDEC approved the RCRA Closure of the two buildings in September of 2005, and indicated that the existing buildings should only be used for industrial operations in the future. However, the NYSDEC deferred comment or determination on the acceptability of the exterior soils at both of the buildings to the CERCLA program. Information and data exist that indicates that hazardous constituents are present in the soil at SEAD-1 (Hazardous Waste Container Storage Facility) and SEAD-2 (PCB Transformer

[3] "The Manhattan Project was the project to develop the first nuclear weapon (atomic bomb) during World War II by the United States, the United Kingdom, and Canada." Source: http://en.wikipedia.org/wiki/Manhattan_Project

Storage Facility) at levels that exceed guidance values and thus, may pose elevated risks to selected future populations (e.g., future residents), that could use the land. However, these sites are located in areas where the planned future land use is defined as commercial and industrial, and potential future hazards or risks identified at both of these AOCs are either suitable for the defined use, or associated with compounds that are considered to be naturally occurring.

The historic sewage sludge waste piles have been removed from SEAD-5, and disposed at off-site landfills, in accordance with prevailing environmental requirements. A TCRA was performed at SEAD-5 between 2003 and 2006 to address hazardous substance contamination that remained in soil underlying and surrounding the location of the historic sludge piles. Data from the SEAD-5 (former Sewage Sludge Waste Storage Piles) TCRA indicates that hazardous substances and constituents are present at levels that are in excess of State and Federal soil guidance values, and at levels that pose potential risks to future users or occupants of the land. The elevated risks are largely driven by concentrations of a single hazardous substance that is found at a few isolated, non-contiguous locations within the soil at the AOC, and which may be associated with asphalt pieces that have become intermixed with the soil at the AOC due to its historic use as a DPW-type storage and staging area.

Given the above information, remedies selected for SEADs 1, 2, and 5 should limit future receptor exposures to identified hazardous substances to levels that are consistent with the planned use of the land or to levels that are consistent with background levels. Therefore, the Army and EPA have determined that LUCs are needed to minimize any potential future health and environmental impacts at these three AOCs.

Specific LUCs that have been selected for establishment at SEADs 1, 2, and 5 are summarized below:

- Prohibit access to and use of groundwater until groundwater standards are achieved; and
- Prohibit the use of land for residential housing, elementary and secondary schools, childcare facilities and playgrounds activities.

Furthermore, an additional action and an additional LUC were selected for SEAD-5 where elevated concentrations of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) are present in the soil at levels that pose potential risks to future industrial workers. The action involves the spreading and grading of SEAD-59 and SEAD-71 stockpiled soils over locations where elevated levels of cPAHs have been found in the soil at SEAD-5, delineation of where stockpiled soil has been placed over cPAH contaminated soil by applying a layer of demarcation fabric (e.g., colored “snow” or “safety” fence) over the stockpile soil, and then the construction of a 12-inch thick cover of approved fill above the interred soil, the stockpile soil cover, and the demarcation fabric using backfill that meets New York’s Commercial Use SCOs. As the cover is created, it will be leveled and graded to promote positive drainage from the site. Once the cover is constructed, the LUC identified below shall be implemented, monitored, and maintained, over locations where contaminated soil is interred.

- Prohibits unauthorized excavations or activities that are likely to disturb the demarcation fabric and the cover overlying soils that contain hazardous substances.

The former Abandoned Powder Burning Pit was eliminated during the TCRA that was performed at the SEAD-24 AOC between 2003 and 2006, and all soil comprising the "U-shaped" berm, and additional soil underlying and surrounding the former berm structure were disposed at off-site landfills. Available information and data from the SEAD-24 (Abandoned Powder Burn Pit) TCRA indicates that there are residual levels of hazardous substances, limited primarily to metals that are consistent with background concentrations that are still present in the area of this former AOC. A further assessment of the available data indicates that the residual levels of metals found at the AOC do not pose an unacceptable level of risk to potential human receptors, including future residents, and therefore, no further action is required or proposed at this former SWMU.

Results of the Final Status Survey, designed and performed in accordance with MARSSIM procedures and requirements, and using a 10 milli-rem per year (mrem/yr) limit, which is the lowest of three recommended Total Effective Dose Equivalent (TEDE) recommended by the NRC, the EPA, and the NYSDEC, indicate that the interior and exterior of the Row E0800 Pitchblende Ore Storage Igloos (SEAD-48) are compliant with residual radiological release criteria and are acceptable for unrestricted use and release. Based on this finding, no further action is considered necessary at this former SWMU

Data and information supporting the remedies selected for each of the five former SWMUs are documented and discussed in the following sections (**Sections 6** through **10**). The remedies and LUCs selected for each of the former SWMUs (i.e., SEADs 1, 2, 5, 24, and 48), are detailed more fully, in **Section 11**.

6.0 SITE CHARACTERISTICS

This section provides a summary of site investigations and interim actions that have been conducted at SEADs 1, 2, 5, 24, and 48. Risk assessment summaries pertinent to specific SWMUs are presented separately in **Section 7** of this ROD.

6.1 SEAD-1: BUILDING 307, HAZARDOUS WASTE CONTAINER STORAGE FACILITY

RCRA Closure

All interior floor and wall surfaces and the entrance ramp to Building 307 were decontaminated during April 2003. Decontaminated surfaces were high-pressure washed with a detergent and water solution and then tripled rinsed with clean water. Residual waste solutions from each step were recovered and containerized, subjected to chemical analysis, and disposed off-site.

Once the surfaces were cleaned, randomly selected locations on the floor and walls were sampled for Target Compound List (TCL) Volatile Organic Compounds (VOC), Semi-Volatile Organic Compounds (SVOC), Polychlorinated Biphenyls (PCBs) and heavy metals to verify the efficacy of the decontamination process. Samples collected from Building 307's floor surfaces were analyzed for VOC, SVOC, PCB and metal constituents. Samples collected from interior walls of the building were only analyzed for PCBs.

Floor decontamination verification samples collected for VOC, SVOC and metal constituents were comprised of a known volume of reagent-grade water that was poured into a four sided containment device, where it was allowed to contact the "cleaned" floor surface for a period of 10 - 15 minutes. The water was then recovered and placed in sample jars, for transport to, and analysis in, the contract laboratory. Results obtained from the floor decontamination process verification samples were compared to New York State GA Groundwater Standard concentrations to determine whether the surfaces had been sufficiently cleaned.

Samples collected for PCB determinations were collected as wipe or "swipe" samples. In this case, a hexane wetted, piece of cotton gauze was used to wipe an area of known size (e.g., 100 square centimeters, or roughly 4 inches by 4 inches), in two directions (e.g., right to left, and then top to bottom) before it was placed into a clean, inert vial that was then sealed and shipped to the laboratory for extraction and analysis for PCBs. PCB wipe sample results were compared to a set limit of 10 micrograms (μg).

In addition, 12 soil samples from 11 locations immediately exterior of the building were collected and analyzed for VOCs, SVOCs, PCBs, and metals.

Building Decontamination Verification Samples

A summary of the building decontamination process verification samples is provided in **Table 6-1**; this table provides summary information for only those compounds that were detected one or more times in the rinseate samples characterized. The full dataset for building decontamination rinseate samples is provided in **Appendix D Table 1** (rinseate samples) and **Table 2** (PCB wipe samples).

PCBs were not detected in any of the wipe samples collected and analyzed. Forty-three (43) compounds were detected in rinseate samples; however, only seven compounds (i.e., toluene, bis2-ethylhexyl phthalate, pentachlorophenol, arsenic, cadmium, iron and lead) were identified at concentrations that exceeded their

NYSDEC GA Groundwater comparative value. Iron and lead were the two compounds detected most frequently at concentrations above their reference values, and at the highest overall concentrations in the rinseate samples.

Subsequent to its review of the draft Closure Report for SEADs 1 and 2, the NYSDEC issued the following comment about the decontamination of Building 307 (SEAD-1) and 301 (SEAD-2).

> "Additional decontamination is needed for the inside of both buildings because the lead levels exceeded the standard in most samples."[4]

The Army subsequently determined that the elevated levels of lead were associated with lead-base paint that had been applied to the doorway surfaces at SEAD-1 and which was aged and flaking. Prior to performing the second round of decontamination, the painted entry doors were encased in plastic or removed to insure that flaking paint did not bias the decontamination results. All surfaces were then HEPA vacuumed to collect settled dust and debris and then the surfaces were high-pressure washed with a detergent and water solution and then tripled rinsed with clean water. Residual waste solutions from each step were recovered and containerized, analyzed, and shipped off-site for disposal.

Confirmatory sampling for lead only was then performed at 17 randomly selected locations on the floor surface, and the results of the analysis are summarized in **Table 6-2**. These results were then used to substantiate the Army's closure certification for Building 307, Hazardous Waste Container Storage Facility that was issued in a letter dated September 28, 2005. The NYSDEC approved the Closure Certification prepared for Building 307 on September 29, 2005 in a letter:

> "The authority to operate these buildings for the management of hazardous waste under Part 373 is hereby terminated. These buildings are now closed under Part 373."[5]

Exterior Soil Samples

Twelve soil samples were collected from locations exterior of Building 307 and analyzed for VOC, SVOC, PCB, and metal contaminants. Exterior soil samples were originally compared to NYSDEC's Technical and Administrative Guidance Memorandum #4046 (TAGM #4046) soil cleanup levels and EPA Region IX Preliminary Remediation Goals PRGs. Individual soil sample results were subsequently compared New York's Remedial Program SCOs, Title 6 New York Code of Rules and Regulations (6 NYCRR) Subpart 375-6.8 and to the EPA 2008 Regional Screening Levels (RSLs) for Industrial Soil. NYSDEC requires that soil sample results be compared to Unrestricted Use SCOs as a baseline measure, and allows consideration of other restricted SCO levels (residential, restricted residential, commercial, and industrial) based on foreseeable future land use. The Army compared the results of SEAD-1 soil samples to New York's SCOs defined for Unrestricted, Commercial, and Industrial Use.

[4] Letter received from James W. Dolen, Jr. of NYSDEC's Division of Solid and Hazardous Materials to Mr. Steven Absolom of SEDA dated October 2, 2003.
[5] Letter received from James W. Dolen, Jr. of NYSDEC's Division of Solid and Hazardous Materials to Mr. Steven Absolom of SEDA dated September 29, 2005.

The recommended (e.g., 95th) upper confidence limit of the sample population's mean (e.g., 95th UCL[6]) was also compared to the identified reference values for each compound having individual sample results above the identified soil SCOs, PRGs, or RSLs. A complete set of the analytical results obtained are provided in **Appendix D Table 3**. Summary soil sample results are presented in **Table 6-3** for compounds detected at SEAD-1 versus the various comparative SCO and RSL guidance values.

Review of **Table 6-3** indicates that 66 chemicals were detected in one or more of the individual soil samples characterized at SEAD-1. Two of the identified analytes were found at levels in individual samples that surpassed EPA's Industrial Soil RSLs; seven analytes were found in individual samples at concentrations in excess of NYSDEC's Unrestricted Use SCOs, and one analyte was found in individual samples at a concentration that exceeded both NYSDEC's Commercial and Industrial Use SCOs. Analysis of the summary data also indicates that the 95th UCL computed for two compounds surpassed EPA's Industrial Soil RSL values; three compound's 95th UCL exceeded their state Unrestricted Use SCOs; while no compound's 95th UCL value exceeded their respective Commercial or Industrial Use SCO levels.

In the NYSDEC's approval letter for the Closure Certification prepared for Building 307, Mr. James Dolen, Jr. wrote:

> "Although these buildings are now considered closed under Part 373, both buildings exhibit some levels of contamination both inside and outside of the buildings,… The contamination is unrelated to their use under Part 373. These buildings should be restricted to industrial-type usage. In our September 28, 2005 conversation you stated that these buildings are in the area designated with an industrial land use restriction in the ROD, and that any future use would be legally limited so as to not allow residential, child care, schools, and similar usage."[7]

6.2 SEAD-2: PCB TRANSFORMER STORAGE FACILITY

Building Upgrade

In 1986, Building 301 was upgraded to comply with hazardous waste storage requirements. As part of this work, surface soil samples were collected from each of the exterior corners of the building and analyzed to determine total PCB content. The results of this sampling showed that each of the four samples contained less than 1 part per million (ppm) of total PCB content.

RCRA Closure

The initial decontamination of Building 301 (SEAD-2) was performed sequentially with, and in an equivalent manner to, the decontamination of SEAD-1, which is described above. Similarly, decontamination process and exterior soil samples were also collected at the same time and evaluated in a similar manner. However, due to the presence of the asphalt and gravel traction enhancing coating that was present on the loading dock/ramp/stairway portion of Building 301 at the time of the initial closure work,

[6] A statistical value computed for a specific set of data that represents the upper value, based on a specified percent confidence level (e.g., 95th percentile), of the data sets true mean (average). For the 95th UCL, there is a five percent chance or less that the average from all samples from the data set will be higher than this value. Comparably, if the 99th UCL is used, there is a one percent chance or less that the average from all samples from the data set will be higher than this value. ProUCL version software is used to determine the recommended UCL value for each data set.

[7] Letter received from James W. Dolen, Jr. of NYSDEC's Division of Solid and Hazardous Materials to Mr. Steven Absolom of SEDA dated September 29, 2005.

samples collected for PCB analysis from these areas were collected as chip samples instead of wipe sample. The asphalt and gravel traction aid tore the wipes when sampling on the rough surface was attempted, and resulted in sample loss. The wipe samples were replaced by the collection and analysis of the asphalt/gravel coating that was chipped off the loading platform, containerized, and sent directly to the laboratory for analysis of PCB content. PCB samples collected from the floor and walls inside Building 301 were collected as wipe samples.

Building Decontamination Verification Samples

Fifty-two (52) contaminants were found in the building decontamination verification samples collected. PCBs were not detected in any of the wipe samples collected inside Building 301, but aroclor 1254 was detected in one of the seven chip samples collected from the loading dock. Only seven compounds [1,1'-biphenyl, 3- or 4-mthylphenol, benzo(a)pyrene, bis(2-ethylhexyl)phthalate, cadmium, iron, and lead] were identified at any concentration that exceeded defined comparative values. **Appendix D Tables 4**, **5,** and **6** present the full decontamination verification sample dataset's collected SEAD-2; **Table 6-4** present summary results for compounds detected after the building decontamination process.

As is discussed above in Section 6.1, the post-decontamination results obtained for the building's surfaces indicated elevated levels of lead were present. The source of the residual lead was subsequently tied to lead paint that was applied to entry doors. A second round of decontamination was performed and confirmatory sampling and analysis was repeated. The confirmatory sampling and analysis was performed for 15 randomly selected locations on the floor surface, and the results of the analysis are shown in **Table 6-5**. These results were then used to substantiate the Army's closure certification for Building 307, Hazardous Waste Container Storage Facility that was issued in a letter dated September 28, 2005.

The NYSDEC approved the Closure Certification prepared for Building 307 on September 29, 2005 in a letter:

> "The authority to operate these buildings for the management of hazardous waste under Part 373 is hereby terminated. These buildings are now closed under Part 373."[8]

Exterior Soil Samples

Twelve samples of soil located outside of Building 301 were also collected and analyzed for hazardous substances and other contaminants as part of the original decontamination work sequence at SEAD-2. A complete set of the analytical results obtained are provided in **Appendix D Table 7**. Summary data, including sit maximum and 95th UCL concentrations for individual compounds detected, varying SCO values (i.e., state Unrestricted, Commercial and Industrial; EPA's 2008 Industrial Soil RSLs), and information regarding whether any individual sample's concentration or the dataset's 95th UCL value exceeded one of the comparative soil cleanup objectives are presented in **Table 6-6**.

Review of the detailed soil sample results for SEAD-2 indicates that 64 chemicals were detected in one or more of the individual soil samples characterized. Of the detected compounds, 20 were found in individual

[8] Letter received from James W. Dolen, Jr. of NYSDEC's Division of Solid and Hazardous Materials to Mr. Steven Absolom of SEDA dated September 29, 2005.

samples at concentrations that exceeded New York's Unrestricted Use SCO values, eight were observed in individual samples at concentrations that surpassed New York's Commercial Use SCO values, six were observed in individual samples at concentrations above EPA's Industrial Soil RSL values; and six were found in individual samples at concentrations that exceeded New York's Industrial Use SCO values. However, comparisons between 95th UCL concentrations and their SCO values indicated that only three compounds were found at concentrations above New York's Unrestricted Use SCOs, while two compounds were found at a 95th UCL concentration in excess of its respective EPA's Industrial Soil RSL value. None of the compound's 95th UCL concentrations exceeded New York's Commercial or Industrial Use SCO values.

In the NYSDEC's approval letter for the Closure Certification prepared for Building 307 Mr. James Dolen, Jr. further wrote:

> "Although these buildings are now considered closed under Part 373, both buildings exhibit some levels of contamination both inside and outside of the buildings,… The contamination is unrelated to their use under Part 373. These buildings should be restricted to industrial-type usage. In our September 28, 2005 conversation you stated that these buildings are in the area designated with an industrial land use restriction in the ROD, and that any future use would be legally limited so as to not allow residential, child care, schools, and similar usage."[9]

6.3 SEAD-5: SEWAGE SLUDGE WASTE PILES

Site investigations and removal actions performed at SEAD-5 included sludge sampling and analysis in 1985, sludge characterization and removal in 1992, an ESI performed in 1994, and a TCRA conducted between 2003 and 2006. The findings and/or results of the investigations and actions are summarized and presented below.

Sludge Characterization – 1985

Samples of the sewage sludge were collected by the State of New York in February of 1985, and separately by the Army in October, November and December of 1985. The State analyzed the sludge samples for selected metals, classical parameters (i.e., ammonia – nitrogen, nitrate – nitrogen, nitrite – nitrogen, total and volatile solids, total Kjeldahl nitrogen, total phosphorous), PCBs, and extractable volatile and total organic halogens. The Army's analyses were limited to percent solids, total organic halogens, and copper. Both the Army's and the State's data indicated that elevated concentrations of copper were present in the sewage sludge. None of the data from the sludge characterization are presented as the sewage sludge characterized was subsequently removed from the AOC and disposed off-site.

Sludge Characterization and Removal – 1992

Samples were taken from the sewage sludge piles again in January 1992. TCLP analyses for metals, organic extractable pesticides, VOCs, and organic extractable base neutrals and acids were performed on the two samples. Cadmium was the only constituent detected in either of the samples at concentrations above

[9] Letter received from James W. Dolen, Jr. of NYSDEC's Division of Solid and Hazardous Materials to Mr. Steven Absolom of SEDA dated September 29, 2005.

the analytical detection limits. In June of 1992, approximately 560 tons of sewage sludge from SEAD-5 was removed and disposed at an off-site landfill.

Expanded Site Inspection - 1994

Test pits were advanced through five sewage sludge piles in 1994. In each case, the test pit bisected the entire pile allowing for a complete visual inspection of the material contained. One soil/sludge sample was collected from each test pit. Three groundwater monitoring wells were installed at the AOC and groundwater samples were collected from each well. All soil/sludge and groundwater samples were submitted for VOC, SVOC, pesticides/PCBs, metals, cyanide, and nitrate analyses.

VOCs were not detected in the soil/sludge samples characterized. Six cPAHs [i.e., benzo(a)anthracene, chrysene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k) fluoranthene, and dibenz(a,h)anthracene] were detected at concentrations above their respective TAGM #4046 values in one or more of the samples analyzed. Concentrations of 4-chloroaniline and several inorganic compounds (antimony, calcium, copper, lead, magnesium, mercury, silver, sodium, zinc, and cyanide) exceeded their respective TAGM #4046 values in at least one sample. The Army subsequently excavated the sludge piles and disposed of the material at an off-site landfill. Since the sludge piles were removed from SEAD-5, analytical results from the ESI soil/sludge samples are not presented in this document.

No VOCs, SVOCs, or pesticides/PCBs were detected in the ESI groundwater samples. Eighteen metals were detected in the groundwater samples. Iron, manganese, and sodium were the only metals detected in groundwater at concentrations above their respective State GA groundwater standards. The maximum concentrations found for 15 of the metals were observed in the sample collected from MW5-3, but these are believed to be associated with the elevated turbidity level (greater than 100 NTUs) observed in this sample.

Time Critical Removal Action – 2003 to 2006

The goal of the SEAD-5 TCRA was to reduce residual soil concentrations of selected metals (e.g., copper, mercury, and zinc) and the level of cPAHs [determined as benzo(a)pyrene toxicity equivalent (BTE)[10] level] at the AOC. The cleanup goals established for the TCRA were that the average concentrations reported for metals would approach TAGM #4046 values, and the average level of cPAHs would achieve a BTE level of 10,000 μg/Kg or less. During the performance of the TCRA, Weston Solutions Inc. (Weston®) excavated approximately 1,740 yd^3 (i.e., 2,313 tons) of soil during three successive work phases conducted between August 2003 and May 2005. The second and third phases of the work were performed after review of confirmatory sampling results indicated that soil contamination remained at the AOC. All of the excavated material was disposed at licensed off-site landfills as non-hazardous soil.

During the Phase I work (August 2003), approximately 900 yd^3 of soil were excavated from SEAD-5. The extent of the Phase I work was directed towards five subareas within the bounds of SEAD-5 where visual indicators of the historic staging of sewage sludge piles existed. The excavations completed in each subarea

[10] The Benzo(a)pyrene Toxicity Equivalent (BTE) was a screening tool previously recommended by the NYSDEC and NYSDOH as a screening tool that was applied to PAH concentrations at sites. A value of 10 mg/Kg (ppm) of BTE was established by the Army as a SEAD 5 clean up goal prior to the TCRA. BTE is computed by summing the concentrations of benzo(a)pyrene and dibenzo(a,h)anthracene at full value; the concentrations of benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene at one-tenth (0.1 times) their reported value; and, benzo(k)fluoranthene and chrysene at one-one hundredth (0.01 times) their reported value.

were initially limited to a depth of 6 inches, with a depth tolerance of plus or minus (+/-) 2 inches. Confirmatory grab samples were collected from the base and perimeter of the excavations and analyzed for 17 PAHs including the seven cPAHs, the eight RCRA metals (i.e., arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), and copper and zinc.

The results of the Phase I confirmatory sampling were compared to TAGM #4046 levels and indicated that site-wide average concentrations measured for benz(a)anthracene, chrysene, benzo(a)pyrene, dibenzo(a,h)anthracene, copper, mercury, silver and zinc surpassed their respective TAGM #4046 values. Based on the initial findings, additional soil samples were collected in October 2003 outside of the areas excavated to further delineate where additional soil removal was needed to address the contaminants identified in the soil at the AOC.

Weston® remobilized crews to the AOC in February 2005, and expanded the Phase I excavations both on a vertical (depth) and lateral basis. During the Phase II work, the average excavation depth at selected locations was limited to 12 inches +/- 2 inches. Approximately 640 yd^3 (i.e., 898 tons) of soil was excavated and transported off-site for disposal as non-hazardous soil at a licensed landfill during Phase II. Grab confirmatory samples were again collected from the perimeter and base of the new excavations and the samples were analyzed for the 17 PAHs and 10 metals.

Phase II confirmatory sample results indicated that cPAH compounds were still present in individual samples at concentrations above their respective TAGM #4046 levels, but that the average BTE concentration computed for the AOC was below 2 ppm. Based on these results, the Army concluded that the cleanup of cPAHs had been achieved. However, the results of Phase II confirmation samples indicated that mercury was still present in individual samples at concentrations above its SCO. Further the average concentration measured for mercury and copper across the AOC still exceeded their respective cleanup objectives. Based on these results, additional excavations were again scheduled and performed.

During the Phase III excavations approximately 200 yd^3 (i.e., 324 tons) of soil was removed from SEAD-5 and disposed at an off-site landfill as non-hazardous material. Results of the Phase III confirmatory sampling indicated that there were still individual samples where measured concentrations of some PAH compounds, BTE, and selected metals exceeded desired SCOs, the AOC-wide average values for BTE, copper, mercury, and zinc were below the cleanup goals. These results were based on the analysis of 82 samples that were representative of the soil that was present in the area of the TCRA excavations.

During the review of the final confirmation data, the Army noted that three of the highest levels of mercury were located near or at the southern boundary of the largest excavated area, adjacent to locations of two of the highest levels of BTE measured. Based on this determination, the Army collected and analyzed an additional 84 soil samples to the south and southeast of the largest excavation area during two separate sampling events in July and October 2005. During the July event, 22 samples were collected from seven sampling locations that were space at 30 foot intervals along lines that were placed roughly 20 ft. beyond the edge of two of the areas excavated previously. These samples included surface (i.e., 0-6 inches bgs) and near surface samples (i.e., 6-18 inches bgs). After evaluation of the data from these samples, the Army conducted another round of delineation sampling during which 62 additional samples from 23 locations were collected along five additional cascading lines spaced at 20 foot intervals from prior lines, with 30 feet

of spacing between each sample location. Samples collected during this round of sampling included surface soil samples and near surface samples extending to depths up to 24 inches bgs. The results of these additional samples indicated that the overall average concentration found for BTE, copper, mercury and zinc downgradient of the excavation area were still below the TCRA cleanup goals. Based on these findings, the Army terminated the TCRA. The results of the final SEAD-5 confirmatory and delineation samples are presented in **Appendix D Tables 8a** and **8b**, respectively.

Prior to the preparation of this ROD, confirmation and delineation soil sample results were compared to New York's Part 375 Unrestricted, and Restricted Commercial and Industrial SCOs. In addition, the available soil data were also compared to EPA 2008 RSLs for Industrial Soils, and the results of each of these comparisons are summarized in **Table 6-7**.

These data indicate that there are seven cPAHs and two metals that exceed RSLs for Industrial Soil, and of these nine hazardous substances, the 95th UCL concentrations for five of the cPAH compounds and one metal are above the EPA's RSL value. The data also indicate that 15 PAHs and eight metals exceed State's Part 375 Unrestricted Use SCO concentrations in one or more of the confirmatory and delineation samples evaluated. The data also show that 10 PAHs and three metals are observed at concentrations that exceed State Commercial Use SCOs. Five of the computed 95th UCL concentrations for the PAHs also exceed their respective Commercial Use SCOs. Seven PAHs and one metal were observed in individual samples at concentrations surpassing State Industrial Use SCOs. The 95th UCL computed for four of the PAHs are higher than their respective Industrial Use SCO values.

Surface and near surface soils found in two other nearby historic SWMUs (i.e., SEAD-59 and SEAD-71) also showed evidence of somewhat elevated cPAH concentrations. However, concentrations of cPAHs found in soils at SEAD-59 and SEAD-71 were generally lower than those reported for SEAD-5, and the elevated levels shown in SEAD-5 may be associated with this areas use for sewage sludge storage, and its use as a DPQW-like storage and maintenance yard.

6.4 SEAD-24: ABANDONED POWDER BURNING PIT

The investigative work at SEAD-24 included an ESI performed between 1993 and 1994, and a TCRA conducted between 2002 and 2006. The results of the investigations are summarized and presented below.

Expanded Site Inspection – 1993 – 1994

The ESI included performance of seismic refraction, ground penetrating radar (GPR) and electromagnetic (EM-31) surveys to locate potential pits and buried ordnance within the AOC and characterize the extent of disturbed soil at the AOC. Additionally, five soil borings were advanced and three soil samples were collected from each boring and analyzed. Furthermore, surface soil samples [0 – 2 inches below ground surface (bgs)] were collected from 12 locations surrounding the abandoned pit. Finally, three monitoring wells were installed in the till/weathered shale aquifer to obtain groundwater quality data from locations up- and downgradient of the AOC.

All samples were analyzed for the TCL VOCs, SVOCs, pesticides/PCBs, and TAL metals and cyanide, as well as explosive compounds, herbicides, nitrates, and total recoverable petroleum hydrocarbons (TRPH).

VOCs, SVOCs, pesticides and PCBs, herbicides, metals, and nitroaromatics analytes, as well as TRPH were detected in the shallow soil at this AOC. Generally, most of the organic analytes were found infrequently, while most of the metals were detected in each sample characterized. Three SVOCs and 14 metals were found at concentrations exceeding their respective TAGM #4046 levels. Of the 14 metals detected in soil samples, lead, and zinc were found at concentrations above their SCOs most frequently. Shallow soil containing compounds at concentrations above SCOs were subsequently removed during the TCRA, so no data summary for the ESI soil is provided.

The results of the groundwater sampling program are presented in **Table 6-8**. Organic compounds were not detected in any of the samples of groundwater collected or analyzed. Eighteen metals were found in the groundwater at SEAD-24, but only two (iron and manganese) were detected in the groundwater at levels exceeding their respective comparative groundwater reference criteria values. The noted groundwater exceedances for iron and manganese are attributed to the elevated turbidity levels found in the samples analyzed. No further action was required for groundwater based on the results of the ESI sampling program.

Time Critical Removal Action – 2002 – 2006

The goal of the SEAD-24 TCRA was to reduce and possibly eliminate, residual metal contamination found in soils at the AOC. Cleanup goals (CUGs) defined for the TCRA were set at TAGM #4046 levels. Arsenic, lead, and zinc were the primary contaminants of concern (COCs) at SEAD-24, although approximately 20 percent of the confirmatory samples were also analyzed for other TAL metals and TCL PAHs. Results for these other analytes were also compared to TAGM #4046 levels during the removal action.

During the performance of the TCRA, Weston® excavated approximately 5,376 yd^3 (i.e., 9,623 tons) of soil during five successive work phases that were completed between December 2002 and January 2006. The second through fifth phases of the work were performed after review of confirmatory sampling results indicated that concentrations of metals or cPAHs in excess of CUGs remained at the AOC. Soil excavated from the AOC included material that originally comprised the U-shaped berm, and native soils surrounding and underlying the berm. All of the excavated material was disposed at off-site landfills as non-hazardous soil.

During the Phase I excavations (December 2002), the top six inches of soil was removed from three subareas within SEAD-24. Initial excavations encompassed roughly 98,300 square feet (ft^2) of land located within and exterior to the U-shaped berm. Each of the initial excavation areas was subsequently enlarged, either vertically (i.e., to greater depths) or laterally based on the results confirmatory samples (grid-block floor or perimeter) that were collected and analyzed.

The final excavation area grew to encompass 136,800 ft^2, with individual 900 ft^2 (30 ft. by 30 ft.) grid cells being excavated to varying final depths (e.g., 6 inches bgs, 12 inches bgs, 18 inches bgs and 24 inches bgs) based on confirmatory sampling and analysis results. In addition, the original U-shaped berm was completely removed.

At the completion of the TCRA, the AOC-wide average concentrations for all of the PAHs as well as arsenic and lead were below the defined CUGs. The AOC-wide average for zinc (133.5 mg/Kg) was above

its TAGM # 4046 CUG (110 mg/Kg). Confirmatory soil sample results from the SEAD-24 TCRA are presented in **Appendix D Tables 9 a – 9f**.

Soil confirmation data from SEAD-24 were subsequently compared to State Part 375 SCOs and to EPA RSLs for Residential Soil. **Table 6-9** presents a summary of contaminant concentrations remaining at SEAD-24 versus the EPA Residential RSLs and against NYS SCOs for Unrestricted Use. Review of this data indicates that there are a few contaminants [e.g., benzo(a)pyrene, arsenic, cadmium, chromium, lead, nickel and zinc) present in individual samples that exceed individual Federal or State comparative levels, but generally the TCRA successfully removed contaminants from the AOC. The only contaminants that were found at AOC-wide 95th UCL concentrations that surpassed comparative values were arsenic and benzo(a)pyrene versus EPA RSLs for Residential Soil and nickel and zinc versus NYS Unrestricted Use SCOs.

6.5 SEAD-48: ROW E0800 PITCHBLENDE ORE STOTAGE IGLOOS

Final Status Survey – 2002 – 2006

NRC allows for final closure and unrestricted release of radiological sites once data are provided that indicate that residual levels of radioactivity have been reduced below Derived Concentration Guideline Levels (DCGLs). A DCGL is a radionuclide-specific activity concentration that, if uniformly distributed throughout a survey unit (i.e., SEAD-48), would result in a defined total effective dose equivalent (TEDE) to an average member of a critical group. The level of radionuclide specific activity must be distinguishable from background concentrations.

NRC's cleanup criterion for site decommissioning/license termination is 25 milli-Roentgen equivalent man/year (mRem/yr). The NYSDEC has established a TEDE to the maximally exposed individual of the general public, from radioactive materials remaining at a site after cleanup at a level as low as reasonably achievable (ALARA) and less than 10 mRem above background levels of radiation in any one year[11].

The TEDE selected for development of the DCGLs at SEAD-48 was NYSDEC's TAGM #4003 value of 10 mRem/yr, which was the most conservative (i.e., lowest) value defined by the three regulatory overseers (i.e., EPA, NYSDEC, NRC). Two types of DCGLs were evaluated at SEAD-48, the $DCGL_W$ (wide area) and the $DCGL_{EMC}$ (elevated measurement comparison level).

A MARSSIM-based radiological survey was performed at SEAD-48. The survey was performed to investigate and evaluate the AOC with the goal of achieving its final closure per requirements of both CERCLA and the NRC's current standards for license termination. Interior and exterior igloo measurements were collected during the survey.

Under the MARSSIM process, the interior and exterior surfaces of the storage igloos were initially classified as Class 1, 2, or 3 survey units based on an assessment of their past operating history, the evaluation of historic survey information, and an assessment of their potential for residual radioactive contamination. The Class 1 classification was assigned to units and surfaces having the greatest potential for residual radioactivity, while the Class 2 and 3 values were assigned to units exhibiting lesser potentials

[11] Refer to DSHM-RAD-05-01 (April 5, 2005) or TAGM 4003 (Sept 14, 1993), New York State Department of Environmental Conservation.

for residual radioactivity. Class 1 units and surfaces received the most intensive survey coverage (100%), while Class 2 units received 50% coverage. Class 3 interior surveys consisted of biased measurement and collection of wipe samples at 30 biased locations.

Interior Surface Survey Methods

The survey of igloo interiors included collection of data or samples for the following parameters:

- Alpha and beta radiation surveys;
- Low-energy gamma radiation surveys;
- Exposure rate measurements;
- In-situ gamma spectroscopy and material samples; and,
- Radon testing.

Comparative measurements and samples were obtained for all instruments at background locations outside of SEAD-48 prior to the start of the interior survey.

Interior Surface Survey Protocols

The following survey measurements were collected:

- Alpha, beta, and gamma radiation scanning measurements of each grid;
- Alpha, beta, and gamma radiation one-minute direct measurement at the center of each grid;
- Exposure rate measurement at the center of each grid; and
- Gross alpha, beta, and gamma radiation wipe sample at the center of each grid.

The data collection and analysis flowchart applied to interior surveys is depicted graphically in **Figure 6-1.** Field flag values were used to determine, in real-time, if radioactivity levels measured in any area surveyed were potentially elevated. For each area above the alpha/beta scanning flag value, direct alpha, beta, low-energy gamma, and exposure rate measurements along with a wipe sample were collected at the location exhibiting the highest alpha/beta scanning measurement. The additional information was collected so that adequate data would exist for all areas that were possibly elevated; elevated areas would be determined after the fieldwork using statistics.

In-situ gamma spectroscopy measurements were collected at a minimum of two locations in each igloo surveyed; these measurements were collected at locations biased towards potentially elevated survey areas.

Radon measurements were also collected in each of the SEAD-48 Igloos, as well as in background Igloos.

Exterior Igloo Field Methodology

The survey of igloo exteriors included collection of data or samples via the following methodologies:

- High-energy direct gamma radiation surveys and scanning measurements;
- Exposure rate measurements;

- In-situ gamma spectroscopy measurements; and,
- Gamma spectroscopy measurements were collected in a field laboratory, prior to soil samples being sent off-site for analysis in a contract laboratory.

Background survey measurements and samples were also collected at a location outside of SEAD-48 prior to the start of the SEAD-48 exterior surveys.

Exterior Igloo Survey Protocols

All surfaces within a Class 1 survey unit received 100% coverage of the cleared area. Exterior surveys for the Class 2 units were conducted in only 50% of the cleared grids, while Class 3 survey units again received the least intensive survey coverage.

The southern base of each igloo mound was set as the southern boundary of the survey unit and the southern edge of Igloo Road No. 39 served as the northern boundary of the survey unit. The east-west extent for each survey unit was based on where large stands of trees began on either side of the igloo. Areas with lesser vegetation (e.g., grasses, shrubs, small trees) were cleared where possible and included in the survey.

Within each sampling grid, the following survey measurements were collected:

- An exposure rate measurement collected at the center of each grid;
- High-energy gamma radiation scanning measurements; and,
- One-minute high and low-energy gamma radiation direct measurement collected at the center of each sampling grid.

The data collection and analysis flowchart applied to exterior surveys is depicted graphically in **Figure 6-2.**

Within each sampling grid, the exposure rate measurement was first collected to assess potential worker hazards. The sampling grids were then scanned with high-energy gamma radiation detectors and one-minute high and low-energy gamma direct measurements were collected.

Field flag values were then used to determine, in real time, if radioactivity levels measured in any area surveyed were potentially elevated. At each potentially elevated location, high-energy gamma, low-energy gamma, and exposure rate direct measurements were collected from the area where the highest scanning measurement was obtained. The additional data were collected to provide sufficient data for all areas that were possibly elevated; these data were subsequently statistically evaluated to confirm/reject potential hotspots. The location was flagged and noted so that it could be relocated in the future if needed.

The exterior entry concrete pads, vents, and igloo drain outlets for each of the E0800 Row igloos were also fully investigated. The concrete pad was scanned using both the high- and low-energy gamma detectors. High-energy and low-energy direct measurement and exposure rate measurements were subsequently collected at the location having the highest scanning measurement on each pad. The areas around the rooftop vents were scanned using a high-energy gamma detector. Scanning, high- and low-energy gamma direct measurements and exposure rate measurements were conducted on ground surfaces around the drain outlets for each igloo.

In-situ gamma spectroscopy was performed at five exterior locations for each Class 1 survey unit and at three exterior locations for each Class 2 survey unit. In-situ gamma spectroscopy locations were then selected based on scanning measurements. Three measurements from each Class 1 survey unit and two measurements from each Class 2 survey unit were co-located with soil boring locations drilled at those survey units. Collected spectra were compared to an appropriate background spectrum to assess the presence, and relative levels, of radionuclides of concern (ROCs) at the measurement locations.

Soil borings were advanced and samples were collected from locations at each igloo based on either historical information or scanning results. At each exterior survey unit, soil boring samples were collected immediately outside the east and west drain outlets. In addition, soil borings were collected at a minimum of three locations at each of the exterior Class 1 survey units and a minimum of two locations at each of the exterior Class 2 survey units based on scanning measurements.

Each soil boring was drilled to bedrock, and split spoons were collected from all intervals of the borehole. The first sample was collected from 0 – 0.5 ft. below grade surface (bgs) interval. The next sample was collected from the 0.5 – 2 ft. bgs interval. Subsequent samples were collected over successive 2-foot increments until bedrock was encountered; the last sample was frequently comprised of less than 2 feet of soil. Each split spoon was screened in real time as it was retrieved. The resulting data were recorded, and then the content of the split spoon was placed into a uniquely labeled sample bag pending potential future in-situ gamma spectroscopy measurements.

In-situ gamma spectroscopy and gross gamma count rate measurements made on samples were processed from the top of the borehole downwards, and continued until measurements were undistinguishable from background levels. The spectrum obtained from each successive sample interval was compared to a background spectrum to look for energy peaks different from background. Once background levels were found in a processed sample interval, deeper samples were not assessed, but were archived. Soil samples found to exhibit levels comparable to, or higher than, background levels were sent off-site to a laboratory for further analysis using high purity germanium gamma spectroscopy.

Additional soil sampling was performed in November 2004 to further characterize the vertical and lateral extent of areas exhibiting elevated radiation results. The elevated areas were delineated using high-energy gamma radiation surveys, and soil was manually removed from the location in 6-inch lifts. After removal of each lift, the bottom of the excavation was scanned to determine the depth of contamination. This process continued until no contamination was detectable by scanning, or until the excavation reached a depth of 2 feet. A representative soil sample was collected from each lift and from the bottom of the excavation. The samples were screened in the field office to determine which samples should be analyzed off-site using gamma spectroscopy. The remaining samples were archived.

Eight monitoring wells were installed, developed, and sampled to investigate levels of ROCs present in groundwater at SEAD-48. Six of these monitoring wells were installed at locations that are hydraulically downgradient of the storage igloos, along the southern side of Igloo Road No. 39. The remaining two monitoring wells were installed upgradient and cross gradient of the groundwater flow. Two rounds of groundwater sampling were conducted (i.e., October 2003 and April 2004) and the groundwater samples

were submitted for alpha spectroscopy analysis of U-234, U-235, U-238, Ra-226, Ra-228, Thorium-232 (Th-232), gross alpha, and total uranium.

Data Analysis and Summary

Both the $DCGL_W$ and the $DCGL_{EMC}$ were used to evaluate the Final Status Survey (FSS) results. Additionally, the concept of "As Low as Reasonably Achievable" (ALARA) was employed in the evaluation of interior and exterior survey unit data for survey sites. The data analysis process is depicted on **Figures 6-1** and **6-2**.

In terms of radiological implementation, the objective of being ALARA is to maintain all exposures as far below the applicable dose limits as is reasonably achievable. In the FSS process, although a survey unit may pass the site-wide release criteria (i.e., the $DCGL_W$), it may still have measurements that exceed the localized release criteria (i.e., the $DCGL_{EMC}$) or that are indicative of residual contamination. It is necessary to consider if all levels of residual radioactivity are ALARA when evaluating the FSS results.

Results

Igloos

Statistical tests demonstrated that there were no datasets from either the interior or exterior survey units at SEAD-48 that exceeded the gross activity surface $DCGL_W$ for pitchblende ore. Small, localized areas of residual radioactivity were identified within the SEAD-48 interior survey units during scanning surveys, but further investigation and characterization demonstrated that these areas met the release criteria and were ALARA. Similarly, small, localized areas of residual radioactivity were identified.

Groundwater

Results from the initial sampling round indicated that gross alpha results from three samples from monitoring wells MW48-1, MW48-4, and MW48-8 exceeded the EPA maximum contaminant level (MCL) for gross alpha radiation of 15 pCi/L. However, there is some uncertainty in the results because the amount of water sampled was lowest at those three sampling locations, which may have resulted in higher turbidity and false-positive alpha results. All other detected analytes in the groundwater samples were below the MCLs.

Results from the second round of groundwater sampling indicated that there were no gross alpha results that exceeded the 15pCi/L MCL. Adequate water existed in each of the wells during the second event and turbidity levels found in all wells were lower than noted during the earlier sampling that was performed during a dry period. The highest gross alpha result was 5.96 +/- 2.22 pCi/L measured at monitoring well MW48-6, which is located near Igloo E0811. All other detected analytes in the groundwater samples were also below the MCLs.

Based on the locations of the monitoring wells with the elevated gross alpha concentrations detected during the October 2003 groundwater sampling event and the depth of detected contamination in the soil boring samples, there are no apparent contaminant plumes or spatial trends. These elevated measurements of gross alpha are considered to be false-positive results and are attributed to the low groundwater recharge rate and associated high turbidity measurements. The samples collected in April 2004 are

considered to be more representative of site conditions, with no elevated detections of gross alpha or any other analyte. Based on the groundwater sampling results, it was concluded that groundwater at SEAD-48 has not been impacted by site activities, and further groundwater sampling was not necessary.

7.0 SUMMARY OF RISK ASSESSMENT RESULTS

Human health risk assessments were conducted to estimate potential levels of hazards and risks that remain at four of the AOCs (i.e., SEADs 1, 2, 5, and 24) discussed in this ROD. Each of these risk assessments estimated potential carcinogenic risks and non-carcinogenic hazards that may remain at the AOCs for the most probable current and future users of the land. For SEADs 1, 2, and 5, current and future commercial and industrial users were identified as the most probable receptors, while at SEAD-24 potential effects to future/current commercial, industrial and residential users were evaluated.

At SEAD-48, a Final Status Survey (FSS) was conducted in accordance with procedures and protocols recommended by the Multi-Agency Radiation Survey & Site Investigation Manual (MARSSIM) which was developed though the collaborative efforts of the EPA, the NRC, the DOE, and the DoD, who are the primary Federal agencies exercising authority and control over radioactive materials. MARSSIM provides detailed guidance for planning, implementing, and evaluating environmental and facility radiological surveys conducted to demonstrate compliance with a dose- or risk-based regulation. MARSSIM focuses on the demonstration of compliance during the final status survey following scoping, characterization, and any necessary remedial actions. The FSS conducted for SEAD-48 was evaluated against the lowest (i.e., most restrictive) radiation dose exposure level that is acceptable to the EPA and the NYSDEC, and demonstrates that the structures and land within the AOC are acceptable for unrestricted use (See details in Section 7.1.5 below).

COCs evaluated within the risk assessments were selected because they were found to be present in samples at concentrations that surpassed State or Federal guidance values including either New York's TAGM #4046 (in effect at the time) or the EPA's Region IX Preliminary Remediation Goals (PRGs) for residential soils. Exposure point concentrations (EPCs) used within the risk assessments were either the maximum concentration detected in a specific media at the AOC, or the recommended upper confidence limit (UCL) of the mean for AOC's data set for a particular environmental medium (e.g., soil, groundwater, surface water, etc.). When used, the recommended UCL selected for evaluation was derived using the EPA's ProUCL version 4.0 software.

7.1 HUMAN HEALTH RISK ASSESSMENT

The reasonable maximum human exposure (RME) for receptors was evaluated in each case. A four-step process was used for assessing site-related human health risks and hazards for the RME scenario:

- Hazard Identification – identified the contaminants of concern based on several factors such as toxicity, frequency of occurrence, and concentration;
- Exposure Assessment – estimated the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways by which humans are potentially exposed;
- Toxicity Assessment – determined the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and

- Risk Characterization – summarized and combined the outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks (for example, one-in-a-million excess cancer risk).

The human receptors evaluated in the risk assessments at all four of the AOCs included an industrial worker, a construction worker and an adolescent trespasser. The duration of exposure for each receptor under the RME scenario was defined as:

- Industrial worker – 250 days for 25 years;
- Construction worker – 250 days for 1 year; and,
- Adolescent trespasser – 50 days for 5 years.

In addition for SEAD-24, a residential risk assessment considering an adult, a child, and a lifelong resident was also performed.

The exposure pathways presented reflect the projected future use of each area. The following exposure pathways were considered at each of the four AOCs:

1. Inhalation of particulate matter in ambient air (all future receptors);
2. Ingestion and dermal contact to on-site surface soils (all future receptors); and
3. Ingestion and dermal contact to on-site surface and subsurface soils (construction worker for all sites and future residents for SEAD-24).

Under current EPA guidelines, the likelihood of carcinogenic and non-carcinogenic effects due to exposure to site-related chemicals is considered separately. Non-carcinogenic hazards were assessed by the calculation of a Hazard Index (HI), which is an expression of the chronic daily intake of a chemical divided by its safe or Reference Dose (RfD). An HI that exceeds 1.0 indicates the potential for non-carcinogenic effects to occur. Carcinogenic risks were evaluated using a cancer Slope Factor (SF), which is a measure of the cancer-causing potential of a chemical. Slope Factors are multiplied by daily intake estimates to generate an upper-bound estimate of excess lifetime cancer risk. For known or suspected carcinogens, EPA has established an acceptable cancer risk range of 10^{-4} to 10^{-6} (one-in-ten thousand to one-in-one million).

7.1.1 SEAD-1: Hazardous Waste Container Storage Facility

Soil samples were collected around the exterior of Building 307 as part of the RCRA Closure operations in 2003. Data from the exterior soil samples served as the basis of the mini-risk assessment that was performed to assess potential site risks and hazards. The human health risk assessment was initially conducted using the maximum observed concentration as the EPC; subsequent determinations used the recommended UCL value for selected metal COCs. Details of the SEAD-1 risk assessment calculations are provided in **Appendix E**, **Tables 1** to **13**.

The results of the mini-risk assessment performed using the maximum detected concentrations for contaminants in soil and the RME scenario are presented in **Table 7-1**. Review of this table indicates that the cancer risks calculated at SEAD-1 for all receptors (i.e., industrial worker, construction worker, and adolescent trespasser) are 1×10^{-6} or less, which is consistent with EPA guidelines. The estimated non-

cancer HIs for the industrial worker and the adolescent trespasser are both less than 1, while the non-cancer HI for the construction worker is 1.56 (reported as 2E+00).

Soil ingestion, inhalation of dust in ambient air, and dermal contact contribute 51%, 47%, and 2% respectively, to the total non-cancer HI estimated for the construction worker. Aluminum, iron, manganese, vanadium, and zinc in soil contribute significantly to the construction worker's elevated HI (i.e., HIs associated with these metals greater than 0.1 for any exposure route). A further review of the SEAD-1 soil data (shown in **Table 7-2**) indicates that the maximum and recommended UCL concentrations for all of the aforementioned metals, again exclusive of zinc, are lower than all referenced Federal and State soil screening or cleanup objective values. Even zinc was found at concentrations that are lower than the EPA's Region IX 2004 PRG and 2008 Regional Screening Levels (RSLs) for residential soil, and NYSDEC's cleanup objectives for restricted commercial and industrial soils. Furthermore, the concentrations reported for aluminum, iron, manganese and vanadium are all consistent with SEDA-wide background concentrations that were established during prior RI investigations at the SEDA. If the non-carcinogenic hazards for aluminum, iron, manganese, and vanadium were not included in the risk assessment, the non-cancer HI for the construction worker would be approximately 0.4, below the EPA limit of 1.

As is mentioned above, the largest component of the construction worker's HI is the inhalation of dusts containing manganese and aluminum. The inhalation of manganese contaminated dust accounts for more than 83 percent of the estimated inhalation HI. The HI calculated for manganese is based on a reference concentration for chronic inhalation exposure (RfC) derived in a study that deals specifically with the inhalation of manganese dioxide dust, and to which the EPA assigns an uncertainty factor of 1000, which is indicative of a low degree of confidence in its value.

The exact composition of the manganese identified in the soil samples collected in SEAD-1 is unknown, but it is highly unlikely that all of the manganese found in the soil exists solely as manganese dioxide. Other forms of manganese, including various oxide, salt, carbonate, and silicate forms are also likely. Thus, while manganese dioxide may be a component of the sampled soil, it is not the only constituent, and the use of an RfC that is derived solely from a study of industrial worker's exposure to manganese dioxide at a battery manufacturing facility is not fully accurate, and is likely to over-estimate impacts to outside workers at a location where other forms of manganese are present. However, since the exact composition of the manganese ore is unknown, no quantitative adjustments to the HI can be made. Further, it is important to note that the inhalation reference dose used as the basis of the inhalation portion of the risk assessment is 4,000 times lower than the American Conference of Governmental Industrial Hygienists' (ACGIH's) threshold limit value[12] for manganese exposure in industrial situations, further emphasizing the very conservative nature of the RfC used in the calculation of risk at this site.

The mini-risk assessment (based on maximum concentrations) was recalculated using recommended UCL values in place of maximum AOC concentrations as the EPC concentrations for aluminum, iron, manganese, vanadium, and zinc, and maximum concentrations for all of the other identified COCs. The results of this recalculation are presented in **Table 7-3** and these indicate that the estimated cancer risks

[12] The concentration of a substance to which most workers can be exposed without adverse effects.

for all potential future human receptors at SEAD-1 are consistent with, and less than EPA's preferred upper limits, and that the HIs for the industrial worker and adolescent trespasser are below 1.0. The construction worker's HI drops to 1.08. This reduced HI still is based on the overly conservative RfC for manganese dioxide that is discussed above.

With specific reference to the noted elevated concentrations of zinc found in the soil at SEAD-1, all soil samples collected for the AOC came from locations immediately adjacent to the exterior walls of Building 307. As has been noted earlier (see **Section 2.2.1**, above), the walls and roof of Building 307 are constructed of zinc-coated, corrugated metal, which has been exposed to the elements for more than 20 years, and shows visible evidence of oxidation on its surfaces. There is a noticeable zone of soil that surrounds Building 307 that has a whitish powdery material intermixed with it, and this substance is presumed to be a zinc-oxide powder resulting from the oxidation and weathering of the zinc-coated sheet metal walls and roofing material that has been washed from the building's exterior by storm events. Given these considerations, it is concluded that chemicals detected in SEAD-1 soil do not pose a health risk to the construction worker.

7.1.2 SEAD-2: PCB Transformer Storage Facility

Soil samples were collected around the exterior of the building as part of the RCRA Closure operations that were performed at the AOC in 2003. Data from these samples served as the basis of a mini-risk assessment that was performed to assess potential site risks and hazards. The human health risk assessment was initially conducted using the maximum observed concentration as the EPC; subsequent determination used the 95th UCL values for selected metal COCs. Details of the SEAD-2 risk assessment calculations are provided in **Appendix E**, **Tables 14** to **26**.

The results of the SEAD-2 risk assessment (see **Table 7-4**) based on an RME scenario and maximum detected concentrations indicate that non-cancer risks for the industrial worker and the adolescent trespasser are less than 1. The HI computed for the construction worker is 1.48 (reported as 1E+00). This elevated HI is driven by the ingestion of soil and the inhalation of dusts containing metals. The predominant contributing metal is manganese (representing 29% of the identified risk), followed by iron (19%), arsenic (13%), aluminum (8%) and vanadium (8%). Data summarized earlier in **Table 6-5** indicated that each of these metals, exclusive of arsenic, were found at levels that are lower than Federal and State cleanup guidance values. All of the collected soil samples did contain arsenic at concentrations in excess of EPA's PRG for Industrial Soil, and two of the collected samples also contained concentrations of arsenic in excess of the State's Unrestricted Use SCO level.

A further review of the AOC data (shown in **Table 7-5**) indicates that maximum concentrations measured for aluminum, manganese, and vanadium are all lower than all comparative soil cleanup objective levels. Arsenic and iron are the only metals found at levels above any of the identified SCO levels, and iron only exceeds the Region IX PRG for residential soil, which has now been superseded by the EPA's Regional Screening Level for residential soil, (the RSL value is higher than the iron concentration found at SEAD-2).

Furthermore, the maximum concentrations of these metals found at SEAD-2 were also lower than the SEDA-specific background values. If the non-carcinogenic hazards for aluminum, iron, manganese and vanadium were not included in the risk assessment, the non-cancer HI for the construction worker would be less than 0.4, below the EPA limit of 1. The construction worker's HI decreases to 9E-011 if the 95th UCL values for aluminum, arsenic, iron, manganese, and vanadium are substituted for the maximum detected levels (see **Table 7-6**).

The cancer risk calculated at SEAD-2 for the construction worker and adolescent trespasser were found to be within the EPA's recommended range (1×10^{-4} to 1×10^{-6}) based on the maximum detected concentration of the COCs and a RME exposure scenario. The cancer risk identified for the industrial worker at SEAD-2 was 5×10^{-4}, which exceeds the EPA's recommended range. The identified cancer risk for the industrial worker results primarily due to dermal contact with, and ingestion of soil containing cPAHs, principally benzo(a)pyrene, benzo(b)fluoranthene, and dibenz (a,h)anthracene. The elevated results for these compounds at SEAD-2 are associated with the presence of a hardpack parking area around three sides of the building, the historic use of asphalt/tar traction aid on the loading dock and ramp, the use of a tar coating on the roof of the building, and the presence of vehicular and rail traffic in close proximity to the AOC. The risk assessment and the conclusions of the AOC investigations were reviewed and approved by the EPA.

7.1.3 SEAD-5: Sewage Sludge Waste Piles

Confirmatory soil samples were collected from the base and the perimeter of the excavations completed at SEAD-5 in the area of the former sewage sludge piles. Additionally, shallow soil samples were collected exterior of the excavation areas for site delineation purposes. All of the soil data were combined and used in the risk assessment. Although groundwater samples were collected during the ESI in 1994, these data were not used in the risk assessment because all of the samples were collected using bailers and showed elevated levels of turbidity. The human health risk assessment was computed using the 95th upper confidence limit (UCL) of the mean as the EPC for each of the COCs. Details of the SEAD-5 risk assessment calculations are provided in **Appendix E**, **Tables 27** to **33**. The overall summary of the risk assessment is shown in **Table 7-7**.

The non-cancer HIs for the industrial worker, construction worker, and the adolescent trespasser are all less than 1. The cancer risk calculated at SEAD-5 for the construction worker (1×10^{-5}) and adolescent trespasser (2×10^{-6}) receptors are within the EPA's recommended range (1×10^{-4} to 1×10^{-6}). The calculated cancer risk for the industrial worker is slightly above the EPA's recommended range at a level of 1.3×10^{-4}.

The majority (55%) of the identified RME cancer risk results from the ingestion of soil, while the balance (45%) results from the industrial worker's dermal contact to the soil. The principal contaminant contributing to the cancer risk determined for SEAD-5 is benzo(a)pyrene, which contributes more than 61% of the risk associated with soil ingestion and 65% of the dermal contact risk. SEAD-5 is located in an area where heavy equipment and railroad operation use and idling cycles have historically occurred and it likely that these other activities contribute to the levels of cPAHs noted at the AOC.

7.1.4 SEAD-24: Abandoned Powder Burning Pit

COCs identified in the soil at SEAD-24 included cPAH and PAH compounds, and selected metals. Maximum soil concentrations for COCs were initially used in the risk calculations, but subsequently 95th UCL values were evaluated in risk calculations. Although groundwater samples were collected during the ESI, these data were not used in the risk assessment because all of the samples were collected using bailers and showed elevated levels of turbidity.

The human health risk assessment was computed using the 95th upper confidence limit (UCL) of the mean as the EPC for each of the COCs. Details of the SEAD-24 risk assessment calculations for industrial and commercial receptors are provided in **Appendix E**, **Tables 34** to **40**. The overall summary is presented in **Table 7-8**.

The non-cancer risks for the industrial worker and the adolescent trespasser at SEAD-24 are less than 1. The non-cancer HI computed for the construction worker is 3E+00 (i.e., 2.95). The cancer risks calculated at SEAD-24 for all receptors (i.e., industrial worker, construction worker, and adolescent trespasser) are within, or below the EPA's recommended range (1×10^{-4} to 1×10^{-6}).

This elevated HI for the construction worker is driven principally by the inhalation of dusts containing the metals aluminum and manganese. The inhalation exposure pathway accounts for 74% of the total non-cancer risk found for the construction worker, and of this total, manganese represents 78% of the identified HI. Aluminum represents the remaining 22% of risk calculated for the construction worker via the inhalation pathway at SEAD-24.

The concentrations of aluminum and manganese measured in the soils remaining at SEAD-24 are consistent with the SEDA-background data set, and they are also below reference values, as is shown in **Table 7-9.** As is shown in the above table, the maximum site concentrations measured for the non-cancer risk contributing metals are both lower than all reference levels.

The HI resulting from exposure to aluminum is associated with presumed neuro-developmental effects. The HI resulting from manganese is associated with central nervous system effects. Since the potential effects are associated with different human organs, and the HI for aluminum is below 1, the potential effect associated with aluminum in soil can be eliminated from further consideration.

With reference to the HI calculated for manganese in soil, this HI is based on a reference concentration for chronic inhalation exposure (RfC) derived in study that deals with the inhalation of manganese dioxide dust, and to which the EPA assigns an uncertainty factor of 1000, which is indicative of a low degree of confidence in its value. The exact composition of the manganese identified in the confirmatory samples collected in SEAD-24 is unknown, but it is highly unlikely that all of the manganese in the soil exists as manganese dioxide. Manganese can exist in numerous forms, including various oxides, salts, carbonates, and silicates, and thus it is unlikely that it is only present as manganese dioxide in the soil at SEAD-24. Therefore, the use of an RfC that is derived solely from a study of industrial worker's exposure to manganese dioxide at a battery manufacturing facility is not fully accurate, and is likely to over-estimate impacts to outside workers at a location where other forms of manganese are present. However, since the exact composition of the manganese in the soil is unknown, no quantitative adjustments to the HI can be

made. Further, it is important to note that the inhalation reference dose used as the basis of the inhalation portion of the risk assessment is 4000 times lower than the American Conference of Governmental and Industrial Hygienists' threshold limit value[13] for manganese exposure in industrial situations, further emphasizing the very conservative nature of the RfC used in the calculation of risk at this site.

Given the large degree of uncertainty that is associated with the HI computed for inhalation of manganese contaminated dust, it is likely that the construction worker's overall HI is an overestimate of the real conditions that exist at SEAD-24 now that the Abandoned Powder Burning Pit has been removed. Therefore, it is concluded that no further action is required at SEAD-24 due to the possible presence of manganese in the soil.

The results of the residential scenario risk assessment are presented in **Table 7-10** and indicate that the non-cancer hazard for the adult resident is less than 1. Background information supporting **Table 7-10** are presented in **Appendix E**, **Tables 41** to **43**.

The non-cancer HI computed for the child resident assuming RME is 3E+00 (i.e., 3.39). The cancer risk calculated at SEAD-24 for all residential receptors (i.e., adult, child, and lifetime resident) are within, or below the EPA's recommended range (1×10^{-4} to 1×10^{-6}).

The elevated HI determined for the child is driven by the ingestion of soil containing metals which represents nearly 86% of the total non-cancer found (i.e., ingestion HI of 2.9 out of 3.39 total). A listing of the metals that contribute to the risk, compared to reference values and SEDA-specific background concentrations are summarized in **Table 7-11**.

Concentrations measured for five of the metals at SEAD-24 are lower than those found at background locations at the Depot, yet exposure to these metals at the AOC accounts for more than 85% of the overall child's non-cancer hazard at the site. Comparably, both arsenic and manganese are below NYSDEC's Unrestricted Use cleanup objective, while aluminum, antimony, manganese and vanadium are all below EPA Region IX PRGs and EPA's Regional Screening Levels for residential soil. The HIs computed for the remaining two metals, arsenic and thallium, are individually each less than 1, and combine for a total that is less than 1. Further the target organ for arsenic is the skin, while the target organ for thallium is the liver.

Although the sum of the hazards quotients for the seven metals exceed the acceptable HI of 1, the hazard indices associated with each organ effect are below an HI of 1, exclusive of iron (**Table 7-12**), which only slightly exceeds the acceptable HI of 1. The 95% UCL for iron is less than the background concentration of iron found at Seneca Army Depot. Given the slight elevation and the comparison of iron to background concentrations, there is minimal likelihood of adverse health effects from the ingestion of iron in soil.

The HIs computed for the remaining two metals, arsenic and thallium, are individually each less than 1, and combine for a total that is less than 1. Further the target organ for arsenic is the skin, while the target organ for thallium is the liver.

[13] The concentration of a substance to which most workers can be exposed without adverse effects.

Therefore, the risk associated with ingestion of soil by a child resident at SEAD-24 is consistent with or less than the risk that they experience based on exposure to naturally occurring constituents.

7.1.5 SEAD-48: E0800 Row Pitchblende Ore Storage Igloos

The analysis of residual levels of radiological contaminants remaining at SEAD-48 after the completion of the Final Status Survey was performed in accordance with procedures specified by MARSSIM. Numerous EPA guidance documents (EPA, 1997; EPA 1999a; EPA 1999b; EPA, 2000a; EPA, 2000b) indicate that an annual radiological dose of 15 mrem/year corresponds to a 3×10^{-4} risk for exposure to gamma radiation. They further indicate that a similar annual exposure dose to alpha and beta emitters generally overestimate the level of risk that is represented by the contaminants that are found at the AOC. The EPA documents further indicate that a reference dose of 15 mrem/year is essentially equivalent to a risk of 10^{-4} that is the upper bound of that which is required by CERCLA.

Residual levels of all three types of radiological contaminants were evaluated on building surfaces and in the surrounding soils and groundwater during the Final Status Survey conducted at SEAD-48. Prior to conducting the FSS, the Army set the maximum annual dose at a level of 10 mrem/year, which results is roughly equivalent to an upper risk level of 2.2×10^{-4} for gamma radiation species that may be present. All survey levels were found to be consistent with, or less than, the 10 mrem/year reference dose level established by the State of New York in TAGM #4003, and therefore it is concluded that the residual level of risk that remains at SEAD-48 are within the EPA's guidance risk range of 10^{-4} to 10^{-6}. Each of these kinds of radiological contaminants were evaluated during the Final Status Survey at SEAD-48.

7.2 BASIS FOR ACTION

Information and data present above in Section 6 and Section 7 indicates that hazardous constituents are present in the soil at SEAD-1 (Hazardous Waste Container Storage Facility) and SEAD-2 (PCB Transformer Storage Facility) at levels that exceed Federal and State guidance values and thus, may pose elevated risks to selected future populations (e.g., future residents), that could use the land. However, these sites are located in areas where the planned future land use is defined as commercial and industrial, and potential future hazards or risks identified at both of these AOCs are either suitable for the defined use, or associated with compounds that are present at concentrations that are equal to or less than naturally occurring levels

Data for SEAD-5 (former Sewage Sludge Waste Storage Piles) indicates that hazardous substances and constituents are present at levels that are in excess of Federal and State soil guidance values, and at levels that pose potential risks to future industrial and commercial users or occupants of the land. The elevated risks are largely driven by concentrations of a single hazardous substance that are found at a few isolated, non-contiguous locations within the soil at the AOC, and which may be associated with asphalt pieces that have become intermixed with the soil at the AOC due to its historic use as a DPW-type storage and staging area.

Data for SEAD-24 (former Abandoned Powder Burning Pit) indicates that hazardous substances and constituents are present at levels that are in excess of State and Federal soil guidance values, but the levels found do not pose unacceptable risks to potential future human receptors, including future residents. The

designated land use for the area surrounding and including SEAD-24 is Development Reserve, and this land has previously been discussed as the location of a potential alternative fuel manufacturing facility. Due to the fact that no inordinate level of human health risk has been identified during the risk assessment process, the Army and the EPA do not believe that any further remedial action is required at SEAD-24, the former Abandoned Powder Burning Pit.

The Army conducted and reported the findings of a Final Status Survey (FSS) for the area designated as SEAD-48, the Row E0800 Pitchblende Ore Storage Igloos, to the EPA, the NYSDEC, and the Nuclear Regulatory Commission. The FSS was conducted in accordance with the requirements of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), and was designed to demonstrate that residual Total Effective Dose Equivalents were below NYSDEC's recommended limit of 10 mrem/yr, which is the lowest of the levels defined by the EPA, NRC or State. Based on this demonstration and determination, the Army and the EPA do not recommend that any further action is needed at SEAD-48.

8.0 REMEDIAL ACTION OBJECTIVES

Remedial action objectives are specific goals to protect human health and the environment. These objectives are based on available information and standards such as ARARs and risk-based levels established in the risk assessment. These objectives are also based upon the current and intended future land use: which is commercial or industrial for SEAD-1 (former Hazardous Waste Container Storage Facility), SEAD-2 (former PCB Transformer Storage Facility), and SEAD-5 (former Sewage Sludge Waste Piles); Development Reserve for SEAD-24 (former Abandoned Powder Burn Pit); and, Training for SEAD-48 (Row E0800 Pitchblende Storage Igloos). The Training land use designation is further defined as training for Homeland Security, training for first-responders, and special warfare training. Development Reserve is an area that is set aside for large scale users.

Remedial action objectives have been developed that consist of media-specific objectives for protection of human health and the environment. The goal of NYSDEC's General Remedial Program is to restore a specific site to pre-disposal conditions, to the extent feasible. Unrestricted land use was considered at each of the five former SWMUs (SEADs 1, 2, 5, 24, and 48) to compare the costs of remediating the AOCs to this level of use versus the costs to implement a more restricted land use. Unrestricted use was also considered to comply with Army guidance, which states that alternatives consistent with property use without any restriction should be considered to compare life-cycle institutional control costs with more conservative cleanup alternatives (DAIM-BO, "Army Guidance for Using Institutional Controls in the CERCLA Process").

Remedial action objectives are specific goals to protect human health and the environment; they specify the contaminant(s) of concern, the exposure route(s), receptor(s), and acceptable contaminant level(s) for each exposure route. These objectives are based on risk levels established in the risk assessment and should comply with ARARs, unless a waiver is necessitated. A list of ARARs is provided in **Appendix F**.

Results of the MARSSIM Final Status Survey completed at SEAD-48 indicate that both the interior and exterior of the former pitchblende ore storage igloos are compliant with residual radiological release criteria and are acceptable for unrestricted use and unrestricted release. Therefore, no remedial objectives are needed for this SWMU as no further action is required.

Results of the TCRA for SEAD-24 (former Abandoned Powder Burning Pit) indicate that residual concentrations of selected hazardous substances remain in the surficial soil at the AOC at concentrations that exceed NYSDEC's Unrestricted Use SCOs and EPA's RSLs for residential soil. However, the results of a human health risk assessment, which included the future use of the property for residential activities, indicate that future risks and hazards to potential receptors were within acceptable ranges or were consistent with risks that could be anticipated from background conditions. Therefore, no remedial objectives are needed for this SWMU as no further action is required.

Results of the RCRA Closure of the buildings at SEADs 1 (former Hazardous Waste Storage Facility) and 2 (former PCB transformer Storage Facility) were provided to the NYSDEC, and based on its review of the data, the NYSDEC concluded that the building closures were complete, that the buildings' future use should be restricted to industrial-type use. Analytical data associated with soil samples collected

exterior of each of these building indicate that select hazardous constituents are present in individual samples at concentrations that exceed State and Federal soil cleanup or guidance values. In the case of SEAD-1, the constituents of concern are limited to metals that are present in samples at concentrations predominantly that are consistent with, or below, soil cleanup objective or guidance values for soils found in commercial or industrial type settings. In the case of SEAD-2, the hazardous constituents of concern include selected cPAHs, as well as discrete metals. Groundwater samples were not collected from the area of either SEAD-1 or SEAD-2, so the quality of the groundwater at this AOCs remains uncertain; however, other data exists to suggest that the groundwater underlying the greater PID area is of poor quality, and affected by elevated levels of metal contaminants at levels in excess of New York's GA standards.

Subsequent risk assessments performed for both of these former SWMUs based on the available soil data indicate that potential risks that may be associated with the residual levels of contamination remaining at the SWMUs are acceptable for continued uses as commercial or industrial properties, or are consistent with risks that are associated with background contamination. Based on these determinations for the buildings and the surrounding land, this ROD documents the selection of the following remedial action objectives for SEAD-1 and SEAD-2:

- Prohibit unlimited use and exposures to residual levels of hazardous constituents that may exist within and exterior of the two former hazardous and toxic material storage facilities; and,
- Prohibit access to and use of groundwater underlying and in the vicinity of Buildings 307 and 301.

Results of the TCRA for SEAD-5 (former Sewage Sludge Storage Piles) indicate that residual concentrations of selected hazardous substances remain in the surficial soil at the AOC at concentrations that exceed NYSDEC's Unrestricted and Restricted Use SCOs and EPA's RSLs for residential and industrial soils. Further, the results of a human health risk assessment, which included the future use of the property for commercial or industrial activities, indicate that there is the potential of an elevated cancer risk for future industrial workers due to the presence of cPAHs, including predominantly benzo(a)pyrene in the soil. The source of the cPAHs is uncertain, but they may result due to the presence of DPW-like road repair wastes that remain in this area. Groundwater samples were not collected from the area of SEAD-5 after the TCRA; however, other data exists for sites adjacent to this AOC and suggests that the groundwater underlying the greater PID area is of poor quality, and affected by elevated levels of metal contaminants. Based on these determinations for SEAD-5, this ROD documents the selection of the following remedial action objectives for the AOC:

- Prohibit exposure to surficial and subsurface soils located in a specific portion of the SWMU SEAD-5 where elevated concentrations of cPAH compounds have been found at levels that are indicative of potential cancer risks for industrial workers;
- Prohibit unlimited use and exposures to residual levels of other hazardous constituents that may exist in other portions of the AOC as well as in the are identified above; and,
- Prohibit access to and use of groundwater underlying and in the vicinity of SEAD-5, the former Sewage Sludge Waste Piles.

9.0 DESCRIPTION OF REMEDIAL ALTERNATIVES

CERCLA § 121(b)(1), 42 U.S.C. § 9621(b)(1) mandates that remedial actions must be protective of human health and the environment, cost effective, comply with ARARs, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. The goal of NYSDEC's remedial program at Inactive Hazardous Waste Sites is "to restore that site to pre-disposal conditions, to the extent feasible."

Two remedial alternatives were considered individually for groundwater at SEADs 1, 2, and 5. These included:

- Groundwater Alternative 1 (GW1 a, b, c): No Action (SEAD-1, SEAD-2, and SEAD-5)
- Groundwater Alternative 2 (GW2 a, b, c): Groundwater Access/Use Restriction (SEAD-1, SEAD-2, and SEAD-5)

The concepts, provisions, requirements, and costs associated with both of the groundwater alternatives (GWs) discussed for the three former SWMUs are identical.

Four alternatives were considered for soil at SEAD-1, SEAD-2 and SEAD-5 based on the EPA and NYSDEC policies and based on conditions identified in the AOCs. The four soil remedial alternatives are listed below. Requirements, considerations, concepts and costs associated with the implementation of Soil Alternative 1 (SA1a, b, c) are identical for each of the three identified former SWMUs. There are slight differences in provisions of the other three soil alternatives (SAs 2a, b, c; 3a, b, c; and 4a, b, c) defined for SEAD-1, SEAD-2, and SEAD-5.

- Soil Alternative 1 (SA1a, b c): No Action;
- Soil Alternative 2 (SA2a, b, c): Soil Excavation, Off-Site Treatment/Disposal and Soil Backfill to Achieve Unrestricted Use SCOs (discussions presented separately for SEADs 1, 2, and 5);
- Soil Alternative 3 (SA3a, b, c): Soil Excavation, Off-Site Treatment/Disposal and Soil Backfill to Achieve NYSDEC Restricted Industrial Use SCOs (discussions presented separately for SEADs 1, 2, and 5);
- Soil Alternative 4 (SA4a, b): Implementing Land Use Controls that Prohibit Residential Housing, Elementary or Secondary Schools, Childcare Facilities or Playgrounds (discussions presented separately for SEAD-1 [Sa4a] and SEAD-2 [Sa4b]);
- Soil Alternative 4c (SA4c): Interring Residual Excavated Soil under a Protective Cover and Implementing Land Use Controls that Prohibit Unauthorized Excavation, and that Prohibit Residential Housing, Elementary or Secondary Schools, Childcare Facilities or Playgrounds (SEAD-5 [SA4c] only).

Detailed descriptions of the soil and groundwater remedial alternatives considered to address the contamination found associated with the individual AOCs are presented below. The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include

time required to design the remedy or procure contracts for design and construction. The costs of the alternatives are calculated using a discount rate of seven percent (7%) and a 30-year time interval.

Once all alternatives have been identified and described, each of the alternatives has been evaluated against the NCP's evaluation criteria which are:

- Overall protectiveness of the public health and the environment;
- Compliance with ARARs;
- Long-term effectiveness and permanence;
- Reduction in toxicity, mobility or volume of contamination through treatment;
- Short-term effectiveness;
- Implementability;
- Community acceptance;
- State acceptance; and
- Cost-effectiveness.

The comparative evaluation of the varying alternatives is summarized in **Section 10** of this Record of Decision.

9.1 GROUNDWATER ALTERNATIVES

9.1.1 Groundwater Alternative 1 (GA1a, b, c): No Action

The Superfund program requires that the "no-action" alternative be considered and serve as the baseline to which other alternatives evaluated are compared. The "no action" remedial alternative for groundwater does not include the design or implementation of any remedial measures to address types of groundwater contamination identified.

Application of the no action groundwater alternative at SEAD-1, SEAD-2 and SEAD-5 will allow for contaminants, including hazardous substances, to remain in the groundwater at concentrations above levels that permit unrestricted use and unlimited exposures. As such, CERCLA requires that conditions at the AOCs be reviewed at least once every five years to assess whether changes are occurring, which require further consideration or action. If justified by the periodic reviews, subsequent remedial actions may be implemented to remove, treat, or contain the contaminated groundwater. The costs associated with the application of the "no action" alternative for groundwater are identified below.

SEAD-1, SEAD-2 and SEAD-5, GA1a, b, c (No Action) Costs

Capital Cost:	$0
Annual Operation, Maintenance, and Monitoring (OM&M) Costs (groundwater):	$0
Present-Worth Costs:	$0
Construction Time:	0 months
Completion Time	0 months

9.1.2 Groundwater Alternative 2 (GA2a, b, c): Groundwater Access/Use Restriction

This alternative is generally equivalent to GA1a, b, c except in this case the remedy will impose the groundwater access/use restriction that has been implemented over other land that is located within the PID Area that has been transferred to the SCIDA. The groundwater access/use restriction was not previously imposed on SEADs 1, 2, or 5 because they were retained by the Army, pending completion of their CERCLA regulatory process. As the quality of groundwater is unknown at two of the former SWMUs (i.e., SEADs 1 and 2) because no samples have been collected, and the quality of the turbid groundwater at SEAD-5 is suspect due to the available data for metals collected using bailers during the ESI in 1993 – 1994, the groundwater access/use restriction should be formally imposed on each of these AOCs.

The decision to apply the PID Area-wide groundwater use/access restriction at SEADs 1, 2, and 5 will not adversely affect the future usability of the AOCs because a municipal, potable water distribution system, which derives its raw water from a non-groundwater source, is available within the entire PID Area. The presence of this alternative supply of domestic water reduces the need to consider use of groundwater underlying the PID Area.

The existing PID Area-wide groundwater access/use restriction was implemented due to the groundwater quality conditions identified in SEADs 27, 64A, and 66, which are reported and summarized in the *Final ROD for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas* (Parsons, 2004). Under the 2004 PID Area-wide ROD, the groundwater restriction will be implemented for those properties within the PID Area that are the subject of the 2004 PID ROD to prohibit access to and use of the groundwater. This restriction may be removed at specific AOCs or specific portions of the PID Area if, and when, groundwater constituent concentrations are reduced at such areas to levels that allow for unrestricted exposure and unrestricted use.

The application of this groundwater remedy at SEADs 1, 2, and 5 may allow for certain chemicals, including CERCLA-regulated hazardous substances, to remain at concentrations above levels that permit unrestricted use and unlimited exposures at both of the AOCs. As such, CERCLA requires that the remedy for the AOCs be reviewed at least once every five years to assess whether changes have occurred, which require further consideration or action. If justified by the periodic reviews, subsequent remedial actions may be implemented to remove, treat or contain the contaminated groundwater. The likely costs associated with application of this alternative individually, for groundwater at each of the AOCs is summarized below.

SEAD-1, SEAD-2, and SEAD-5, GA2a, b, c (Groundwater Restriction) Costs

Capital Cost:	$0
Annual OM&M Costs (groundwater):	$3,000
Present-Worth Costs:	$37,230
Construction Time:	0 months
Completion Time	1 month

9.2 SOIL REMEDIAL ALTERNATIVES

The discussion below presents and discusses potential remedial alternatives for soil that were considered for SEAD-1 (former Hazardous Waste Container Storage Facility), SEAD-2 (former PCB Transformer Storage Facility), and SEAD-5 (former Sewage Sludge Piles). No soil remedial alternatives were considered for SEAD-24 (Abandoned Powder Burn Pit) or SEAD-48 (Row E0800 Pitchblende Storage Igloos) as the data summarized above and in the referenced documents indicates that all environmental concerns have been previously addressed.

9.2.1 Soil Alternative 1 (SA 1a, b, c): No Action

The Superfund program requires that the "no action" alternative be evaluated and serve as the baseline by which other alternatives considered are compared. The "no action" remedial alternative for soil does not include the design or implementation of any physical remedial measures to address types of contamination identified at the AOCs.

Consideration of the "no action" alternative (Alternative 1) is identical for work that might be considered for SEADs 1, 2, or 5. Application of this alternative would result in contamination at levels that could cause potential risks to human health and the environment, under certain land use scenarios, remaining in the soils at all three of the AOCs. As such, CERCLA requires that the AOCs be reviewed periodically to assess whether changes in conditions are found at the AOCs. If justified by the periodic reviews, subsequent remedial actions may be implemented to remove, treat, or contain the contaminated soils.

SEAD-1, SEAD-2 and SEAD-5 Soil Alternative 1, (SA1a, b, c - No Action) Costs

Capital Cost	$0
Annual OM&M Cost (soil)	$0
Present Worth Cost	$0
Construction Time	0 Month
Completion Time	1 Month

9.2.2 Soil Alternative 2 (SA 2a, b, c): Excavation of Contaminated Soil to Achieve State Unrestricted Use SCO Levels, Off-Site Treatment/Disposal and Soil Backfill

The second alternative evaluated individually for SEADs 1, 2, and 5 involves the excavation of soil at the SWMUs that contained concentrations of contaminants in excess of NYSDEC's Unrestricted Use SCO levels.

SEAD-1, Soil Alternative 2a (SA2a - Excavation to State Unrestricted Use SCO Levels)

Table 6-3 (presented earlier) summarizes analytical results for 12 exterior soil samples that were collected during the SEAD-1 RCRA Closure Activity versus NYSDEC's Unrestricted Use SCOs.

One cPAH compound, two PCBs, and three metals exceed their respective Unrestricted Use SCO levels, one or more times in the soil surrounding Building 307. Of the contaminants found, zinc is the most prevalent, present at elevated concentrations in all samples characterized. Further, the 95th UCLs computed from the available data for each of the compounds indicates that lead, mercury, and zinc are present at levels that exceed NYSDEC's Unrestricted Use SCOs.

The most probable source for the zinc in the soil is oxidation of the zinc coated corrugated-metal walls and roof panels that are integral components of the Building 307 structure. To eliminate the possibility of recontamination of the area with zinc, the Army would expect that the building would need to be demolished. Additionally, the Army expects that the minimum extent of soil excavation that would be needed to remove the contaminated soil that surrounds Building 307 would measure 80 ft. by 90 ft. by 1 foot in depth. The actual extent of the final excavation is uncertain, and likely to be greater, because the existing data set does not currently bound the extent of the contamination that is present at the AOC. Confirmatory sampling and analysis would be used to confirm the final extent of the excavation. Nevertheless, conservatively 267 yd^3 of soil would be excavated and disposed of at a licensed, off-site landfill. Estimated construction costs would also include building demolition and disposal ($25,000).

All excavated soil and demolition debris would be characterized, stabilized as needed, and transported for disposal at licensed, off-site landfills. Storm event water captured in the excavated area would be collected, characterized, and treated on-site, as necessary. It would then be discharged to the Seneca County Wastewater Treatment Facility in conformance with their requirements.

Once the excavation was completed and its extent confirmed by the collection and analysis of confirmatory samples, the area of the excavation would need to be backfilled, compacted, and graded.

Once this action was completed, the land excavated would be appropriate for unrestricted use and unlimited exposures for the land surrounding Building 307. Building 307 would still be restricted to an industrial-type use, per the provisions of the prior RCRA Closure.

SEAD-1, Soil Alternative 2a (SA2a - Excavate to State Unrestricted Use SCO Levels) Costs

Capital Cost (minimum):	$51,700
Annual OM&M Cost (soil):	$0
Present Worth Costs (minimum):	$51,700
Construction Time:	1 Month
Completion Time:	12 Months

SEAD-2, Soil Alternative 2b (SA2b - Excavate to State Unrestricted Use SCO Levels)

Table 6-6 (presented previously) summarizes analytical results for 12 exterior soil samples that were collected during the SEAD-2 RCRA Closure Activity versus NYSDEC's Unrestricted Use SCOs.

Twelve SVOCs, one PCB congener, and seven metals exceed their respective Unrestricted Use SCO levels, in one or more of the samples collected. Further, the 95th UCLs computed from the available data for each of the compounds indicates that 13 of the contaminants are present at levels that exceed NYSDEC's Unrestricted Use SCO values. Of these compounds, five cPAH compounds exceed their Unrestricted Use SCOs in every sample collected, and each is present at significant levels.

The most probable sources for the identified cPAH compounds is asphalt associated with the hard-pack parking area surrounding the building, rail and vehicular traffic around the building, and roofing and traction aid materials that were applied to the roof and loading dock at the building. To eliminate these contaminants, the Army conservatively anticipates that the parking area surrounding Building 301 will

need to be excavated and removed. Further, since excavation of the parking area surrounding the former PCB Transformer Storage Facility is likely to compromise the structural integrity of the building, Building 301 will need to be demolished. Finally, railroad tracks and bedding located east of the building will also need to be removed to allow for excavation of soil that is anticipated to be contaminated with the same compounds as found around Building 301. These tracks would subsequently be reinstalled to continue rail connection to businesses that are now located within the PID Area of the former Depot.

Based on these anticipations, the Army estimates that an area of soil measuring 100 ft. by 150 ft. will need to be excavated to a minimal depth of 1 foot. Approximately 560 yd^3 of soil would be excavated and disposed at a licensed, off-site landfill. Estimated remedial action costs would also include building demolition and disposal ($25,000), and railroad track removal and reinstallation ($75,000).

All excavated soil and demolition debris would be characterized, stabilized as needed, and transported for disposal at licensed off-site landfills. Storm event water captured in the excavated area would be collected, characterized, and treated on-site, as necessary. It would then be discharged to the Seneca County Wastewater Treatment Facility in conformance with their requirements.

Once the excavation was completed and its extent confirmed by the collection and analysis of confirmatory samples, the area of the excavation would need to be backfilled, compacted, and graded.

Once this action was completed, the land excavated would be appropriate for unrestricted use and unlimited exposures to the soil at the AOC. The building would still be restricted to and industrial-type use per provisions of the prior RCRA Closure.

SEAD-2, Soil Alternative 2b (SA2b - Excavate to State Unrestricted Use SCO Level) Costs

Capital Cost (minimum):	$156,000
Annual OM&M Cost (soil):	$0
Present Worth Costs (minimum):	$156,000
Construction Time:	2 Month
Completion Time:	15 Months

SEAD-5, Soil Alternative 2c (SA2c - Excavate to State Unrestricted Use SCO Levels)

Table 6-7 (presented previously) summarizes the post-TCRA soil data for SEAD-5 versus NYSDEC's Unrestricted Use SCO values.

Concentrations measured for 16 PAH and eight metal compounds in individual samples exceeded their respective Unrestricted Use SCO values, one or more times. Selenium was the compound observed to surpass its SCO level most frequently, followed by the seven cPAHs.

Soil contaminated by compounds above NYSDEC's Unrestricted Use SCO levels exists within the footprint of the TCRA excavated areas, as well as in areas exterior to the excavation sites. Data from the TCRA excavation areas show that residual levels of selenium are the predominant concern in the former excavation areas, while concentrations of chemical in sampling locations exterior to the excavation sites show that selenium and the cPAH compounds have roughly equal numbers of locations where one predominates over the other.

Based on the location and depth of the contaminants found at SEAD-5, the Army conservatively estimates that an additional 4,676 yd^3 of soil would need to be excavated from SEAD-5. The initial, additional excavations required would include sites where shallow (6 inch) excavations are likely, and locations where deeper excavations (24 inches) would be anticipated. Again, the full extent of the final excavations could increase based on confirmatory sampling and analysis results.

All excavated soil would be characterized, stabilized as needed, and transported for disposal at licensed, off-site landfills. Storm event water captured in the excavated area would be collected, characterized, and treated on-site, as necessary. It would then be discharged to the Seneca County Wastewater Treatment Facility in conformance with their requirements.

Once the excavation was completed and its extent confirmed by the collection and analysis of confirmatory samples, the area of the excavation would need to be backfilled, compacted, and graded.

Once this action was completed, the land excavated would be appropriate for unrestricted use and unlimited exposures to the soil at the AOC.

SEAD-5, Soil Alternative 2c (SA2c - Excavate to State Unrestricted Use SCO Levels) Costs

Capital Cost (minimum):	$467,600
Annual OM&M Cost (soil):	$0
Present Worth Costs (minimum):	$467,600
Construction Time:	3 Months
Completion Time:	18 Months

9.2.3 Soil Alternative 3 (SA3a, b, c): Excavation of Contaminated Soil to Achieve State Restricted Industrial Use SCO Levels, Off-Site Treatment/Disposal and Soil Backfill

The third remedial alternative evaluated individually for SEADs 1, 2, and 5 involved the excavation of soil at the SWMUs that contained concentrations of contaminants in excess of NYSDEC's Restricted Industrial Use SCO levels.

SEAD-1, Soil Alternative 3a (SA3a - Excavation to State Industrial SCO Levels)

Table 6-3 summarizes analytical results for 12 exterior soil samples that were collected during the SEAD-1 RCRA Closure Activity versus NYSDEC's Restricted Industrial Use SCOs.

Only zinc is found in individual soil samples at concentrations that exceed NYSDEC's Restricted Industrial Use SCO values; however, the 95th UCL of the dataset is below Restricted Industrial Use levels. The Army reiterates that the most likely source of the zinc found in the soil at SEAD-1 is the scouring or washing of zinc coating off the walls and roof of the building. As such, the only way to prevent soil contamination from reoccurring in the future is to demolish the building. In addition, once the building has been demolished and the debris is removed, soil in locations where data indicates zinc is present at concentrations above the Industrial Use SCO levels should be excavated and disposed at a licensed, off-site landfill.

Based on the existing data, surface soil at two locations would currently need to be excavated to achieve the Industrial Use SCO levels. The Army anticipates that soil from two areas (one 10 ft. x 15 ft. by 1 ft.;

the second 25 ft. x 15 ft. x 1ft.) around the building would need to be removed, and a minimum of approximately 20 yd^3 of soil would need to be disposed. Confirmatory sampling and analysis would be used to confirm the final extent of the excavation. Estimated remedial costs would also include building demolition and disposal ($25,000).

All excavated soil and demolition debris would be characterized, stabilized as needed, and transported for disposal at a licensed, off-site landfill. Storm event water captured in the excavated area would be collected, characterized, and treated on-site, as necessary. It would then be discharged to the Seneca County Wastewater Treatment Facility in conformance with their requirements.

Once the building demolition and soil excavation was completed and its extent confirmed by the collection and analysis of confirmatory samples, the area would need to be backfilled, compacted, and graded.

Once this action was completed, the land would be appropriate for restricted industrial use. Periodic inspections would need to be conducted to ensure that the PID-wide LUCs governing future land use were enforced.

SEAD-1, Soil Alternative 3a (SA3a - Excavation to State Industrial SCO Levels) Costs

Capital Cost:	$30,000
Annual OM&M Cost (soil):	$3,000
Present Worth Costs:	$67,230
Construction Time:	1 Month
Completion Time:	12 Months

SEAD-2, Soil Alternative 3b (SA3b - Excavations to State Industrial Use SCO Levels)

Table 6-6 summarizes analytical results for 12 exterior soil samples that were collected during the SEAD-2 RCRA Closure Activity versus NYSDEC's Restricted Industrial Use SCO levels.

Benzo(a)pyrene is found at concentrations in excess of NYSDEC's Restricted Industrial SCO levels at all exterior sampling locations except to the south of the building. The arsenic concentration measured in the sample from the south of Building 301 exceeds its Industrial Use SCO level; thus soil from all areas around the building will require excavation. The Army reiterates that the most probable source for the benzo(a)pyrene and the other cPAH compounds found at the AOC is asphalt associated with the hard-pack parking area surrounding the building. As such, the Army anticipates that the parking area surrounding Building 301 will need to be excavated and removed. Further, since excavation of the parking area surrounding the Building 301 is likely to compromise the structural integrity of the building, the building will be demolished. Under this scenario, the Army does not anticipate that it will be necessary to remove the railroad tracks to the east of the building to gain access to the soil that underlies the tracks.

Based on these anticipations, the Army estimates that an area measuring 70 feet by 150 feet will need to be excavated to a minimal depth of 1 foot. It is probable that the excavation volume will expand either laterally or vertically once samples are collected and analyzed to confirm that the remedial action

achieves Restricted Industrial Use cleanup objective. Nevertheless, 389 yd^3 of soil would be excavated and disposed of at a licensed, off-site landfill. Estimated remedial action costs would also include building demolition and disposal ($25,000).

All excavated soil and demolition debris would be characterized, stabilized as needed, and transported for disposal at a licensed, off-site landfill. Storm event water captured in the excavated area would be collected, characterized, and treated on-site, as necessary. It would then be discharged to the Seneca County Wastewater Treatment Facility in conformance with their requirements.

Once the excavation was completed and its extent confirmed by the collection and analysis of confirmatory samples, the area of the excavation would need to be backfilled, compacted, and graded.

Once this action was completed, the land excavated would be appropriate for industrial use. Periodic inspections would need to be conducted to ensure that the PID-wide LUCs governing future land use and controlling access to and use of groundwater were enforced.

SEAD-2, Soil Alternative 3b (SA3b - Excavate to State Industrial Use SCO Levels) Costs

Capital Cost (minimum):	$63,900
Annual OM&M Cost (soil):	$3,000
Present Worth Costs (minimum):	$101,130
Construction Time:	1 Month
Completion Time:	12 Months

SEAD-5, Soil Alternative 3c (SA3c - Excavate to State Industrial Use SCO Levels)

Table 6-7 summarizes analytical results for confirmatory and delineations soil samples that were collected during the SEAD-5 TCRA versus NYSDEC's Restricted Industrial Use SCO levels.

Concentrations of benzo(a)pyrene detected in samples are the primary driver of the remedial action that is necessary to achieve NYSDEC's Restricted Industrial Use cleanup objectives at SEAD-5. Seven isolated locations within the bounds of the TCRA excavations still contain concentrations in excess of the industrial cleanup objectives, and 22 locations to the south and east-southeast of the TCRA's largest excavation still show levels of contaminants above desired levels.

Based on the distribution of contaminants in the soil at concentrations above the industrial SCO levels, the Army anticipates that approximately 3,700 yd^3 of soil will need to be excavated and disposed at a licensed, off-site landfill. All excavated soil would be characterized, stabilized as needed, prior to transport for disposal. Storm event water captured in the excavated area would be collected, characterized, and treated on-site, as necessary. It would then be discharged to the Seneca County Wastewater Treatment Facility in conformance with their requirements.

Once the excavation was completed and its extent confirmed by the collection and analysis of confirmatory samples, the area of the excavation would need to be backfilled, compacted, and graded.

Once this action was completed, the land at SEAD-2 would be appropriate for industrial use. Periodic inspections would need to be conducted to ensure that the PID-wide LUCs governing future land use were enforced.

SEAD-5, Soil Alternative 3c (SA3c - Excavate to State Industrial Use SCO Levels) Costs

Capital Cost (minimum):	$370,000
Annual OM&M Cost (soil):	$3,000
Present Worth Costs (minimum):	$407,230
Construction Time:	2 Month
Completion Time:	15 Months

9.2.4 Soil Alternative 4 (SA 4a, b): Implementing Land Use Controls that Prohibit Residential Housing, Elementary or Secondary Schools, Childcare Facilities or Playgrounds and Soil Alternative (SA 4c) Interring Contaminated Soil under a Protective Cover and Implementing Land Use Controls that Prohibit Unauthorized Excavation, and that Prohibit Residential Housing, Elementary or Secondary Schools, Childcare Facilities or Playgrounds.

The fourth alternative evaluated individually for SEADs 1, 2, and 5 involves the implementation of LUCs that prohibit the use of the land within the three AOCs for residential housing, elementary or secondary schools, childcare facilities or playgrounds. Additionally, at SEAD-5, contaminated soils that contain elevated concentrations of hazardous constituents at levels that pose potential carcinogenic risks to industrial workers will be interred beneath an engineered cover. Once the contaminated soils are interred at SEAD-5, an additional LUC that prohibits unauthorized excavations and activities that could disturb the engineered cover will be implemented and maintained over the affected area.

SEAD-1, Soil Alternative 4a (SA4a - Land Use Controls)

At SEAD-1, available data indicates that there are residual levels of selected contaminants in individual samples that exceed soil cleanup guidance values documented by the EPA and NYSDEC. However, the 95th UCL concentrations for the AOC's dataset show that all contaminants are present at AOC aggregate concentrations that are consistent with the current and intended future use of the property, which is commercial and industrial land. Additionally, the human health risk assessment shows that the carcinogenic risks associated with chemicals found at the AOC are consistent with EPA's recommended range (10^{-4} – 10^{-6}). Although there is an indication that non-cancer HIs are above EPA's preferred level of 1 for the construction worker, the risk results from metal contaminants that are present at the site at levels that are consistent with, or lower than, State and Federal guidance values as well as naturally occurring soil concentrations found at SEDA. The metal contaminant that is found in soil at the highest overall concentration in SEAD-1 is zinc, but this result is not surprising because the walls and roof of Building 307 are fabricated from zinc-coated, corrugated metal sheets, and it is believed that the identified zinc in soil results from the wash off of zinc oxide storm events.

Under this remedial alternative, the Army plans to formally apply LUCs that prohibit use of the land for residential housing, elementary and secondary schools, childcare facilities and playgrounds within SEAD-1. Implementation, maintenance, and monitoring of this LUC will limit exposures to potentially sensitive receptors at this AOC.

SEAD-1, Soil Alternative 4a (SA4a – Land Use Controls) Costs

Capital Cost	$0
Annual OM&M Cost (soil)	$3,000
Present Worth Cost	$37,230
Construction Time	0 Month
Completion Time	1 Month

SEAD-2, Soil Alternative 4b (SA4b - Land Use Controls)

At SEAD-2, available data indicates that there are residual levels of selected contaminants in individual samples that exceed soil cleanup guidance values defined by the EPA and the NYSDEC. The human health risk assessment shows that the carcinogenic risks for the industrial worker associated with chemicals found at the AOC are above the EPA's recommended range of 10^{-4} – 10^{-6}. However, the principal contaminants contributing to the risk are the cPAHs which are associated with the hard-pack parking area and materials of construction used at the building (e.g., asphalt tar roof and asphalt and gravel traction aide). Therefore, the elevated carcinogenic risk level is believed to be an artifact of the soil sample collection and analysis effort. The non-cancer risk determined for the construction worker also exceeds EPA's preferred level of 1, but like the comparable finding at SEAD-1, this is caused by background levels of metals in the soil.

Given this information, the Army believes it is appropriate to formally apply the LUCs that prohibit use of the land for residential housing, elementary and secondary schools, childcare facilities and playgrounds within SEAD-2.

SEAD-2, Soil Alternative 4b (SA4b – Land Use Controls) Costs

Capital Cost	$0
Annual OM&M Cost (soil)	$3,000
Present Worth Cost	$37,230
Construction Time	0 Month
Completion Time	1 Month

SEAD-5, Soil Alternative 4c (SA4c - Establish Protective Soil Cover and Implement and Land Use Controls)

Available data indicates that there are residual levels of selected contaminants in individual samples that exceed soil cleanup guidance values that are defined by the EPA and the NYSDEC at SEAD-5. Results of the human health risk assessment show that the non-cancer hazards anticipated for all likely receptors are lower than EPA's preferred level of 1. The carcinogenic risk for the industrial worker at SEAD-5 is 1.3×10^{-4}, while levels for the other receptors are within EPA's recommended range. The carcinogenic risk at SEAD-5 results primarily from high levels of cPAHs, including primarily benzo(a)pyrene, that are found along the southern edge of where the former sewage sludge piles were located and further to the south, where the Army previously operated a public works maintenance and storage yard activity

Due to the presence of elevated cPAHs in the soil, an engineered protective cover will be installed above locations where cPAH compound concentrations exceeded NYSDEC Industrial Use SCOs. The soil cap would be constructed of three layers: a base layer of fill that is currently stockpiled at locations within, and immediately adjacent to, SEAD-5; a layer of demarcation fabric overlying the base fill layer; and a 12-inch layer of overfill material in which the level of contaminants identified in samples are less than New York's Commercial Use SCOs. Both layers of soil that are applied at the AOC would be compacted, leveled, and graded to promote positive surface water drainage away from the covered land. It is estimated that an area measuring approximately 50,000 square feet will be covered with the soil, fill and demarcation fabric cover. In addition, contaminated soils from the adjacent AOCs, SEAD-59 and SEAD-71, will be brought onto SEAD-5 and interred here under the soil, fill, and demarcation fabric cover. Available analytical results for the stockpiled soil from the adjacent AOCs indicates that the soil is not hazardous waste, and that it contains comparable chemical constituents, but at lower concentrations, to those that are identified in the soil at SEAD-5.

After the soil cap is installed, a LUC that prohibits unauthorized excavations or activities likely to disturb the cover layer, the demarcation fabric, and the interred soils will be imposed over the area where soils are interred at SEAD-5. Finally, a LUC that prohibits residential housing, elementary and secondary schools, childcare facilities and playgrounds will also be implemented over the entire AOC due to the continued presence of buried soil that contains hazardous substances at levels that pose potential carcinogenic risks to human receptors.

SEAD-5, Soil Alternative 4c (SA4c - Establish Protective Soil Cover and Land Use Controls) Costs

Capital Cost	$156,000
Annual OM&M Cost (soil)	$3,000
Present Worth Cost	$193,230
Construction Time	2 Months
Completion Time	12 Months

10.0 COMPARATIVE ANALYSIS OF ALTERNATIVES

The following discussion on the comparative analysis of alternatives only pertains to SEADs 1, 2, and 5. Available information and data indicate that conditions remaining at SEADs 24 and 48 make them appropriate for determinations of no further action, so no such discussions are required.

The evaluation criteria used to assess proposed alternatives for SEADs 1, 2, and 5 are described below.

- Overall protection of human health and the environment assesses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced or controlled through treatment, engineering controls or institutional controls.
- Compliance with ARARs addresses whether or not a remedy would meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and requirements or provide grounds for invoking a waiver.
- Long-Term effectiveness and permanence refers to the ability of a remedy to maintain reliable protections of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.
- Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies, with respect to these parameters, a remedy may employ.
- Short-Term effectiveness address the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.
- Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
- Cost includes the estimated capital and OM&M costs and net present-worth costs.
- State acceptance indicates if, based on its review of the RI/FS and Proposed Plan, the state concurs with the preferred remedy at the present time.
- Community acceptance will be assessed in the ROD and refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports.

A comparative analysis of these alternatives based upon the evaluation criteria noted above is presented below for the three former SWMUs (i.e., SEADs 1, 2, and 5) where remedial actions are required.. Since the remedial alternatives considered for SEADs 1, 2, and 5 are frequently equivalent, the following discussion applies to each of the AOCs, except where AOC-specific variations are noted.

10.1 OVERALL PROTECTIVENESS OF HUMAN HEALTH AND THE ENVIRONMENT

Groundwater Alternative (GA) 1 is not protective of human health or the environment since it does not address the contaminants likely to be present in the groundwater at SEADs 1, 2, and 5 at concentrations

above those that allow for unrestricted use and unlimited exposures. GA 2 is protective of human health since it does acknowledge that contaminants are likely to be present in the groundwater underlying these AOCs based on the known quality of groundwater samples that have been collected from other former SWMUs located within the greater PID Area at the Depot. The available data from the other PID Area AOCs suggests that the regional groundwater contains hazardous constituents and other contaminants at levels above those that allow for unrestricted use and unlimited exposures, and therefore, prohibits access to or use of the groundwater for all purposes.

Soil Alternatives 1a, b, and c (SA1a, b, c) for SEADs 1, 2, and 5, respectively, are the least protective alternatives with respect to human health and the environment since it does not address or consider the presence of hazardous substances in the soil at levels that could pose risks to humans. SAs 2a, b and c for SEADs 1, 2, and 5 are the most protective alternatives for human health and the environment as its objective is to remove all soil that contains hazardous substances in excess of NYSDEC's levels that will allow for unrestricted use and unlimited exposures. SAs 3a, b, and c and SAs 4a, b and c are protective of use of the land at each SWMU under future industrial scenario use. SA3a, b, and c are slightly more protective of human health than SA4a, b, and c, since the highest contaminant concentrations in excess of NYSDEC levels identified in the soil would be removed from each of the former AOCs.

10.2 COMPLIANCE WITH ARARS

New York designates all groundwater as a possible source of drinking water. Further, New York has promulgated standards for groundwater that is designated as GA level. No groundwater samples were collected from SEADs 1 or 2 during the RCRA Closure operations. A limited number of groundwater samples were collected from SEAD-5 during the 1993 – 1994 ESI, and these were shown to contain elevated levels of metals that may have been associated with turbid condition of the groundwater samples that were collected and characterized. However, groundwater data collected from other AOCs and sampling locations within the PID Area suggests that there are several hazardous substances or contaminants that have been identified in the regional groundwater samples at levels that exceed New York's GA groundwater standards. Finally, the generally poor quality of the PID Area-wide groundwater has already been identified and acknowledged, and access to and use of the groundwater has been prohibited by remedial actions defined in a separate ROD that was finalized in 2004 [*Final ROD for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas* (Parsons, 2004)].

GA1 does not address New York's groundwater standards for any of the three SEADs, and does not place any restriction that prohibits the use of the groundwater at the AOCs. GA2 also does not address New York's GA groundwater standards, but it does recommend that the general PID Area-wide groundwater access/use restriction be formally placed on the groundwater underlying these three AOCs.

There are currently no promulgated federal standards for hazardous substance levels in soils, and risked based decisions are used to determine if cleanup is warranted or necessary. NYSDEC has issued and enacted cleanup objectives for five categories of future land use (i.e., unrestricted, residential, restricted-residential, commercial, and industrial) at waste sites located within its bounds and these were considered in connection with the development of the preferred remedial action in this Record of Decision.

For SEADs 1, 2, and 5, SAs 1a, b, and c do not comply with the NYSDEC's SCOs. SAs 2a, b, and c and SAs 3a, b and c comply with NYSDEC's SCOs for the future use of the site anticipated under each future use alternative (i.e., Unrestricted Use and Industrial Use, respectively) considered. Although SAs 4a and b do not comply with NYSDEC's SCOs, risk assessments performed for SEADs 1 and 2 demonstrate that no unacceptable site-related health risk exist for the continued future use of the site as industrial or commercial property. LUCs will be implemented at these AOCs to maintain that future use. Similarly, for SEAD-5 the construction and maintenance of the soil cap above the soils that are contaminated with cPAHs under SA 4c will further reduce the likelihood of exposure to the contaminated soils that will be left at the AOC.

10.3 LONG-TERM EFFECTIVENESS AND PERMANENCE

SAs 1a, b and c are not effective in eliminating the exposure to contaminants identified in soil at SEAD-1, SEAD-2 or SEAD-5. SAs 2a, b, and c demonstrate the highest degree of long-term effectiveness for soil, as all soil that contains contaminants in excess of New York's Unrestricted Use SCOs will be excavated and removed from each of the AOCs.

SAs 3a, b, and c demonstrate an intermediate level of long-term effectiveness for controlling future exposures, as soil that exceeds the State's Restricted Industrial Use SCO values would be removed, but contaminants in excess of Unrestricted Use levels would still remain at the site. Furthermore, under SAs 3a, b, and c, the LUCs that prohibit the use of the land within SEADs 1, 2, and 5 for residential housing, elementary and secondary schools, childcare facilities and playgrounds would further enhance the long-term effectiveness of the proposed remedies, but do not provide a permanent solution.

LUCs proposed under SAs 4a and b (Land Use Controls) will prohibit future residential housing, elementary or secondary schools, childcare facilities, or playgrounds within the bounds of SEADs 1 and 2; which will provide some level of long-term protection against likely future exposures, but does not provide a permanent solution. SA 4c for SEAD-5 which combines a protective soil cover with LUCs will provide a protective barrier over the more highly contaminated soils that remain at the AOC and will prohibit the future use of the land within the AOC for residential housing, elementary and secondary schools, childcare facilities, and playgrounds will provide a greater degree of long-term effectiveness than is offered under SA 1c, but is not considered a permanent solution to the concerns identified at the AOC.

GA 1 is expected to have minimal long-term effectiveness on groundwater quality since it prescribes "no action" to restore groundwater quality. GA 2 acknowledges the presence of hazardous substances in the groundwater at both of the AOCs, and prohibits access to/use of it. Since an alternative potable water supply that does not rely on local groundwater exists within the PID Area, GA 2 provides a remedy that should be effective for the long-term and represent a permanent solution.

10.4 REDUCTION IN TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT

SAs 1a, b, and c and SAs 4a and b, would provide no reduction in the toxicity, mobility, or volume of hazardous substances found in soil at any of the AOCs. SA 4c (soil cover and LUCs at SEAD-5) would provide some reduction in the potential surficial mobility of the contaminated soils, as a minimum of 12

inches of fill meeting Restricted Commercial Use standards would be place over more highly contaminated soils at the AOC.

Under SAs 2a, b and c, soils containing hazardous substances in excess of the State's Unrestricted Use SCOs would be excavated and transported off-site for disposal. This would reduce the toxicity and mobility of hazardous substances left at the AOCs, but would transfer these concerns to the managed landfill site where the material was subsequently disposed. Comparably, SAs 3a, b, and c would also reduce the toxicity and mobility of hazardous substances left at SEADs 1, 2, and 5 respectively, but not to the same extent as would be achieved under SAs 2a, b and c, as soils exceeding the State's Restricted Industrial Use levels are the only materials excavated. Again, the disposal of soils containing contaminants in excess of the Restricted Industrial Use SCOs at an alternative location would transfer these concerns to the new disposal site. In either case, if excavated soil needed to be stabilized prior to off site disposal, the volume of the material disposed at the off site facility would increase.

Comparably, neither GA 1 nor GA 2 would provide any reduction in the toxicity, mobility or volume of hazardous substances that are contained in groundwater at the AOCs.

10.5 SHORT-TERM EFFECTIVENESS

SAs 1a, b, and c would not pose any additional short term hazards to workers at the AOCs or the community as physical construction is not included in any of these remedies at SEADs 1, 2, or 5. SAs 4a and b for SEADs 1 and 2 also would not pose any additional short-term hazards to workers at the AOCs or the community as neither of these alternatives involves any physical construction action.

Application of SAs 2a, b and c, SAs 3a, b, and c for SEADs 1, 2, and 5, and SA 4c for SEAD-5 only, could all pose some additional short-term hazards to neighboring site workers and the community through dermal contact, ingestion, or inhalation of hazardous constituents during the excavation, loading, transporting, and unloading operations that are needed to complete these construction efforts. Further, noise from the heavy equipment used for excavation, loading, spreading, and transport of contaminated soil and backfill could also impact nearby employees of neighboring industries and companies, and local residents. In addition, interim and post remediation sampling activities would pose some risk to site workers. Potential risks to nearby employees of local companies and nearby residents could be controlled by developing and implementing sound engineering controls, health and safety procedures, and monitoring practices.

Since soil and debris will be transported off-site under SAs 2a, b and c, as well as SAs 3a, b, and c, there will be an increase in traffic on the roads within, and surrounding, the Depot and the receiving landfills. Although, no soil will be transported off-site under SA 4c for SEAD-5, there will be extra vehicle activity due to bringing the cover soil fill onto the AOC and spreading it out. This could translate into an increased likelihood of vehicular accidents, and potential releases of soil and debris containing hazardous constituents at other locations along the driving routes. Since more material is being excavated and disposed under SAs 2a, b and c, there is a greater potential under this option than under SAs 3a, b and c. SAs 2 and 3 also require varying amounts of soil disturbance that could affect the surface water hydrology in the areas being excavated.

The larger excavations that are expected to achieve State Unrestricted Use SCO levels (i.e., SAs 2a, b and c) have a greater likelihood of impacting the surface water hydrology at each of the AOCs than do SAs 3a, b and c. SAs 2a, b, and c's disturbance of soil across larger surfaces at all three AOCs also increases the likelihood of soil erosion and transport, both via surface water flow and as fugitive dusts. Therefore, appropriate silt and dust containment measures will need to be implemented and monitored during the excavation, loading, and hauling activities. Lesser levels of controls would also need to be implemented, maintained and monitored during the work associated with SAs 3a, b, and c.

Neither GA 1 nor GA 2 are expected to cause any short-term effectiveness concerns, as neither require any physical action and there are no anticipated disturbances to the activities or operations performed within or around SEADs 1, 2, or 5.

10.6 IMPLEMENTABILITY

Soil Alternatives 1a, b and c, the no-action alternatives, would be the easiest alternative to implement, since there are no physical remedial actions or other actions to undertake.

SAs 4a and b for SEADs 1 and 2 will be slightly more difficult to implement than their counterpart SA 1a and b measures because they require the implementation, maintenance, oversight and annual reporting of the continuing effectiveness of land use controls and the preparation, submittal and approval of a land use control implementation plan.

SA 4c at SEAD-5 will be also more difficult to implement than Alternative 1c because it requires construction, and the implementation, maintenance, oversight and annual reporting of the continuing effectiveness of land use controls and the preparation, submittal, and approval of a land use control implementation plan. While construction of an engineered protective cover is a mature technology that can be readily completed, it does require more effort and planning than the no action alternative.

The excavation, stabilization (as necessary), characterization, transport, and disposal of soil and debris excavated under SAs 2a, b, and c or SAs 3a, b and c are readily available and mature technologies and can be accomplished. The increased volume of soil/debris requiring excavation under SAs 2 at all AOCs would increase the difficulty of completing this alternative above those anticipated for comparable SA 3s.

GA 1, the "no action" alternative would be the easiest to implement since there are no actions to undertake. GA 2 will only be slightly more difficult to implement because it only requires the implementation, maintenance, oversight, and annual reporting of the continuing effectiveness of the groundwater access/use restriction and the preparation, submittal and approval of the restriction implementation plan.

10.7 COST

The present worth cost associated with all alternatives is calculated using a discount rate of seven percent (7%) and a 30-year time interval. The estimated capital, operation, maintenance, and monitoring, and the present-worth costs are summarized below.

Alternative Combination	Capital Cost ($)	Annual OM&M Costs ($/yr)	Total Present-Worth Costs ($)
SEAD-1, former Hazardous Waste Storage Container Facility (Building 307)			
GA 1 & SA 1a – Groundwater and Soil No Action (GW and Soil NA)	$0	$0	$0
GA 2 & SA 1a – GW Land Use Control (LUC) and Soil NA	$0	$3,000	$37,230
GA 1 & SA 2a – GW NA and Soil Unrestricted Use	$51,700	$0	$51,700
GA 2 & SA 2a – GW LUC and Soil Unrestricted Use	$51,700	$3,000	$88,930
GA 1 & SA 3a – GW NA and Soil Industrial Use	$30,000	$3,000	$67,230
GA 2 & SA 3a – GW LUC and Soil Industrial Use	$30,000	$6,000	$104,460
GA 2 & SA 4a – GW NA and Soil LUC	$0	$3,000	$37,230
GA 2 & SA 4a – GW LUC and Soil LUC	$0	$6,000	$74,460
SEAD-2, former PCB Transformer Storage Facility (Building 301)			
GA 1 & SA 1b – GW and Soil NA	$0	$0	$0
GA 2 & SA 1b – GW LUC and Soil NA	$0	$3,000	$37,230
GA 1 & SA 2b – GW NA and Soil Unrestricted Use	$156,000	$0	$156,000
GA 2 & SA 2b – GW LUC and Soil Unrestricted Use	$156,000	$3,000	$193,230
GA 1 & SA 3b– GW NA and Soil Industrial Use	$63,900	$3,000	$101,130
GA 1 & SA 3b– GW LUC and Soil Industrial Use	$63,900	$6,000	$138,360
GA 2 & SA 4b – GW NA and Soil LUC	$0	$3,000	$37,230
GA 2 & SA 4b – GW LUC and Soil LUC	$0	$6,000	$74,460
SEAD-5, former Sewage Sludge Storage Piles			
GA 1 & SA 1c – GW and Soil NA	$0	$0	$0
GA 2 & SA 1c – GW LUC and Soil NA	$0	$3,000	$37,230
GA 1 & SA 2c – GW NA and Soil Unrestricted Use	$467,600	$0	$467,600
GA 2 & SA 2c – GW LUC and Soil Unrestricted Use	$467,600	$3,000	$504,830
GA 1 & SA 3c– GW NA and Soil Industrial Use	$370,000	$3,000	$407,230
GA 2 & SA 3c– GW LUC and Soil Industrial Use	$370,000	$6,000	$444,460
GA 1 & SA 4c – GW NA, Inter Contaminated Soils, and Soil LUC	$156,000	$3,000	$193,230
GA 2 & SA 4c – GW LUC, Inter Contaminated Soils, and Soil LUC	$156,000	$6,000	$230,460

Alternative combination SA1 and GA1 are the least expensive remedial alternatives at all three of the AOCs (SEADs 1, 2, and 5) with expected costs of $0. Alternative combinations SA2 (b and c) and GA 2 are the most expensive remedial action alternatives with respective costs of $193,230 for SEAD-2 and $504,830 for SEAD-5. Alternative GA 2 and SA 3a is the most expensive alternative combination for SEAD-1 with an anticipated present-worth cost of $104,460, based on available information. However, since the extent of potential soil contamination at SEAD-1 is unbounded at this time, the actual costs of the potential soil removal action that may be necessary at this location may be understated.

10.8 STATE ACCEPTANCE

NYSDEC concurs with the preferred remedial soil and groundwater alternatives.

10.9 COMMUNITY ACCEPTANCE

Appendix C, the "Public Comment and Responsiveness Summary", addresses community involvement during the remedy selection process. No formal comments were received from the public during the public meeting. During the public comment period, an email was received from a local resident and a copy of that email is included in **Appendix C**.

11.0 SUMMARY OF THE REMEDIAL GOALS AND PROPOSED ACTION

The selected remedy for any SWMU or AOC should, at a minimum, eliminate or mitigate all significant threats to the public health or the environment presented by the hazardous substances or hazardous wastes present at the SWMU. Based on the data presented and summarized earlier within this ROD, the Army and EPA has individually selected preferred remedies for SEADs 1, 2, 5, 24, and 48 that satisfy this objective.

11.1 SUMMARY OF PRIOR ACTIONS PERFORMED AT SWMUs

11.1.1 SEAD-1: Hazardous Waste Container Storage Facility

The human health risk assessment (HHRA) indicates that carcinogenic risk for industrial receptors is within or below EPA's acceptable range (10^{-4} – 10^{-6}) at SEAD-1. The HHRA further suggests that there is an elevated hazard index for the construction worker due to the presence of metal contaminants in the soil. However, the reported concentrations for most of the metals identified are consistent with background soil concentrations, and they are also all below NYSDEC and EPA recommended reference levels. Zinc, however, is present in the soil at concentrations that are above Depot-wide background concentrations and cleanup objective levels. The Army believes that the zinc results from the storm-event scouring of the zinc-coated corrugated metal roofing and siding materials used in the building's constructions.

Groundwater was not characterized at SEAD-1. However, groundwater samples collected at other locations within the PID area are known to contain hazardous substances at levels that exceed State GA standards and Federal MCLs. Therefore, due to the lack of AOC-specific data, access to and use of groundwater that may contain contaminants shall be restricted until such time as additional data become available to determine if groundwater contamination is present in the area of SEAD-1, the former Hazardous Waste Container Storage Facility (Building 307).

Based on the information presented above and in supporting documents identified in the Administrative Record (Appendix A), the Army believes that the land at SEAD-1 is suitable for continued use as industrial land with no further action. To ensure that the land is only used for industrial purposes in the future, and that groundwater is not used for potable purposes within the AOC, land use controls that prohibit use of the land for residential activities and prohibits access to and use of the groundwater shall be imposed at the AOC.

11.1.2 SEAD-2: PCB Transformer Storage Facility

At SEAD-2, the HHRA indicates that non-cancer hazards at the AOC for industrial receptors are consistent with EPA guidance. There is evidence of an elevated carcinogenic risk for an industrial worker receptor. The elevated cancer risk is caused by the possible presence of cPAHs within the soil exterior of the building. Much of the ground immediately surrounding the building where the soil samples were collected is used for parking and is covered with a hard-packed mixture of broken asphalt, gravel, and dirt. Further, the loading dock surrounding the building was coated with an asphalt and gravel traction aide. Finally, the roof of the building is coated with an asphalt sealant. Each of these uses of asphaltic materials is a likely contributing source of the noted cPAHs that are found in the soil immediately

surrounding SEAD-2 (Building 301), and that the elevated cancer risk identified results from the analysis of these materials instead of soil.

Groundwater was not characterized at SEAD-2. However, groundwater samples collected at other locations within the PID area are known to contain hazardous substances which are present at levels in excess of State GA Standards and Federal MCLs. As such, due to the lack of AOC-specific data, the Army believes it is prudent to restrict access to and use of groundwater that may contain hazardous substances until such time as additional data become available to determine if groundwater contamination is present in the area of SEAD-2, the former PCB Storage Facility (Building 301).

Based on the information presented above and in supporting documents identified in the Administrative Record (**Appendix A**), the Army believes that the land at SEAD-2 is suitable for continued use as industrial land with no further action. To ensure that the land is only used for industrial purposes in the future, and that groundwater is not used for potable purposes within the AOC until definitive data are available to document its quality, land use controls that prohibit use of the land for residential housing, elementary and secondary schools, childcare facilities and playgrounds and that prohibits access to and use of the groundwater shall formally imposed at the AOC.

11.1.3 SEAD-5: Sewage Sludge Waste Piles

At SEAD-5, the HHRA indicates that the non-cancer hazard indices for all industrial receptors are within the acceptable range. The HHRA further indicates that the carcinogenic risk for the construction worker and the adolescent trespasser are within EPA's recommended range, but that the carcinogenic risk for the industrial worker (1.3×10^{-4}) is above the EPA's preferred range (10^{-4} to 10^{-6}). The elevated cancer risk is driven primarily by the concentration of benzo(a)pyrene found in two isolated soil samples that are significantly different than levels found in more than 160 other soil samples characterized at the site. The Army believes that the elevated cPAH concentrations found in these two samples may have resulted from pieces of asphalt that are associated with the AOCs historic use as a DPW-like storage and supply area and equipment storage yard.

To ensure that the land in SEAD-5 is suitable for continued use as industrial land, locations where soil is known to contain levels of cPAH compounds in excess of New York's Restricted Industrial Use SCOs will have a cover, consisting of excess stockpiled soils found at the AOC, a layer of demarcation fabric (e.g., colored "snow" fence or safety fence), and 12-inches of backfill that meets New York's Restricted Commercial Use SCOs. Once the cover is completed, a LUC that prohibits unauthorized excavations or activities likely to disturb the cover will be implemented, monitored, and maintained. Additionally, LUCs that prohibit use of the land for residential housing, elementary and secondary schools, childcare facilities, and playgrounds and a LUC that prohibits access to, and use of, the groundwater shall be imposed at the AOC. These latter two ICs are equivalent to those that have been previously imposed on the land in the PID Area that has been transferred to the SCIDA for beneficial reuse and re-occupation.

11.1.4 SEAD-24: Abandoned Powder Burn Pit

At SEAD-24, the HHRA suggests that there are elevated non-cancer hazards for the construction worker and the child resident receptors. The construction worker's risk results from identified concentrations of aluminum and manganese in the soil, which is consistent with SEDA-wide background concentrations and below state and federal reference levels. Similarly, the majority of the non-cancer hazards identified for the child resident results from metal concentrations reported for soils at the site, which are again generally consistent with naturally occurring background concentrations and below state and federal reference levels.

The Army believes that the land at SEAD-24 is suitable for unrestricted use with no further action.

11.1.5 SEAD-48: E0800 Row Pitchblende Ore Storage Igloos

The Final Status Survey completed for the former Pitchblende Ore Storage Igloos indicates that the E0800 Row igloos and surrounding land are suitable for unrestricted use. Based on the groundwater sampling results, it was concluded that groundwater at SEAD-48 has not been impacted by site activities.

11.2 SELECTED REMEDIES

SEAD-1, SEAD-2 and SEAD-5:

The common elements of the selected remedies at SEADs 1, 2, and 5 include:

- Establishing, maintaining, monitoring, and reporting on a land use control (LUC) that prohibits residential housing, elementary and secondary schools, childcare facilities and playgrounds until unrestricted use and unlimited exposure criteria are attained within the areas of concern (AOCs); and,
- Establishing, maintaining, monitoring, and reporting on a second LUC that prohibits access to, and use of, groundwater at the AOCs until its quality allows for unrestricted use and unlimited exposures.

In addition, at SEAD-5, the selected remedy requires:

- Covering of contaminated soils (including those originating at SEADs-59 and 71) with at least one foot of clean fill that meets New York's Restricted Commercial Use soil cleanup objectives (SCOs);
- Placing demarcation fabric (e.g., colored "snow" or safety fence) between the contaminated soil and the clean fill; and,
- Establishing, maintaining, monitoring, and reporting on a third LUC that prohibits unauthorized excavations or activities that might compromise the integrity of the engineered cover.

The Army shall, through the on-site Commander's representative or other designated official, implement, maintain, inspect, report on, and enforce the remedy described in this ROD. This ROD selects as the remedy for SEAD-1, SEAD-2, and SEAD-5 LUCs (i.e., prohibit unauthorized excavations, SEAD-5 only; and groundwater access/use and land use limitations, SEAD-1, SEAD-2, and SEAD-5) to be imposed by an environmental easement at the time when land comprising SEAD-1, SEAD-2, or SEAD-5 is transferred from Army ownership to another party, as well as the prohibition of any pre-transfer use

inconsistent with the LUCs. Although the Army may later transfer these responsibilities to another party, the Army shall retain ultimate responsibility for remedy integrity.

To implement the remedies selected in this Record of Decision, which will include the imposition of LUCs at SEAD-1, SEAD-2, and SEAD-5, a LUC Remedial Design will be prepared which will provide for the recording of an environmental easement which is consistent with Paragraphs (a) and (c) of the New York State Environmental Conservation Law (ECL) Article 27, Section 1318: Institutional and Engineering Controls. In addition, the Army will prepare an environmental easement for SEAD-1, SEAD-2, and SEAD-5, consistent with Section 27-1318(b) and Article 71, Title 36 of ECL, in favor of the State of New York, which will be recorded at the time of the property's transfer from Federal ownership and which will require the owner and/or any person responsible for implementing the LUCs set forth in this ROD to periodically certify that such institutional controls are in place. The Army and the USEPA will be named as third-party beneficiaries on the environmental easement. A schedule for completion of the draft SEAD-1, SEAD-2, and SEAD-5 LUC Remedial Design Plan (LUC RD) will be completed within 21 days of the ROD signature, consistent with Section 14.4 of the Federal Facilities Agreement (FFA). To implement the remedy prior to transfer, the Army, as the owner and operator of the property at SEAD-1, SEAD-2, and SEAD-5, will through the on-site Commander's representative or other designated official, ensure that the LUCs are implemented by monitoring the property at SEAD-1, SEAD-2, and SEAD 5 and restricting development or use on this property if inconsistent with the LUCs.

SEAD-24 and SEAD-48

The remedies selected for two of the identified AOCs (i.e., SEADs 24 and 48) discussed within this Record of Decision are no further action (NFA).

Based on the findings of the investigations and risk assessment completed, the Army has selected NFA as the remedy for SEAD-24. This selection is based on the Army's and EPA's determination that the site does not pose a significant threat to human health or the environment.

Furthermore, the Army has selected NFA as the remedy for SEAD-48. This selection is based on the Army's determination that the site does not pose a significant threat to human health or the environment. The Final Status Survey performed in conformance with EPA, NYSDEC and Nuclear Regulatory Commission requirements indicate that the igloos are suitable for unrestricted use.

12.0 DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Remedial Action Plan (PRAP) for SEAD-5, the Sewage Sludge Piles site that was presented to, and reviewed by, the public in September 2008 did not describe the use of stockpiled soils found at the AOC as a component of the cover that would be constructed over locations within SEAD-5 where elevated levels of cPAH compounds have been found in site soils. The Proposed Plan's description of the remedy did not indicate that the stockpiled soils were a residual of removal actions completed at SEAD-59 and SEAD-71 that are currently staged in the northern portion of SEAD-5 near the unnamed dirt road that forms SEAD-5's northern boundary, as well as in other areas that are in close proximity but outside of SEAD-5. Available analytical data for these soils indicate that this material contains concentrations of listed hazardous substances that exceed Federal and State soil guidance levels (e.g., State Unrestricted Use and Restricted Use SCOs, Federal PRGs, and RSLs). However, the soil is not a hazardous waste, and the results of a human health risk assessment indicate that the stockpiled soil does not pose unacceptable levels of risk or hazard to future commercial or industrial occupants or users at a site.

A proposed version of the Record of Decision for SEAD-59 and SEAD-71 indicated that the stockpiled soil would be managed under the SEAD-5 site. Material presented earlier within this ROD formalizes the plan to use the stockpiled soil as part of the engineered, protective cover that will be placed at SEAD-5 over surface and near-surface soils that are contaminated with cPAH compounds at concentrations that pose a potential threat to industrial and commercial workers or occupants of the site. With the finalization of this ROD, the Army, EPA, and the State will all agree that use of the historic stockpiled soil as a component of the engineered cover installed above the SEAD-5 is an appropriate use that will enhance the overall protectiveness of the remedy selected for SEAD-5.

Necessary changes to the SEAD-59 and SEAD-71 ROD have been made, and this document has been approved and signed by the Army and the EPA, with concurrence received from the NYSDEC. The Army's intention to use the SEAD-59 and SEAD-71 stockpiled soils was announced in the Proposed Plan presented to, and made available for review by, the public for the Five SWMUs SEADs 1, 2, 5, 24, and 48 during the September - October 2008 public meeting and comment period. Discussions presented in other portions of this ROD fully document how this soil will be used and over-covered as part of the engineered cover, what additional LUCs will be required over the engineered cover, and how the identified LUCs and remedy will be implemented, monitored, maintained, inspected and reported.

Based on the above, the remedy selected for SEAD-5 and described in this ROD includes the following components:

- Soil staged in stockpiles originating from SEAD-59 and SEAD-71 will be used to cover surface and near surface soil at SEAD-5 that contains elevated concentrations of cPAHs. The soil from stockpiles will be graded to promote positive drainage away from the location of the contaminated soil and spread stockpiled soil cover.
- The graded soil cover will then be sequentially over-covered with a layer of demarcation fabric (e.g., "colored" snow or safety fence), and with at least 12 inches of fill that meets New York's Restricted

Commercial Use SCO levels, and the final layer will be graded to promote positive drainage away from the location of the interred stockpiled soils and SEAD-5 surface and near-surface soils.

- A LUC that prohibits unauthorized excavations or other activities that would disturb the engineered cover will then be implemented, monitored, and maintained on the land within SEAD-5 that has been protected by the engineered cover.
- A second LUC that prohibits the use or development of the land within SEAD-5 for residential housing, elementary or secondary schools, childcare facilities, or playgrounds will be implemented, monitored, and maintained on all land within SEAD-5.
- A third LUC that prohibits access to and use of groundwater within the site will also be implemented, monitored, and maintained on all land within SEAD-5.

13.0 STATE ROLE

The State of New York, through the New York State Department of Environmental Conservation (NYSDEC), has concurred with the selected remedies documented in this ROD. The NYSDEC Declaration of Concurrence is provided in **Appendix B** of this ROD.

LIST OF TABLES

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(continued)

Table 6-1
SEAD-1, Building 307, Decontamination Process Verification Sample Results

Record of Decison - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Parameter	Units	Maximum Value	Frequency of Detection	Comparative Value[(1)]	Number of Exceedances	Number of Times Detected	Number of Samples Collected
Volatile Organic Compounds							
Acetone	UG/L	5.6	28%		0	5	18
Styrene	UG/L	0.42	6%	5	0	1	18
Toluene	UG/L	17.2	22%	5	3	4	18
Semivolatile Organic Compounds							
2-Methylnaphthalene	UG/L	1.6	6%		0	1	18
Benzaldehyde	UG/L	3	17%		0	3	18
Benzo(b)fluoranthene	UG/L	1	6%		0	1	18
Bis(2-Ethylhexyl)phthalate	UG/L	10.8	33%	5	5	6	18
Butylbenzylphthalate	UG/L	2.3	39%		0	7	18
Carbazole	UG/L	1.7	6%		0	1	18
Di-n-butylphthalate	UG/L	1.4	22%	50	0	4	18
Diethyl phthalate	UG/L	2.4	44%		0	8	18
Fluoranthene	UG/L	1.4	6%		0	1	18
Pentachlorophenol	UG/L	8.9	11%	1	2	2	18
Phenanthrene	UG/L	1.1	11%		0	2	18
Pyrene	UG/L	1	6%		0	1	18
Metals							
Aluminum	UG/L	3000	89%		0	17	19
Arsenic	UG/L	30.1	79%	25	5	15	19
Barium	UG/L	107	74%	1000	0	14	19
Beryllium	UG/L	0.145	5%		0	1	19
Boron	UG/L	891	74%	1000	0	14	19
Cadmium	UG/L	7.18	89%	5	2	17	19
Calcium	UG/L	130000	95%		0	18	19
Chromium	UG/L	29.2	84%	50	0	16	19
Cobalt	UG/L	2.09	5%		0	1	19
Copper	UG/L	51.7	84%	200	0	16	19
Iron	UG/L	3880	89%	300	14	17	19
Lead	UG/L	165	95%	25	13	18	19
Magnesium	UG/L	9940	95%		0	18	19
Manganese	UG/L	193	100%	300	0	19	19
Mercury	UG/L	0.166	5%	0.7	0	1	19
Nickel	UG/L	14.6	68%	100	0	13	19
Phosphorous	UG/L	1120	84%		0	16	19
Potassium	UG/L	7120	100%		0	19	19
Selenium	UG/L	6.22	37%	10	0	7	19
Silica	UG/L	16200	95%		0	18	19
Silicon	UG/L	7550	95%		0	18	19
Sodium	UG/L	17800	79%	20000	0	15	19
Strontium	UG/L	259	79%		0	15	19
Sulfur	UG/L	17200	74%		0	14	19
Thallium	UG/L	40.6	32%		0	6	19
Titanium	UG/L	57.2	95%		0	18	19
Vanadium	UG/L	9.81	37%		0	7	19
Zinc	UG/L	4240	100%		0	19	19

Notes:
(1) NYSDEC's Class GA Ambient Water Quality Standard values are used for VOCs, SVOCs and metals.

Table 6-2
SEAD-1, Building 307, Repeat Decontamination Process Verification Sample Results

Record of Decison - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Parameter	Units	Maximum Value	Frequency of Detection	Comparative Value[(1)]	Number of Exceedances	Number of Times Detected	Number of Samples Collected
Lead	UG/L	29.5	74%	25	3	14	19

Notes:
(1) NYSDEC's Class GA Ambient Water Quality Standard values are used for VOCs, SVOCs and metals.

Table 6-3
SEAD-1, Building 307 Exterior Soil Sample Summary Results

Record of Decison - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Parameter	Units	95th UCL Value (1)	Maximum Value	Frequency of Detection	Number of Times Detected	Number of Samples Collected	2008 Industrial Soil RSL Value	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?	NYS Unrestricted Use Value	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?	NYS Commercial Use	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?	NYS Industrial Use	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?
Volatile Organic Compounds																		
1,1-Dichloroethene	UG/KG		1.1	17%	2	12	1.10E+06	0		330	0		500000	0		1000000	0	
Acetone	UG/KG		6.1	33%	4	12	6.10E+08	0		50	0		500000	0		1000000	0	
Styrene	UG/KG		0.43	8%	1	12	3.80E+07	0										
Toluene	UG/KG		0.4	8%	1	12	4.60E+07	0		700	0		500000	0		1000000	0	
Semivolatile Organic Compounds																		
2-Methylnaphthalene	UG/KG		19.1	8%	1	12												
Acenaphthene	UG/KG		50.3	100%	12	12	3.30E+07	0		20000	0		500000	0		1000000	0	
Anthracene	UG/KG		70.5	83%	10	12	1.70E+08	0		100000	0		500000	0		1000000	0	
Benzo(a)anthracene	UG/KG		514	58%	7	12	2.10E+03	0		1000	0		5600	0		11000	0	
Benzo(a)pyrene	UG/KG	339.9	561	92%	11	12	2.10E+02	8	Yes	1000	0	No	1000	0	No	1100	0	No
Benzo(b)fluoranthene	UG/KG	682.9	1140	100%	12	12	2.10E+03	0		1000	1	No	5600	0	No	11000	0	No
Benzo(ghi)perylene	UG/KG		440	58%	7	12				100000	0		500000	0		1000000	0	
Bis(2-Ethylhexyl)phthalate	UG/KG		938	100%	12	12	1.20E+05	0										
Carbazole	UG/KG		51.6	25%	3	12	8.60E+04	0										
Chrysene	UG/KG		591	100%	12	12	2.10E+05	0		1000	0		56000	0		110000	0	
Di-n-butylphthalate	UG/KG		124	25%	3	12	6.20E+07	0										
Dibenzofuran	UG/KG		25.6	8%	1	12		0		7000	0		350000	0		1000000	0	
Fluoranthene	UG/KG		1100	100%	12	12	2.20E+07	0		100000	0		500000	0		1000000	0	
Fluorene	UG/KG		43.6	100%	12	12	2.20E+07	0		30000	0		500000	0		1000000	0	
Indeno(1,2,3-cd)pyrene	UG/KG		408	58%	7	12	2.10E+03	0		500	0		5600	0		11000	0	
Phenanthrene	UG/KG		692	100%	12	12				100000	0		500000	0		1000000	0	
Pyrene	UG/KG		1080	100%	12	12	1.70E+07	0		100000	0		500000	0		1000000	0	
Polychlorinated Biphenyls																		
Aroclor-1242	UG/KG	74.04	209	25%	3	12	7.40E+02	0		100	1	No	1000	0	No	25000	0	No
Aroclor-1254	UG/KG	63.22	194	67%	8	12	7.40E+02	0		100	1	No	1000	0	No	25000	0	No
Aroclor-1260	UG/KG		28.8	42%	5	12	7.40E+02	0		100	0		1000	0		25000	0	

Table 6-3
SEAD-1, Building 307 Exterior Soil Sample Summary Results

Record of Decison - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Parameter	Units	95th UCL Value (1)	Maximum Value	Frequency of Detection	Number of Times Detected	Number of Samples Collected	2008 Industrial Soil RSL Value	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?	NYS Unrestricted Use Value	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?	NYS Commercial Use	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?	NYS Industrial Use	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?
Metals																		
Aluminum	UG/KG		16700000	100%	13	13	9.90E+08	0										
Antimony	UG/KG		1260	62%	8	13	4.10E+05	0										
Arsenic	UG/KG	6319	7440	100%	13	13	1.60E+03	13	Yes	13000	0	No	16000	0	No	16000	0	No
Barium	UG/KG		254000	100%	13	13	1.90E+08	0		350000	0		400000	0		10000000	0	
Beryllium	UG/KG		782	100%	13	13	2.00E+06	0		7200	0		490000	0		2700000	0	
Boron	UG/KG		13100	100%	13	13	2.00E+08	0										
Cadmium	UG/KG		1130	100%	13	13	8.10E+05	0		2500	0		9300	0		60000	0	
Calcium	UG/KG		306000000	100%	13	13												
Chromium	UG/KG		24900	100%	13	13	1.50E+09	0					1500000	0				
Cobalt	UG/KG		16600	100%	13	13												
Copper	UG/KG		34300	100%	13	13	4.10E+07	0		50000	0		270000	0		10000000	0	
Iron	UG/KG		22500000	100%	13	13	7.20E+08	0										
Lead	UG/KG	77147	116000	100%	13	13				63000	8	Yes	1000000	0	No	3900000	0	No
Magnesium	UG/KG		15900000	100%	13	13												
Manganese	UG/KG		815000	100%	13	13	2.30E+07	0		1600000	0		10000000	0		10000000	0	
Mercury	UG/KG	193.9	370	100%	13	13	2.80E+04	0		180	2	Yes	2800	0	No	5700	0	No
Molybdenum	UG/KG		1280	100%	13	13	5.10E+06	0										
Nickel	UG/KG	26405	30200	100%	13	13	2.00E+07	0		30000	1	No	310000	0	No	10000000	0	No
Phosphorous	UG/KG		844000	100%	13	13	2.00E+07	0										
Potassium	UG/KG		2350000	100%	13	13												
Selenium	UG/KG		1210	85%	11	13	5.10E+06	0		3900	0		1500000	0		6800000	0	
Silica	UG/KG		2000000	100%	13	13												
Silicon	UG/KG		933000	100%	13	13												
Silver	UG/KG		345	15%	2	13	5.10E+06	0		2000	0		1500000	0		6800000	0	
Sodium	UG/KG		348000	92%	12	13												
Strontium	UG/KG		230000	100%	13	13	6.10E+08	0										
Sulfur	UG/KG		3210000	100%	13	13												
Tin	UG/KG		3240	100%	13	13	6.10E+08	0										
Titanium	UG/KG		105000	100%	13	13												
Uranium	UG/KG		499	8%	1	13												
Vanadium	UG/KG		33200	100%	13	13	7.20E+06	0										
Zinc	UG/KG	8114204	16200000	100%	13	13	3.10E+08	0		109000	13	Yes	10000000	2	No	10000000	2	No

Table 6-4
SEAD-2, Building 301, Decontamination Process Verification Sample Results

Record of Decison - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Parameter	Units	Maximum Value	Frequency of Detection	Comparative Level [1]	Number of Exceedances	Number of Times Detected	Number of Samples Collected
Volatile Organic Compounds							
Acetone	UG/L	3.4	13%		0	2	16
Toluene	UG/L	1.3	6%	5	0	1	16
Semivolatile Organic Compounds							
1,1'-Biphenyl	UG/L	7.7	23%	5	1	3	13
2,4-Dimethylphenol	UG/L	1.9	8%		0	1	13
2-Methylnaphthalene	UG/L	37	38%		0	5	13
2-Methylphenol	UG/L	2	8%		0	1	13
3 or 4-Methylphenol	UG/L	3.4	8%	1	1	1	13
Acenaphthene	UG/L	51.7	46%		0	6	13
Anthracene	UG/L	78.4	54%		0	7	13
Benzo(a)anthracene	UG/L	146	62%		0	8	13
Benzo(a)pyrene	UG/L	116	69%	ND	9	9	13
Benzo(b)fluoranthene	UG/L	148	54%		0	7	13
Benzo(ghi)perylene	UG/L	54.2	38%		0	5	13
Benzo(k)fluoranthene	UG/L	2.6	15%		0	2	13
Bis(2-Ethylhexyl)phthalate	UG/L	12.7	46%	5	2	6	13
Butylbenzylphthalate	UG/L	1.3	23%		0	3	13
Carbazole	UG/L	52.6	69%		0	9	13
Chrysene	UG/L	125	69%		0	9	13
Di-n-butylphthalate	UG/L	2.4	54%	50	0	7	13
Dibenzofuran	UG/L	51.8	46%		0	6	13
Fluoranthene	UG/L	258	77%		0	10	13
Fluorene	UG/L	62.1	46%		0	6	13
Indeno(1,2,3-cd)pyrene	UG/L	55.2	46%		0	6	13
Naphthalene	UG/L	102	69%		0	9	13
Phenanthrene	UG/L	330	85%		0	11	13
Pyrene	UG/L	229	77%		0	10	13
Polychlorinated Biphenyls							
Aroclor-1254 (chip samples)	UG/KG	388	14%	1000[2]	0	1	7
Aroclor-1254 (wipe samples)	ug/100 cm^2	0	0%	10[3]	0	0	18
Metals							
Aluminum	UG/L	2230	69%		0	11	16
Barium	UG/L	118	100%	1000	0	16	16
Beryllium	UG/L	0.191	13%		0	2	16
Boron	UG/L	50.8	63%	1000	0	10	16
Cadmium	UG/L	6.23	25%	5	1	4	16
Calcium	UG/L	85200	100%		0	16	16
Chromium	UG/L	3.31	25%	50	0	4	16
Cobalt	UG/L	2.54	25%		0	4	16
Copper	UG/L	124	44%	200	0	7	16
Iron	UG/L	2930	100%	300	6	16	16
Lead	UG/L	1050	100%	25	12	16	16
Magnesium	UG/L	8370	100%		0	16	16
Manganese	UG/L	254	100%	300	0	16	16
Nickel	UG/L	8.97	100%	100	0	16	16
Phosphorous	UG/L	400	94%		0	15	16
Potassium	UG/L	3440	100%		0	16	16
Selenium	UG/L	5.06	13%	10	0	2	16
Silica	UG/L	27200	100%		0	16	16

Table 6-4
SEAD-2, Building 301, Decontamination Process Verification Sample Results

Record of Decison - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Parameter	Units	Maximum Value	Frequency of Detection	Comparative Level [1]	Number of Exceedances	Number of Times Detected	Number of Samples Collected
Silicon	UG/L	12700	100%		0	16	16
Sodium	UG/L	15000	100%	20000	0	16	16
Strontium	UG/L	371	100%		0	16	16
Sulfur	UG/L	14600	100%		0	16	16
Tin	UG/L	6.36	6%		0	1	16
Titanium	UG/L	96.6	75%		0	12	16
Vanadium	UG/L	13.6	19%		0	3	16
Zinc	UG/L	599	100%		0	16	16

Notes:
(1) NYSDEC's Class GA Ambient Water Quality Standard values are used for VOCs, SVOCs and metals.
(2) NYSDEC's TAGM #4046 soil cleanup objective value is used for PCB chip samples.
(3) Wipe sample results compared to EPA limit of 10 µg/wipe, defined in 40 C.F.R. § 761.125.

Table 6-5
SEAD-2, Building 301, Final Lead Decontamination Process Verification Sample Results

Record of Decison - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Parameter	Units	Maximum Value	Frequency of Detection	Comparative Level [(1)]	Number of Exceedances	Number of Times Detected	Number of Samples Collected
Metals							
Lead	UG/L	519	82%	25	5	14	17

Notes:
(1) NYSDEC's Class GA Ambient Water Quality Standard values are used for VOCs, SVOCs and metals.

Table 6-6
SEAD-2, Building 301 Exterior Soil Sample Summary Results

Record of Decison - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Parameter	Units	95th UCL Value [1]	Maximum Value	Frequency of Detection	Number of Times Detected	Number of Samples Collected	2008 Industrial SOIL RSL Value	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?	NYS Unrestricted Use Value	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?	NYS Commercial Use	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?	NYS Industrial Use	Number of Samples Exceeding Value	Does the 95th UCL Exceed Value?
Volatile Organic Compounds																		
1,1-Dichloroethene	UG/KG		7.6	42%	5	12	1.10E+06	0		330	0		500000	0		1000000	0	
Acetone	UG/KG		20.9	33%	4	12	6.10E+08	0		50	0		500000	0		1000000	0	
Methyl ethyl ketone	UG/KG		17	8%	1	12	1.90E+08	0		120	0		500000	0		1000000	0	
Toluene	UG/KG		0.76	50%	6	12	4.60E+07	0		700	0		500000	0		1000000	0	
Semivolatile Organic Compounds																		
1,1'-Biphenyl	UG/KG		2900	50%	6	12	5.10E+07	0										
2,4-Dinitrotoluene	UG/KG		35700	33%	4	12	1.20E+06	0										
2,6-Dinitrotoluene	UG/KG		951	8%	1	12	6.20E+05	0										
2-Methylnaphthalene	UG/KG		15200	92%	11	12												
3 or 4-Methylphenol	UG/KG		464	8%	1	12												
Acenaphthene	UG/KG		18200	100%	12	12	3.30E+07	0		20000	0		500000	0		1000000	0	
Acenaphthylene	UG/KG		2410	83%	10	12				100000	0		500000	0		1000000	0	
Anthracene	UG/KG		33900	100%	12	12	1.70E+08	0		100000	0		500000	0		1000000	0	
Benzo(a)anthracene	UG/KG	31818	66600	100%	12	12	2.10E+03	10	Yes	1000	12	Yes	5600	7	Yes	11000	5	Yes
Benzo(a)pyrene	UG/KG	27476	56900	100%	12	12	2.10E+02	12	Yes	1000	12	Yes	1000	12	Yes	1100	11	Yes
Benzo(b)fluoranthene	UG/KG	43873	102000	100%	12	12	2.10E+03	11	Yes	1000	12	Yes	5600	8	Yes	11000	6	Yes
Benzo(ghi)perylene	UG/KG		25100	100%	12	12				100000	0		500000	0		1000000	0	
Benzo(k)fluoranthene	UG/KG	6278	11700	58%	7	12	2.10E+04	0	No	800	7	Yes	56000	0	No	110000	0	No
Carbazole	UG/KG		28200	83%	10	12	8.60E+04	0										
Chrysene	UG/KG	31754	67700	100%	12	12	2.10E+05	0	No	1000	12	Yes	56000	1	No	110000	0	No
Di-n-butylphthalate	UG/KG		1780	25%	3	12	6.20E+07	0										
Dibenz(a,h)anthracene	UG/KG	19900	19900	25%	3	12	2.10E+02	3	Yes	330	2	Yes	560	1	Yes	1100	1	Yes
Dibenzofuran	UG/KG		22100	100%	12	12												
Diphenylamine	UG/KG		3150	25%	3	12	1.50E+07	0										
Fluoranthene	UG/KG	71308	151000	100%	12	12	2.20E+07	0	No	100000	1	No	500000	0	No	1000000	0	No
Fluorene	UG/KG		19200	100%	12	12	2.20E+07	0		30000	0		500000	0		1000000	0	
Indeno(1,2,3-cd)pyrene	UG/KG	11311	24900	100%	12	12	2.10E+03	8	Yes	500	12	Yes	5600	4	Yes	11000	2	Yes
Naphthalene	UG/KG	9413	33900	67%	8	12	6.70E+05	0	No	12000	1	No	500000	0	No	1000000	0	No
Phenanthrene	UG/KG	71949	159000	100%	12	12				100000	1	No	500000	0		1000000	0	No
Phenol	UG/KG	961.2	1680	25%	3	12	1.80E+08	0	No	330	2	Yes	500000	0	No	1000000	0	No
Pyrene	UG/KG	72831	148000	100%	12	12	1.70E+07	0	No	100000	1	No	500000	0	No	1000000	0	No
Polychlorinated Biphenyls																		
Aroclor-1254	UG/KG	72.3	120	17%	2	12	7.40E+02	0	No	100	1	No	1000	0	No	25000	0	No
Metals																		
Aluminum	MG/KG		16800	100%	13	13	9.90E+05	0										
Antimony	MG/KG		4.94	100%	13	13	4.10E+02	0										
Arsenic	MG/KG	12.36	17.6	100%	13	13	1.60E+00	13	Yes	13	2	No	16	2	No	16	2	No
Barium	MG/KG		162	100%	13	13	1.90E+05	0		350	0		400	0		10000	0	
Beryllium	MG/KG		0.845	100%	13	13	2.00E+03	0		7.2	0		590	0		2700	0	
Boron	MG/KG		13.8	100%	13	13	2.00E+05	0										
Cadmium	MG/KG	4.2	4.2	100%	13	13	8.10E+02	0		2.5	3	Yes	9.3	0	No	60	0	No
Calcium	MG/KG		221000	100%	13	13												
Chromium	MG/KG	31.33	52.8	100%	13	13	1.50E+06	0		30	4	Yes	1500	0	No	6800	0	No
Cobalt	MG/KG		10.5	100%	13	13												
Copper	MG/KG	41.79	86.4	100%	13	13	4.10E+04	0		50	2	No	270	0	No	10000	0	No
Iron	MG/KG		26300	100%	13	13	7.20E+05	0										
Lead	MG/KG	390.9	1570	100%	13	13				63	5	Yes	1000	1	No	3900	0	No
Magnesium	MG/KG		56100	100%	13	13												
Manganese	MG/KG		522	100%	13	13	2.30E+04	0		1600	0		10000	0		10000	0	
Mercury	MG/KG		87.4	100%	13	13	2.80E+01	0										
Molybdenum	MG/KG		3.86	100%	13	13	5.10E+03	0										
Nickel	MG/KG	35	55.2	100%	13	13	2.00E+04	0		30	2	Yes	310	0	No	10000	0	No
Phosphorous	MG/KG		1380	100%	13	13	2.00E+04	0										
Potassium	MG/KG		2490	100%	13	13												
Selenium	MG/KG		1.4	100%	13	13	5.10E+03	0		3.9	0		1500	0		6800	0	
Silica	MG/KG		1650	100%	13	13												
Silicon	MG/KG		771	100%	13	13												
Silver	MG/KG		0.465	100%	13	13	5.10E+03	0		2	0		1500	0		6800	0	
Sodium	MG/KG		162	100%	13	13												
Strontium	MG/KG		250	100%	13	13	6.10E+05	0										
Sulfur	MG/KG		1680	100%	13	13												
Thallium	MG/KG		0.771	100%	13	13	6.60E+01	0										
Tin	MG/KG		19.1	100%	13	13	6.10E+05	0										
Titanium	MG/KG		381	100%	13	13												
Uranium	MG/KG		0.613	100%	13	13												
Vanadium	MG/KG		36.4	100%	13	13	7.20E+03	0										
Zinc	MG/KG	253.5	752	100%	13	13	3.10E+05	0		109	4	Yes	10000	0	No	10000	0	No

Table 6-7
SEAD-5, Confirmatory and Delineation Sample Summary Results

Record of Decsion - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Parameter	Units	95th UCL Value	Maximum Value	Frequency of Cetection	Number of Times Detected	Number of Times Analyzed	2008 Industrial Soil RSL Value	Number of Times Exceeded	95th UCL Value Exceed Soil PRG	NYSDEC Unrestricted Use Value	Number of Times Exceeded	95th UCL Value Exceed Value	NYSDEC Commercial Use Value	Number of Times Exceeded	95th UCL Value Exceed Value	NYSDEC Industrial Use Value	Number of Times Exceeded	95th UCL Value Exceed Value
Semivolatile Organic Compounds																		
2-Methylnaphthalene	UG/KG	708.5	28,000	24.7%	41	166	4.10E+06	0										
Acenaphthene	UG/KG	2398	110,000	40.4%	67	166	3.30E+07	0		20,000	2	No	500000	0		1,000,000	0	
Acenaphthylene	UG/KG	573.7	9,500	50.6%	84	166				100,000	0		500000	0		1,000,000	0	
Anthracene	UG/KG	14546	290,000	62.0%	103	166	1.70E+08	0		100,000	1	No	500000	0		1,000,000	0	
Benz(a)anthracene	UG/KG	21453	400,000	77.1%	128	166	2.10E+03	31	Yes	1,000	61	Yes	5600	12	Yes	11,000	10	Yes
Benzo(a)pyrene	UG/KG	16839	310,000	72.1%	119	165	2.10E+02	93	Yes	1,000	61	Yes	1000	61	Yes	1,100	58	Yes
Benzo(b)fluoranthene	UG/KG	21757	400,000	75.9%	126	166	2.10E+03	43	Yes	1,000	65	Yes	5600	15	Yes	11,000	11	Yes
Benzo(g,h,i)perylene	UG/KG	7638	130,000	74.1%	123	166	1.70E+07	0		100,000	1	No	500000	0		1,000,000	0	
Benzo(k)fluoranthene	UG/KG	5176	130,000	64.5%	107	166	2.10E+04	1	No	800	39	Yes	56000	1	No	110,000	1	No
Chrysene	UG/KG	18476	350,000	77.1%	128	166	2.10E+05	1	No	1,000	61	Yes	56000	2	No	110,000	1	No
Dibenzo(a,h)anthracene	UG/KG	2611	66,000	51.8%	86	166	2.10E+02	53	Yes	330	36	Yes	560	19	Yes	1,100	11	Yes
Fluoranthene	UG/KG	47328	890,000	80.6%	133	165	2.20E+07	0		100,000	2	No	500000	1	No	1,000,000	0	
Fluorene	UG/KG	5286	140,000	42.2%	70	166	2.20E+07	0		30,000	2	No	500000	0		1,000,000	0	
Indeo(1,2,3-cd)pyrene	UG/KG	6278	140,000	72.3%	120	166	2.10E+03	19	Yes	500	64	Yes	5600	9	Yes	11,000	5	No
Naphthalene	UG/KG	1288	56,000	46.4%	77	166	6.70E+05	0		12,000	1	No	500000	0		1,000,000	0	
Phenanthrene	UG/KG	44926	888,000	75.9%	126	166				100,000	2	No	500000	1	No	1,000,000	0	
Pyrene	UG/KG	38785	740,000	78.9%	131	166	1.70E+07	0		100,000	2	No	500000	1	No	1,000,000	0	
BAP Equivalents	UG/KG	25387	471,300	100.0%	166	166				10,000	13	Yes	10000	13	Yes	10,000	13	Yes
Metals																		
Arsenic	MG/KG	9.027	19.5	99.4%	165	166	1.60E+00	165	Yes	13	9	No	16	1	No	16	1	No
Barium	MG/KG	93.34	241	100.0%	166	166	1.90E+05	0		350	0		400	0		10,000	0	
Cadmium	MG/KG	0.237	2.35	63.9%	106	166	8.10E+02	0		2.5	0		9.3	0		60	0	
Chromium	MG/KG	22.1	123	100.0%	166	166	1.50E+06	0		30	7	No	1,500	0		6,800	0	
Copper	MG/KG	26.69	117	100.0%	157	157	4.10E+04	0		50	3	No	270	0		10,000	0	
Lead	MG/KG	117.1	1470	100.0%	166	166				63	31	Yes	1,000	1	No	3,900	0	
Mercury	MG/KG	0.207	3.14	100.0%	166	166	2.80E+01	0		0.18	17	Yes	2.8	1	No	5.7	0	
Selenium	MG/KG	15.04	44	82.3%	135	164	5.10E+03	0		3.9	125	Yes	1,500	0		6,800	0	
Silver	MG/KG	0.933	8.12	45.2%	75	166	5.10E+03	0		2	7	No	1,500	0		6,800	0	
Zinc	MG/KG	88.27	241	100.0%	157	157	3.10E+05	0		109	18	No	10,000	0		10,000	0	

TABLE 6-8
SEAD-24 GROUNDWATER ANALYSIS RESULTS

Record of Decision - Five SWMUs SEADs 1, Seneca Army Depot Activity - Romulus, NY

PARAMETER	MATRIX LOCATION SAMPLE DATE ES ID LAB ID UNITS	MAXIMUM DETECT	FREQUENCY OF DETECTION	CRITERIA VALUE (a)	NUMBER ABOVE CRITERIA	WATER SEAD-24 01/23/94 MW24-1 209254 Value (Q)	WATER SEAD-24 11/16/93 MW24-2 204657 Value (Q)	WATER SEAD-24 11/15/93 MW24-3 204632 Value (Q)
METALS								
Aluminum	ug/L	19100	100.0%	-	-	19100	9650	18700
Arsenic	ug/L	10	100.0%	10 (b)	0	10	5.5 J	6.7 J
Barium	ug/L	177	100.0%	1000	0	156 J	82.1 J	177 J
Beryllium	ug/L	0.89	100.0%	4 '(c)	0	0.89 J	0.62 J	0.86 J
Calcium	ug/L	180000	100.0%	-	-	180000	176000	133000
Chromium	ug/L	32.6	100.0%	50	0	29.8	18.1	32.6
Cobalt	ug/L	18.7	100.0%	-	-	18.7 J	14.5 J	11.8 J
Copper	ug/L	32.5	100.0%	200	0	32.5	8.2 J	16.4 J
Iron	ug/L	32000	100.0%	300	3	**32000**	**19800**	**29800**
Lead	ug/L	7	100.0%	15 (c)'	0	7	3.1	3.9
Magnesium	ug/L	47700	100.0%	-	0	39800	47700	43300
Manganese	ug/L	767	100.0%	300	3	**712**	**767**	**528**
Mercury	ug/L	0.06	33.3%	0.7	0	0.06 J	0.07 UJ	0.07 UJ
Nickel	ug/L	41.4	100.0%	100	0	41.4	27.8 J	37.4 J
Potassium	ug/L	7550	100.0%	-	-	7220	6610	7550
Selenium	ug/L	2.5	66.7%	10	0	2.5 J	1 J	0.8 U
Sodium	ug/L	9510	100.0%	20000	0	5950	6950	9510
Vanadium	ug/L	30.9	100.0%	-	-	30.9 J	16.3 J	30.6 J
Zinc	ug/L	107	100.0%	-	-	107	31.8	53
OTHER ANALYSES								
Nitrate/Nitrite-Nitrogen	mg/L	0.11	100.0%	10	0	0.11	0.07	0.01
pH	standard units	7.45	NA			7.26	7.45	6.95
Specific Conductivity	umhos/cm	700	NA			435	700	560
Turbidity	NTU	150	NA			150	NA(Cloudy)	NA(Cloudy)

NOTES:

a) NY State Class GA Groundwater Standard (TOGS 1.1.1, June 1998), except as noted below.
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
NA = Not Available
U = compound was not detected
J = the report value is an estimated concentration
UJ = the compound was not detected; the associated reporting limit is approximate
R = the data was rejected in the data validating process

Table 6-9
SEAD-24, Confirmatory Sample Summary Results

Record of Decision - Five SWMUs SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity - Romulus, NY

Compound	Units	95th UCL Concentration	Maximum Concentration Detected	Frequency of Detection	Number of Times Detected	Number of Times Analyzed	2008 RSL[1] for Residential Soil	Number of Samples Above PRG	95th UCL Above PRG?	NYSDEC Unrestricted Use SCO[2]	Number of Samples Above SCO	95th UCL Above SCO?
Polycyclic Aromatic Hydrocarbons												
Acenapthene	UG/KG	NA	27	2.6%	1	39	3,400,000	--		20,000	--	
Acenapthylene	UG/KG	37.1	66	7.7%	3	39				100,000	--	No
Anthracene	UG/KG	33.12	120	15.4%	6	39	17,000,000	--	No	100,000	--	No
Benzo(a)anthracene	UG/KG	70.62	380	23.1%	9	39	150	3	No	1,000	--	No
Benzo(a)pyrene	UG/KG	51.15	260	23.1%	9	39	15	9	Yes	1,000	--	No
Benzo(b)fluoranthene	UG/KG	96.4	280	15.4%	6	39	150	3	No	1,000	--	No
Benzo(ghi)perylene	UG/KG	39.83	170	17.9%	7	39				100,000	--	No
Benzo(k)fluoranthene	UG/KG	195.4	430	12.8%	5	39	1,500	--	No	800	--	No
Chrysene	UG/KG	73.8	420	30.8%	12	39	15,000	--	No	1,000	--	No
Dibenzo(a,h)anthracene	UG/KG	NA	81	2.6%	1	39	15	1		330	--	
Fluoranthene	UG/KG	39.83	790	28.2%	11	39	2,300,000	--	No	100,000	--	No
Fluorene	UG/KG	NA	40	2.6%	1	39	2,300,000	--		30,000	--	
Indeno(123,cd)pyrene	UG/KG	50.9	160	17.9%	7	39	150	1	No	500	--	No
Naphthalene	UG/KG	NA	ND	0.0%	0	39	150,000			12,000		
Phenanthene	UG/KG	200	550	15.4%	6	39				100,000	--	No
Pyrene	UG/KG	126.7	760	33.3%	13	39	1,700,000	--	No	100,000	--	No
Metals												
Aluminum	MG/KG	16395	22600	97.3%	36	37	77,000	--	No	NA	--	No
Antimony	MG/KG	4.306	18.9	24.3%	9	37	31	--	No	NA	--	No
Arsenic	MG/KG	8.65	69.2	100.0%	259	259	0.39	259	Yes	13	27	No
Barium	MG/KG	99.13	148	100.0%	37	37	15,000	--	No	350	--	No
Beryllium	MG/KG	0.82	1.2	94.6%	35	37	160	--	No	7.2	--	No
Cadmium	MG/KG	1.36	3.1	8.1%	3	37	70	--	No	2.5	1	No
Chromium	MG/KG	24.18	33.8	100.0%	37	37	120,000	--	No	30	2	No
Copper	MG/KG	27.7	48.6	100.0%	37	37	3,100	--	No	50	--	No
Iron	MG/KG	28384	43000	100.0%	37	37	55,000	--	No			
Lead	MG/KG	59.92	394	100.0%	259	259	400	--	No	63	40	No
Manganese	MG/KG	569.1	893	100.0%	37	37	1,800	--	No	1,600	--	No
Mercury	MG/KG	0.052	0.1	75.7%	28	37	6.7	--	No	0.18	--	No
Nickel	MG/KG	34.77	52.7	100.0%	37	37	1,600	--	No	30	19	Yes
Selenium	MG/KG	1.92	2.1	10.8%	4	37	390	--	No	3.9	--	No
Silver	MG/KG	0.503	0.57	18.9%	7	37	390	--	No	3.9	--	No
Thallium	MG/KG	NA	3.1	2.7%	1	37	5.1	--				
Vanadium	MG/KG	25.64	32	100.0%	37	37	390	--	No			
Zinc	MG/KG	161	1216	100.0%	260	260	23,000	--	No	109	74	Yes

1) RSL = Regional Screening Level
2) SCO = Soil Cleanup Objective

TABLE 7-1
CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - MAXIMUM CONCENTRATIONS - SEAD-1

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent	Cancer Risk	Percent
INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	2E-01	46%	1E-07	2%
	Ingestion of Soil	2E-01	49%	6E-06	69%
	Dermal Contact to Soil	2E-02	4%	2E-06	29%
	TOTAL RECEPTOR RISK (Nc & Car)	*5E-01*	100%	*8E-06*	100%
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	7E-01	47%	2E-08	2%
	Ingestion of Soil	8E-01	51%	8E-07	82%
	Dermal Contact to Soil	3E-02	2%	1E-07	16%
	TOTAL RECEPTOR RISK (Nc & Car)	*2E+00*	100%	*9E-07*	100%
ADOLESCENT TRESPASSER	Inhalation of Dust in Ambient Air	5E-03	7%	6E-10	0%
	Ingestion of Soil	7E-02	88%	3E-07	79%
	Dermal Contact to Soil	4E-03	5%	9E-08	21%
	TOTAL RECEPTOR RISK (Nc & Car)	*8E-02*	100%	*4E-07*	100%

NQ= Not Quantified due to lack of toxicity data.

Table 7-2
Comparisons of Selected Metals Found in SEAD 1 Exterior Soil Samples to Cleanup Objective Levels

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Metal	SEAD 1 Maximum Concentration (mg/Kg)	SEAD 1 95th UCL Concentration (mg/Kg)	NYSDEC Unrestricted Use (6NYCRR375) Concentration (mg/Kg)	NYSDEC Commercial / Industrial Restricted Use Concentration (mg/Kg)	2004 Region IX PRG for Residential Soil Concentration (mg/Kg)	2008 Regional Screening Level Residential Soil Concentration (mg/Kg)
Aluminum	16,700	12,064	NS*	NS*	76,142	77,000
Iron	22,500	16,725	NS*	NS*	23,463	55,000
Manganese	815	519	1,600	10,000	1,762	1,800
Vanadium	33.2	28.2	NS*	NS*	78	550
Zinc	16,200	8,114	109	10,000	23,463	23,000

NS* = None Specified

TABLE 7-3
SEAD-1 - CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - UCL VALUES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

		REASONABLE MAXIMUM EXPOSURE (RME)			
RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent Contribution	Cancer Risk	Percent Contribution
INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	1E-01	0%	1E-07	2%
	Ingestion of Soil	2E-01	51%	6E-06	69%
	Dermal Contact to Soil	2E-02	5%	2E-06	29%
	TOTAL RECEPTOR RISK (Nc & Car)	*3E-01*	56%	*8E-06*	100%
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	5E-01	0%	2E-08	2%
	Ingestion of Soil	6E-01	53%	8E-07	82%
	Dermal Contact to Soil	3E-02	3%	1E-07	16%
	TOTAL RECEPTOR RISK (Nc & Car)	*1E+00*	56%	*9E-07*	100%
ADOLESCENT TRESPASSER	Inhalation of Dust in Ambient Air	3E-03	0%	6E-10	0%
	Ingestion of Soil	5E-02	88%	3E-07	79%
	Dermal Contact to Soil	3E-03	6%	9E-08	21%
	TOTAL RECEPTOR RISK (Nc & Car)	*6E-02*	94%	*4E-07*	100%

NQ= Not Quantified due to lack of toxicity data.

TABLE 7-4
CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-2

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

		REASONABLE MAXIMUM EXPOSURE (RME)			
RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent Contribution	Cancer Risk	Percent Contribution
INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	2E-01	33%	6E-07	0%
	Ingestion of Soil	3E-01	57%	3E-04	54%
	Dermal Contact to Soil	5E-02	10%	2E-04	45%
	TOTAL RECEPTOR RISK (Nc & Car)	*5E-01*	100%	*5E-04*	100%
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	5E-01	32%	7E-08	0%
	Ingestion of Soil	9E-01	63%	3E-05	72%
	Dermal Contact to Soil	8E-02	5%	1E-05	27%
	TOTAL RECEPTOR RISK (Nc & Car)	*1E+00*	100%	*5E-05*	100%
ADOLESCENT TRESPASSER	Inhalation of Dust in Ambient Air	9E-02	51%	7E-08	0%
	Ingestion of Soil	8E-02	44%	1E-05	66%
	Dermal Contact to Soil	9E-03	5%	7E-06	34%
	TOTAL RECEPTOR RISK (Nc & Car)	*2E-01*	100%	*2E-05*	100%

NQ= Not Quantified due to lack of toxicity data.

Table 7-5
Comparisons of Selected Metals Found in SEAD 2 Exterior Soil Samples to Cleanup Objective Levels

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Metal	SEAD 2 Maximum Concentration (mg/Kg)	SEAD 2 95th UCL Concentration (mg/Kg)	NYSDEC Unrestricted Use Concentration (mg/Kg)	NYSDEC Commercial / Industrial Restricted Use Concentration (mg/Kg)	Region IX PRG for Residential Soil Concentration (mg/Kg)	EPA Regsional Screening Levels for Residential Soil Concentration (mg/Kg)
Aluminum	16,800	8,828	NS	NS	76,142	77,000
Arsenic	17.6	12.4	13	16	0.39	0.39
Iron	26,300	20,188	NS	NS	23,463	55,000
Manganese	522	413	1,600	10,000	1,762	1,800
Vanadium	36.4	24.2	NS	NS	78	550

Notes: NS – none specified.

TABLE 7-6
SEAD-2 - CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - 95th UCL Concentrations

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

		REASONABLE MAXIMUM EXPOSURE (RME)			
RECEPTOR	EXPOSURE ROUTE	HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent Contribution	Cancer Risk	Percent Contribution
INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	1E-01	37%	4E-07	0%
	Ingestion of Soil	2E-01	49%	1E-04	55%
	Dermal Contact to Soil	4E-02	14%	1E-04	45%
	TOTAL RECEPTOR RISK (Nc & Car)	*3E-01*	100%	*2E-04*	100%
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	3E-01	38%	4E-08	0%
	Ingestion of Soil	5E-01	55%	2E-05	73%
	Dermal Contact to Soil	6E-02	7%	6E-06	27%
	TOTAL RECEPTOR RISK (Nc & Car)	*9E-01*	100%	*2E-05*	100%
ADOLESCENT TRESPASSER	Inhalation of Dust in Ambient Air	7E-02	56%	5E-08	0%
	Ingestion of Soil	4E-02	37%	7E-06	66%
	Dermal Contact to Soil	8E-03	6%	3E-06	34%
	TOTAL RECEPTOR RISK (Nc & Car)	*1E-01*	100%	*1E-05*	100%

NQ= Not Quantified due to lack of toxicity data.

TABLE 7-7
CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-5

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent Contribution	Cancer Risk	Percent Contribution
INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	0E+00	0%	2E-07	0%
	Ingestion of Soil	4E-02	82%	7E-05	55%
	Dermal Contact to Soil	8E-03	18%	6E-05	45%
	TOTAL RECEPTOR RISK (Nc & Car)	*5E-02*	100%	*1.3E-04*	100%
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	0E+00	0%	8E-08	1%
	Ingestion of Soil	1E-01	91%	9E-06	73%
	Dermal Contact to Soil	1E-02	9%	3E-06	27%
	TOTAL RECEPTOR RISK (Nc & Car)	*1E-01*	100%	*1E-05*	100%
ADOLESCENT TRESPASSER	Inhalation of Dust in Ambient Air	0E+00	0%	3E-10	0%
	Ingestion of Soil	3E-03	88%	1E-06	66%
	Dermal Contact to Soil	4E-04	12%	6E-07	34%
	TOTAL RECEPTOR RISK (Nc & Car)	*3E-03*	100%	*2E-06*	100%

NQ= Not Quantified due to lack of toxicity data.

TABLE 7-8
CALCULATION OF TOTAL NONCARCINOGENIC AND CARCINOGENIC RISKS - SEAD-24, RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	REASONABLE MAXIMUM EXPOSURE (RME)			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent Contribution	Cancer Risk	Percent Contribution
INDUSTRIAL WORKER	Inhalation of Dust in Ambient Air	2E-01	41%	2E-07	2%
	Ingestion of Soil	2E-01	54%	5E-06	78%
	Dermal Contact to Soil	2E-02	4%	1E-06	20%
	TOTAL RECEPTOR RISK (Nc & Car)	*4E-01*	100%	*6E-06*	100%
CONSTRUCTION WORKER	Inhalation of Dust in Ambient Air	2E+00	74%	8E-08	10%
	Ingestion of Soil	7E-01	25%	6E-07	81%
	Dermal Contact to Soil	3E-02	1%	7E-08	9%
	TOTAL RECEPTOR RISK (Nc & Car)	*3E+00*	100%	*8E-07*	100%
ADOLESCENT TRESPASSER	Inhalation of Dust in Ambient Air	4E-03	5%	7E-10	0%
	Ingestion of Soil	6E-02	90%	3E-07	86%
	Dermal Contact to Soil	3E-03	4%	4E-08	13%
	TOTAL RECEPTOR RISK (Nc & Car)	*7E-02*	100%	*3E-07*	100%

NQ= Not Quantified due to lack of toxicity data.

Table 7-9
Metals Contributing to Non Cancer Risks Compared to Regulatory Reference Levels at SEAD 24

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Metal	SEAD 24 95th Upper Confidence Limit of the Mean (mg/Kg)	NYSDEC Unrestricted Use (6NYCRR375) Concentration (mg/Kg)	Region IX PRG for Residential Soil Concentration (mg/Kg)	EPA Regional Screening Levels for Residential Soils (mg/Kg)
Aluminum	16,290	NS*	76,142	77,000
Manganese	563	1,600	1,762	18,000

Notes: * NS – None Specified.

TABLE 7-10
TOTAL NON-CARCINOGENIC AND CARCINOGENIC RISKS ASSOCIATED WITH SEAD-24 SURFACE SOIL FOR FUTURE RESIDENTIAL USE SCENARIO

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

RECEPTOR	EXPOSURE ROUTE	RME			
		HAZARD INDEX		CANCER RISK	
		Hazard Index	Percent Contribution	Cancer Risk	Percent Contribution
RESIDENT (ADULT)	Inhalation of Dust in Ambient Air	2E-01	42%	2E-07	3%
	Ingestion of Soil	3E-01	55%	7E-06	85%
	Dermal Contact to Soil	1E-02	3%	1E-06	13%
	TOTAL RECEPTOR RISK (Nc & Car)	**6E-01**	**100%**	**8E-06**	**100%**
RESIDENT (CHILD)	Inhalation of Dust in Ambient Air	4E-01	12%	9E-08	1%
	Ingestion of Soil	3E+00	86%	2E-05	90%
	Dermal Contact to Soil	1E-01	3%	2E-06	10%
	TOTAL RECEPTOR RISK (Nc & Car)	**3E+00**	**100%**	**2E-05**	**100%**
RESIDENT (TOTAL)	Inhalation of Dust in Ambient Air			3E-07	1%
	Ingestion of Soil			2E-05	88%
	Dermal Contact to Soil			3E-06	11%
	TOTAL RECEPTOR RISK (Nc & Car)			**2E-05**	**100%**

Note:
1.Risk via groundwater exposure pathways was not quantitatively evaluated.

Table 7-11
Metals Contributing to Non-Cancer Hazards Compared to Reference Levels at SEAD 24

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Metal	SEAD 24, 95th Upper Confidence Limit of the Mean (mg/Kg)	SEAD 24 Maximum Concentration (mg/Kg)	Maximum SEDA-specific Background Concentration (mg/Kg)	NYSDEC Unrestricted Use (6NYCRR375) Concentration (mg/Kg)	Region IX PRG for Residential Soil Concentration (mg/Kg)	EPA Regional Screening Levels for Residential Soil (mg/Kg)
Aluminum	16,395	22,600	20,500	NS*	76,142	77,000
Antimony	4.3	18.9	6.55	NS*	31.3	31
Arsenic	8.6	69.2	21.5	13	0.39	0.39
Iron	28,384	43,000	38,600	NS*	23,463	55,000
Manganese	563	893	2,380	1,600	1,762	1,800
Thallium		3.1	1.2	NS*	5.16	5.1
Vanadium	25.6	32	32.7	NS*	78.2	550

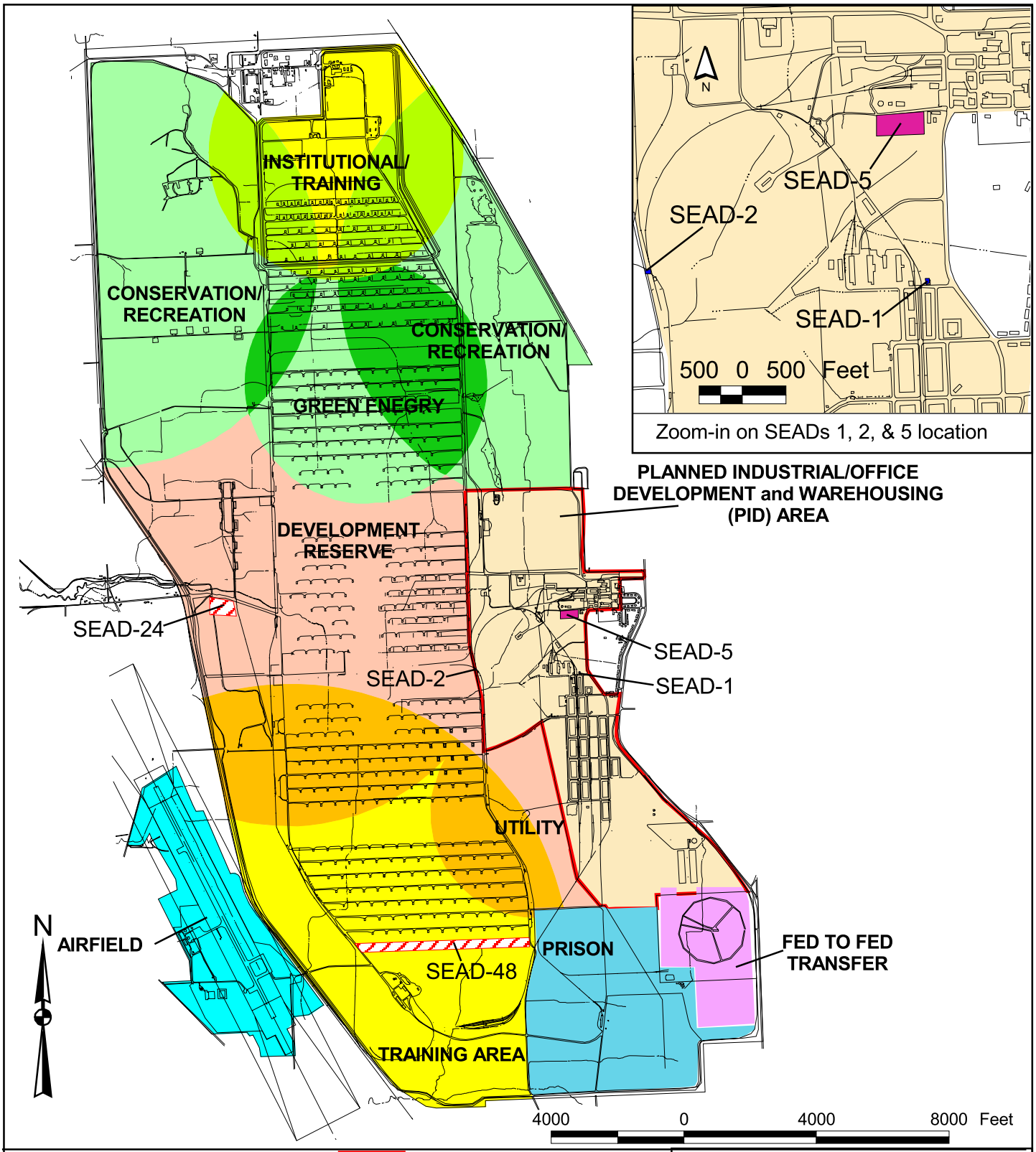
Notes: * NS = Not Specified

Table 7-12
Summary of Affected Organ versus Chemical Contaminant Hazard Indices

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Affected Organ	Chemical	HQ	Organ HI
Body Weight	Aluminum	0.21	0.21
Cholesterol	Antimony	0.24	0.52
Skin	Arsenic	0.37	0.37
Gastrointestinal	Iron	1.2	1.2
Central Nervous System	Manganese	0.31	0.31
	Thallium	0.24	
Hair	Vanadium	0.33	0.33

LIST OF FIGURES



Location of No Further Action SEADs

- **SEAD 24, Abandoned Powder Burning Pit**
- **SEAD 48, Row E0800 Pitchblende Ore Igloos.**

Extent of PID LUCs.

- prohibit groundwater access/use
- prohibit residential housing, elementary/secondary schools, childcare facilities, and playgrounds.

SEAD Requiring Remedial Action and LUCs

- **SEAD 5, former Sewage Sludge Waste Piles.**
- cover contaminated soil with demarcation fabric and at least 12 inches of fill that meets NYS Restricted Commercial SCOs
- prohibit unauthorized excavations/activities that might compromise the integrity of the engineered cover
- prohibit groundwater access/use
- prohibit residential housing, elementary/secondary schools, childcare facilities, and playgrounds.

SEADs Requiring LUCs Only

- **SEAD 1, Building 307 - Hazardous Waste Container Storage Facility**
- **SEAD 2, Building 301 - PCB Transformer Storage Facility.**
- prohibit groundwater access/use
- prohibit residential housing, elementary/secondary schools, childcare facilities, and playgrounds.

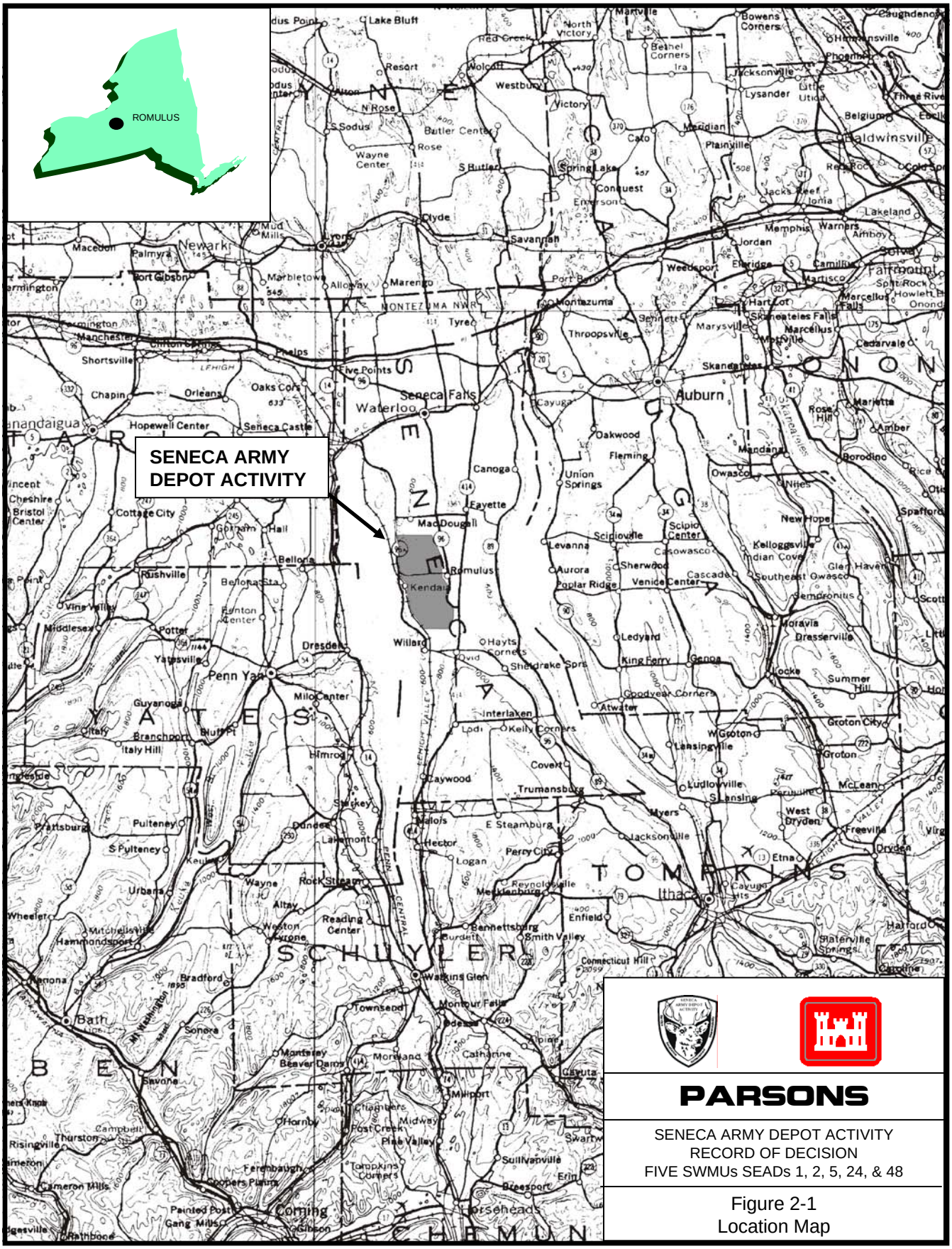
PARSONS

SENECA ARMY DEPOT ACTIVITY
Record of Decision - Five SWMUs
SEADs 1, 2, 5, 24, & 48

Figure 1-1
SEDA Future Land Use and
SEADs 1, 2, 5, 24, and 48

February 2009

O:\Seneca\SEAD-1-2-5-24-48\rod_sites_map.apr


ROMULUS
SENECA ARMY DEPOT ACTIVITY
PARSONS
SENECA ARMY DEPOT ACTIVITY
RECORD OF DECISION
FIVE SWMUs SEADs 1, 2, 5, 24, & 48
Figure 2-1
Location Map

COLLECTION OF SURVEY AND HOTSPOT DATA

α/β/γ Direct Measurements
α/β/γ Scanning Measurements

DCGL$_{EMC}$ ANALYSIS

Are α/β/γ direct survey, scanning and hotspot measurements comparable To DCGL$_{EMC}$ on a point-to-point basis?

YES

NO

WRS ANALYSIS

Are α/β/γ direct survey measurements comparable to background dataset?

PASS

Survey unit dataset meets release criteria on a wide area assessment.

WRS ANALYSIS

Are α/β/γ Direct Survey measurements comparable to the DCGL$_w$ adjusted background dataset?

NO

YES

RED FLAG

Remediation may be needed to comply with release criteria and be ALARA.

PASS

Survey unit dataset meets the release criteria on a wide area assessment.

YES

NO

DCGL$_{EMC}$ COMPARISON

Measurement is significantly below DCGL$_{EMC}$. Location determined to meet release criteria and be ALARA.

DCGL$_{EMC}$ COMPARISON

Measurement is greater than the DCGL$_{EMC}$. Remediation may be needed to comply with release criteria and be ALARA.

DCGL$_{EMC}$ COMPARISON

Measurement is a significant fraction of the DCGL$_{EMC}$. Other data needs to be taken Into account to determine if location meets release criteria and is ALARA, or if remediation may be needed.

IN_SITU GAMMA SPECROSCOPY

Measurements collected and analyzed at location of highest measurements witin each igloo.
Does spectrum indicate that contamination is Present?

LABORATORY ANALYSIS

Sample collected from a select location based on measurements. Do. concentrations of ROCs detected in sample confirm the results of In-situ gamma spectroscopy.?

YES

NO

REMEDIATION NEEDED

Spectrum indicates presence of contamination. remediation may be needed to comply with release criteria and be ALARA.

COMPLIANT

Spectrum indicates that there are no elevated levels of ROCs. Location determined to be in compliance with the release criteria and be ALARA.

GLOSSARY

α/β/γ – alpha, beta, or gamma radiation
ALARA – As Low as Reasonably Achievable
DCGL – Derived Concentration Guideline Level
EMC – Elevated Measurement Comparison Level
W – Wide Area Level
MARSSIM – Multi-Agency Radiation Survey and Site Investigation Manual
ROCs – Radionuclides of Concern

FIGURE 6-1

MARSSIM INTERIOR DATA ANALYSIS FLOWCHART

WRS ANALYSIS

Are gamma direct survey measurements comparable to background dataset?

NO

YES

WRS ANALYSIS

Are gamma direct measurements comparable to the $DCGL_W$ adjusted background dataset?

NO

YES

RED FLAG

Remediation may be needed to comply with release criteria and be ALARA.

PASS

Survey unit dataset meets release criteria on a wide area assessment.

IN-SITU GAMMA SPECTROSCOPY

Measurements collected and analyzed at location of highest measurements (based on scanning and hotspots) at each igloo. Does spectrum indicate that no contamination is present?

YES

NO

GAMMA SPECTROSCOPY ON SOIL BORING SAMPLES

Soil borings collected at Locations determined to have highest measurements at each igloo and at each drain outlet. Samples are analyzed In increments, beginning at the surface interval and continuing down to where measurements are at back-ground levels. Does spectrum indicate that no contamination is present?

LABORATORY ANALYSIS

Sample collected from a select location based on measurements. Do. concentrations of ROCs detected in sample confirm the results of In-situ gamma spectroscopy.?

YES

NO

COMPLIANT

Spectrum indicates that there are no elevated levels of ROCs. Location determined to be in compliance with the release criteria and be ALARA.

FIELD ANALYSIS

No elevated ROCs Identified in sample. Sample location supports Conclusion that release Criteria and ALARA are Met/.

COLLECTION OF SURVEY AND HOTSPOT DATA

- Gamma direct survey measurements.
- High energy gamma scanning measurements.
- Soil boring collection and analysis

$DCGL_{EMC}$ ANALYSIS

Are gamma direct survey, scanning and hotspot measurements significantly below $DCGL_{EMC}$ on a point-to-point basis?

NO

YES

$DCGL_{EMC}$ COMPARISON

Measurement is greater than the $DCGL_{EMC}$. Remediation may be needed to comply with release criteria And be ALARA.

$DCGL_{EMC}$ COMPARISON

Measurement is a significant fraction of the $DCGL_{EMC}$. Other data needs to be taken Into account to determine if location meets release criteria and is ALARA, or if remediation may be needed.

$DCGL_{EMC}$ COMPARISON

Measurement is significantly below $DCGL_{EMC}$. Location determined to be compliant with release criteria and be ALARA.

GLOSSARY

α/β/γ – alpha, beta, or gamma radiation
ALARA – As Low as Reasonably Achievable
DCGL – Derived Concentration Guideline Level
EMC – Elevated Measurement Comparison Level
W – Wide Area Level
MARSSIM – Multi-Agency Radiation Survey and Site Investigation Manual
ROCs – Radionuclides of Concern

FIGURE 6-2

MARSSIM EXTERIOR DATA ANALYSIS FLOWCHART

LIST OF APPENDICES

Appendix	Title
A	Administrative Record
B	State Letter of Concurrence
C	Public Comment and Responsiveness Summary
D	Analytical Results
E	Risk Assessment Backup Data
F	List of ARARs

APPENDIX A

ADMINISTRATIVE RECORD

APPENDIX A - ADMINISTRATIVE RECORD

Jeffrey Donohoe Associates in Association with Clough Harbour & Associates, 2005. Master Plan Revision for the Former Seneca Army Depot.

RKG Associates, 1996. Reuse Plan and implementation Strategy for Seneca Army Depot.

USEPA, Army, and NYSDEC, 1993. Federal Facility Agreement Under CERCLA Section 120, Docket Number: II-CERCLA-FFA-00202, January 1993.

SEAD-1, former Hazardous Waste Container Storage Facility

SEAD-03-16 Draft Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, March 2007.

SEAD-03-16 Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, June 2007.

SEAD-03-16 Revised Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, November 2007.

"RCRA Closure Plans: Building 307, Hazardous Waste Container Storage Facility; Building 301, PCB Transformer Storage Facility," Final, Parsons Engineering Science, Inc., December, 2002.

"RCRA Closure Report: Building 307, Hazardous Waste Container Storage Facility; Building 301, Transformer Storage Building," Draft Parsons Engineering Science, Inc., September 2003.

Letter received from James W. Dolen, Jr. of NYSDEC's Division of Solid and Hazardous Materials to Mr. Stephen Absolom of SEDA dated October 2, 2003.

Parsons, 2005 – letter to Mr. James Dolen, Jr. from Todd Heino dated September 9, 2005 regarding "Response to Comments on the Draft Closure Plan dated September 4, 2003, Building 307, Hazardous Waste Storage Facility and Building 301, PCB Transformer Storage Building, Seneca Army Depot Activity, Romulus, New York, NYSDEC Site No.: 8-50-006."

Letter to Mr. Stephen Absolom from James Dolen, Jr. dated September 29, 2005 regarding "SEDA – Facility EPA I.D. No. NY0213820830, Building 307, Hazardous Waste Storage Facility & Building 301, PCB Transformer Storage Building, Closure Certification Approval"

SEAD-2, former PCB Transformer Storage Facility

SEAD-03-16 Draft Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, March 2007.

SEAD-03-16 Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, June 2007.

SEAD-03-16 Revised Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, November 2007.

"RCRA Closure Plans: Building 307, Hazardous Waste Container Storage Facility; Building 301, PCB Transformer Storage Facility," Final, Parsons Engineering Science, Inc., December, 2002.

"RCRA Closure Report: Building 307, Hazardous Waste Container Storage Facility; Building 301, Transformer Storage Building," Draft Parsons Engineering Science, Inc., September 2003.

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Letter to Mr. Stephen Absolom from James Dolen, Jr. dated September 29, 2005 regarding "SEDA – Facility EPA I.D. No. NY0213820830, Building 307, Hazardous Waste Storage Facility & Building 301, PCB Transformer Storage Building, Closure Certification Approval"

SEAD-5, former Sewage Sludge Waste Piles

DISP-01-001 Project Scoping Plan for Performing a CERCLA Remedial Investigation/Feasibility Study (RI/FS) at the Sewage Sludge Waste Piles (SEAD-5), Seneca Army Depot Activity, PRE-DRAFT, July 1995

DISP-01-001 Project Scoping Plan for Performing a CERCLA RI/FS at the Sewage Sludge Waste Piles (SEAD-5), the Fill Area West of Building 135 (SEAD-59), ad the Alleged Paint Disposal Area (SEAD-71), Seneca Army Depot Activity (DRAFT) January 1996

DISP-05-002 Final Completion Removal Report Industrial Waste Site (Sludge Piles) – SEAD-5, w/CD, February 2006

SEAD-01-009 Expanded Site Inspection Eight Moderately Low Priority Areas of Concern - SEADs 5, 9, 12 (A and B), 43, 56, 69, 44 (A and B), 50, 58, and 59 - (Draft Final-2 Vols), December 1995

SEAD-01-009 Expanded Site Inspection Eight Moderately Low Priority Areas of Concern - SEADs 5, 9, 12 (A and B), 43, 56, 69, 44 (A and B), 50, 58, and 59 - (Draft Final-2 Vols), December 1995

SEAD-01-009 Expanded Site Inspection Eight Moderately Low Priority Areas of Concern - SEADs 5, 9, 12 (A and B), 43, 56, 69, 44 (A and B), 50, 58, and 59 - (Draft Final-2 Vols), December 1995

SEAD-03-16 Draft Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, March 2007.

SEAD-03-16 Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, June 2007.

SEAD-03-16 Revised Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, November 2007.

SEAD-24, Abandoned Powder Burning Pit

SEAD-01-009 Expanded Site Inspection Seven High Priority SWMUs - SEADs 4, 16, 17, 24, 25, 26 and 45 (Vol. 1 - Final) May 1995; (Vol. 2 - Final) April 1994

SEAD-01-011 Section C - Technical Specifications- Removal Action at 3 SWMUs for Metal and Semi-volatile Organics (SEADs 24, 50/54, 67), October 1995

SEAD-01-011 Technical Specifications for Removal Actions at SWMUs SEAD-24, SEAD-50, SEAD-54 and SEAD-67, March 1999

SEAD-01-011 Technical Specifications for Removal Actions at SWMUs SEAD-24, SEAD-50, SEAD-54 and SEAD-67, February 1999

SEAD-03-16 Draft Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, March 2007.

SEAD-03-16 Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, June 2007.

SEAD-03-16 Revised Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, November 2007.

"Action Memorandum and Decision Document, Time-Critical Removal Actions, Four Metal Sites (SEADs 24, 50/54, & 67)," Final, Seneca Army Depot Activity, Parsons Engineering Science, Inc., August 2002.

"Time Critical Removal Action, Metal Sites – SEAD-24 Final Completion Removal Report," Weston Solutions, Inc. March, 2006.

SEAD-48, Row E0800 Pitchblende Ore Storage Igloos

RADS-01-001 SEAD-12, SEAD-48, SEAD-63 Project Scoping Plan for Performing a CERCLA RI/FS at Building 804 and the Associated Radioactive Waste Burial Sites (SEAD-12), Pitchblende Storage Igloos (SEAD-48), and the Miscellaneous Components Burial Site (SEAD-63) (Draft), December 1995

RADS-01-001 SEAD-48, Project Scoping Plan for Performing a CERCLA RI/FS at Pitchblende Storage Igloos, Seneca Army Depot Activity, (Pre-Draft), August 1995

RADS-01-008 E0800 Row Pitchblende Ore Storage Igloos (SEAD-48) Workplan (Draft) March 2002

RADS-01-008 E0800 Row Pitchblende Ore Storage Igloos (SEAD-48) Workplan (Draft Final) July 2002

RADS-01-008 E0800 Row Pitchblende Ore Storage Igloos (SEAD-48) Workplan (Final) November 2002

RADS-01-008 E0800 Row Pitchblende Ore Storage Igloos (SEAD-48) Workplan (Final-Revision 1) March 2003

RADS-01-009 E0800 Row Pitchblende Ore Storage Igloos (SEAD-48) Final Status Survey (Pre-Draft) February 2004

RADS-01-009 E0800 Row Pitchblende Ore Storage Igloos (SEAD-48) Final Status Survey and Appendices A-P **[CD]** (Draft) March 2004

RADS-01-009 Reissue of electronic deliverable for Seneca Army Depot Activity – Final Status Survey Report (Draft) for the E0800 Row Pitchblende Ore Storage Igloos (SEAD-48) [CD] May 2004

RADS-01-009 E0800 Row Pitchblende Ore Storage Igloos (SEAD-48) Final Status Survey and Appendices A-T **[CD]** (Draft-Final) August 2005

RADS-01-009 E0800 Row Pitchblende Ore Storage Igloos (SEAD-48) Final Status Survey and Appendices A-T **[CD]** (Final) March 2006

RADS-01-010 Memorandum SEAD-48 Workplan, January 7, 2002

SEAD-03-16 Draft Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, March 2007.

SEAD-03-16 Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, June 2007.

SEAD-03-16 Revised Draft Final Proposed Plan for Five Former SWMUs – SEAD-1, 2, 5, 24, & 48, [CD], Seneca Army Depot Activity, November 2007.

APPENDIX B

STATE LETTER OF CONCURRENCE

New York State Department of Environmental Conservation
Division of Environmental Remediation, 12th Floor
625 Broadway, Albany, New York 12233-7011
Phone: (518) 402-9706 • **FAX:** (518) 402-9020
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

MAR 0 9 2009

Mr. Walter Mugdan
Director
Emergency & Remedial Response Division
US Environmental Protection Agency
floor 19-#E38
290 Broadway
New York, New York 10007-1866

Re: Seneca Army Depot Activity
Site No. 850006
ROD for SEADs 1, 2, 5, 24, and 48

Dear Mr. Mugdan:

The New York State Department of Environmental Conservation and the New York State Department of Health have reviewed the ROD for SEADs 1, 2,5, 24,and 48 dated February 2009. The State concurs with this selected remedy as stated in the February 2009 ROD which includes:

SEAD-1, SEAD-2, and SEAD-5

The common elements of the selected remedies at SEADs 1, 2, and 5 include:

- Establishing, maintaining and monitoring a land use control (LUC) that prohibits residential housing, elementary and secondary schools, childcare facilities and playgrounds until unrestricted use and unlimited exposure criteria are attained within the areas of concern (AOCs); and,

- Establishing, maintaining, and monitoring a second LUC that prohibits access to, and use of, groundwater at the AOCs until its quality allows for unrestricted use and unlimited exposures.

In addition, at SEAD-5, the selected remedy requires:

- Covering of contaminated soils (including those originating at SEADs - 59 and 71) with at least one foot of clean fill that meets New York's Restricted Commercial Use soil cleanup objectives (SCOs);

- Placing demarcation fabric (e.g., colored "snow" or safety fence) between the contaminated soil and the clean fill; and,

- Establishing, maintaining, and monitoring a third LUC that prohibits unauthorized excavations or activities that might compromise the integrity of the engineered cover.

SEAD-24 and SEAD-48

The remedies selected for SEADs 24 and 48 are no further action (NFA).

If you have any questions, please contact Mr. John Swartwout at (518) 402-9620.

Sincerely,

Dale A. Desnoyers
Director
Division of Environmental Remediation

cc: J. Swartwout, NYSDEC
J. Vasquez, USEPA
A. Carpenter, USEPA

APPENDIX C

PUBLIC COMMENT AND RESPONSIVENESS SUMMARY

PUBLIC COMMENTS AND RESPONSIVENESS SUMMARY

FIVE FORMER SOLID WASTE MANAGEMENT UNITS (SWMUs) SEADs 1, 2, 5, 24, AND 48

SEAD-1, former Hazardous Waste Container Storage Facility (Building 307)
SEAD-2, former PCB Transformer Storage Facility (Building 307)
SEAD-5, former Sewage Sludge Storage Piles
SEAD-24, Abandoned Powder Burning Pit
SEAD-48, Row E0800 Pitchblende Storage Igloos

SENECA ARMY DEPOT SUPERFUND SITE

INTRODUCTION

A responsiveness summary is required by Superfund policy. It provides a summary of citizen's comments and concerns received during the public comment period, and the Army's responses to those comments and concerns.

OVERVIEW

Since the inception of this project, the Army has implemented an active policy of involvement with the local community. This involvement has occurred through the public forum provided by regular meetings of the Base Clean-up Team (BCT). During these meetings, representatives of the community, the Army and the regulators are brought together in a forum where ideas and concerns are voiced and addressed. The BCT has been routinely briefed by the Army in regards to the progress and the results obtained during both the investigation and remedial alternative selection process. In addition to regular project specific briefings, the Army has provided experts in various fields related to the CERCLA program that have provided lectures intended to educate the general public in the various technical aspects of the CERCLA program at SEDA. Lectures have been conducted on risk assessments, both human health and ecological, remedial alternatives, such as bioventing and natural attenuation, institutional controls, and the feasibility study process.

BACKGROUND ON COMMUNITY INVOLVEMENT

Initially, during the years from 1991 through 1995 the Army formed and solicited community involvement through quarterly meetings with the Technical Review Committee (TRC). The TRC was comprised of community leaders with an active interest in the on-goings of the CERCLA process at the depot. These meetings were open to the public and were announced in the local newspaper and the radio. Following inclusion of the depot on the final BRAC closure list in late 1995, the Army transitioned from the TRC and formed the Base Clean-up Team (BCT). The BCT was comprised of several of the TRC members with the addition of additional Army and regulatory representatives. The BCT increased the frequency of the meetings to a monthly basis. Since the formation of the TRC and the BCT, the Army has met with the local community members on a regular basis and has discussed the finding of both the RI and the FS. In addition, the proposed plan has been presented to the BCT.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The RI reports, the Completion Report for the Time-Critical Removal Action and the Proposed Plan for SEADs 1, 2, 5, 24 and 48 were released to the public for comment. These documents were made available to the public in the administrative record file at the information repositories at Building 123 within the Seneca Army Depot Activity, 5786 State Route 96, Romulus, New York, 14541-0009. The public comment period on these documents was held from September 9, 2008 to October 9, 2008. The notice of availability for the above-referenced documents was published in the Finger Lake Times during this time period.

On September 16, 2008, the Army, the EPA and the NYSDEC conducted a public meeting at the Seneca County Board of Supervisors Room, located at the Seneca County Office Building in Waterloo, NY to inform local officials and interested citizens about the Superfund process, to review current and planned remedial activities at the AOCs, and to respond to any questions from area residents and other attendees. The meeting included poster board presentations and provided an opportunity for the public to speak to Army, EPA and NYSDEC representatives involved in the process. The public was given the opportunity to provide formal comments that would be documented and become part of the official record for the selected remedy.

SUMMARY OF COMMENTS AND RESPONSES

No formal comments were received from the community during the public meeting. There is no official transcript since no comments were provided. There was one comment received via email by the Army from a private citizen during the public comment period, which is provided on the following pages. The Army's response to this communiqué is also provided.

-----Original Message-----
From: tom@onetia.com [mailto:tom@onetia.com]
Sent: Wednesday, October 01, 2008 9:36 PM
To: Absolom, Stephen M Mr CIV USA
Subject: Re: 09/16/08 Public Meeting

Hello,

Thank you! As usual, you folks and Parsons did a thorough job on the PRAPs.

Regards,

Tom

>-----Original Message-----
>From: Absolom, Stephen M Mr CIV USA
>[mailto:stephen.m.absolom@us.army.mil]
>Sent: Wednesday, October 1, 2008 09:06 AM
>To: tom@onetia.com
>Subject: RE: 09/16/08 Public Meeting
>
>Tom,
>I apologize for not responding. I thought I did. Attached is the
>information you requested. Ft Drum has not yet signed the FONSI.
>Steve
>
>
>SM Absolom
>Installation Manager
>Seneca Army Depot
>Phone (607) 869-1309
>Cell (315) 406-4737
>Fax (607) 869-1362
>-----Original Message-----
>From: tom@onetia.com [mailto:tom@onetia.com]
>Sent: Tuesday, September 30, 2008 7:28 PM
>To: Absolom, Stephen M Mr CIV USA
>Subject: Fwd: 09/16/08 Public Meeting
>
>-----Original Message-----
>From: tom@onetia.com [mailto:tom@onetia.com]
>Sent: Tuesday, September 16, 2008 04:47 PM
>To: 'Absolom, Stephen M Mr CIV USA OSA'
>Subject: 09/16/08 Public Meeting
>
>Hello,
>
>Thank you for sending the public meeting notice for tonight's meeting.
>I was intending on going, but we are having some system problems at
>work which I have to work on. So, I will not be able to attend.
>
>May I request the Power Point presentation in electronic format (if one

>was used) to display some of the slides on the display boards that you
>have out at such presentations?
>
>Thank you and I will work hard to get to future public meetings.

>
>Oh, wanted to ask if Fort Drum had yet made a FONSI for the training to
>be held at SEDA?
>
>
>Regards,
>
>Tom Klotzbach

Response:

The U.S. Army Corps of Engineers, Seneca Army Depot, acknowledges receipt of Mr. Klotzbach's emails, dated September 16, 2008 and October 1, 2008. We wish to express our thanks to him for his comments regarding the efforts undertaken in development of the proposed plan for the Five SWMUs, SEADs 1, 2, 5, 24, and 48, at the Seneca Army Depot Activity.

APPENDIX D

ANALYTICAL RESULTS

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-13 RINSEATE 15004 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-13 RINSEATE 15003 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-15 RINSEATE 15013 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-16 RINSEATE 15002 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-18 RINSEATE 15000 0 0.17 4/22/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	17	1	R	1	R	1	U	1	R	1	R
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	17	1	UJ	1	UJ	1	U	1	UJ	1	UJ
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	17	1	UJ	1	UJ	1	U	1	UJ	1	UJ
1,2-Dichloropropane	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U	1	U	1	U
Acetone	UG/L	5.6	24%		0	4	17	5	U	5	U	5	U	2.6	J	5.6	
Benzene	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	UG/L	0	0%		0	0	17	1	U	1	U	1	U	1	U	1	U
Bromoform	UG/L	0	0%		0	0	17	1	U	1	U	1	U	1	U	1	U
Carbon disulfide	UG/L	0	0%		0	0	17	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	UG/L	0	0%	5	0	0	17	1	R	1	R	1	U	1	R	1	R
Chlorobenzene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane	UG/L	0	0%		0	0	17	1	U	1	U	1	U	1	U	1	U
Chloroethane	UG/L	0	0%	5	0	0	17	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
Chloroform	UG/L	0	0%	7	0	0	17	1	U	1	U	1	U	1	U	1	U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	17	1	U	1	U	1	U	1	U	1	U
Ethyl benzene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Methyl bromide	UG/L	0	0%	5	0	0	17	1	U	1	U	1	UJ	1	U	1	U
Methyl butyl ketone	UG/L	0	0%		0	0	17	5	U	5	U	5	U	5	U	5	U
Methyl chloride	UG/L	0	0%	5	0	0	17	1	R	1	R	1	UJ	1	R	1	R
Methyl ethyl ketone	UG/L	0	0%		0	0	17	5	UJ	5	UJ	5	U	5	UJ	5	UJ
Methyl isobutyl ketone	UG/L	0	0%		0	0	17	5	UJ	5	UJ	5	U	5	UJ	5	UJ
Methylene chloride	UG/L	0	0%	5	0	0	17	5	U	5	U	5	UJ	5	U	5	U
Styrene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Toluene	UG/L	8.4	18%	5	2	3	17	1	U	1	U	1	U	1	U	**6.7**	
Total Xylenes	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	17	1	U	1	U	1	U	1	U	1	U
Trichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Vinyl acetate	UG/L	0	0%		0	0	17	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ
Vinyl chloride	UG/L	0	0%	2	0	0	17	1	U	1	U	1	U	1	U	1	U
1,1'-Biphenyl	UG/L	0	0%	5	0	0	17	1	U	1	U	11.1	U	1	U	1.2	U

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-13 RINSEATE 15004 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-13 RINSEATE 15003 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-15 RINSEATE 15013 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-16 RINSEATE 15002 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-18 RINSEATE 15000 0 0.17 4/22/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
2,4-Dimethylphenol	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
2,4-Dinitrophenol	UG/L	0	0%		0	0	17	20.4	UJ	20.4	UJ	22.2	U	20.6	UJ	24.4	UJ
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
2-Chloronaphthalene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
2-Chlorophenol	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
2-Methylnaphthalene	UG/L	1.6	6%		0	1	17	1	U	1	U	1.1	U	1	U	1.6	
2-Methylphenol	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
2-Nitroaniline	UG/L	0	0%	5	0	0	17	10.2	UJ	10.2	UJ	11.1	U	10.3	UJ	12.2	UJ
2-Nitrophenol	UG/L	0	0%	1	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
3 or 4-Methylphenol	UG/L	0	0%	1	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
3-Nitroaniline	UG/L	0	0%	5	0	0	17	10.2	UJ	10.2	UJ	11.1	U	10.3	UJ	12.2	UJ
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
4-Chloroaniline	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
4-Nitroaniline	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
4-Nitrophenol	UG/L	0	0%	1	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Acenaphthene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Acenaphthylene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Anthracene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Atrazine	UG/L	0	0%	7.5	0	0	17	10.2	R	10.2	R	11.1	U	10.3	R	12.2	R
Benzaldehyde	UG/L	3	18%		0	3	17	10.2	U	10.2	U	11.1	U	0.84	J	3	J
Benzo(a)anthracene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Benzo(a)pyrene	UG/L	0	0%	0	0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Benzo(b)fluoranthene	UG/L	1	6%		0	1	17	1	U	1	U	1.1	U	1	U	1.2	U
Benzo(ghi)perylene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U

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Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-13 RINSEATE 15004 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-13 RINSEATE 15003 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-15 RINSEATE 15013 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-16 RINSEATE 15002 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-18 RINSEATE 15000 0 0.17 4/22/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Benzo(k)fluoranthene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	UJ	10.3	U	12.2	U
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	UJ	10.3	U	12.2	U
Bis(2-Ethylhexyl)phthalate	UG/L	10.8	29%	5	5	5	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Butylbenzylphthalate	UG/L	2.3	41%		0	7	17	10.2	U	1.2	J	11.1	U	10.3	U	12.2	U
Carbazole	UG/L	1.7	6%		0	1	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Chrysene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Di-n-butylphthalate	UG/L	1.4	24%	50	0	4	17	10.2	U	10.2	U	1.2	J	10.3	U	12.2	U
Di-n-octylphthalate	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Dibenzofuran	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Diethyl phthalate	UG/L	2.4	47%		0	8	17	1.2	J	1.3	J	11.1	U	1.2	J	2.4	J
Dimethylphthalate	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Diphenylamine	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Fluoranthene	UG/L	1.4	6%		0	1	17	1	U	1	U	1.1	U	1	U	1.2	U
Fluorene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	UJ	10.3	U	12.2	U
Hexachloroethane	UG/L	0	0%	5	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Indeno(1,2,3-cd)pyrene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Isophorone	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
N-Nitrosodipropylamine	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Naphthalene	UG/L	0	0%		0	0	17	1	U	1	U	1.1	U	1	U	1.2	U
Nitrobenzene	UG/L	0	0%	0.4	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Pentachlorophenol	UG/L	8.9	12%	1	2	2	17	10.2	U	10.2	U	11.1	U	10.3	U	**8.9**	NJ
Phenanthrene	UG/L	1.1	12%		0	2	17	1	U	1	U	1.1	U	1	U	0.67	NJ
Phenol	UG/L	0	0%	1	0	0	17	10.2	U	10.2	U	11.1	U	10.3	U	12.2	U
Pyrene	UG/L	1	6%		0	1	17	1	U	1	U	1.1	U	1	U	1.2	U
alpha-Terpineol	UG/L	0	0%		0	0	17	10.2	U	10.2	U	11.1	UJ	10.3	U	12.2	U
Aluminum	UG/L	3000	89%		0	16	18	2760		1320		416		747		1410	
Antimony	UG/L	0	0%	3	0	0	18	9.68	U	5.31	U	6.81	U	3.63	U	4.3	U
Arsenic	UG/L	30.1	83%	25	5	15	18	**27.3**		14.1		7.26		10.8		**26.4**	
Barium	UG/L	107	72%	1000	0	13	18	45.2	U	25.7	U	87.1		82.3	J	44.9	U
Beryllium	UG/L	0.145	6%		0	1	18	0.145	J	0.118	U	0.133	U	0.118	U	0.118	U

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
								R307-13	R307-13	R307-15	R307-16	R307-18
								RINSEATE	RINSEATE	RINSEATE	RINSEATE	RINSEATE
								15004	15003	15013	15002	15000
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								4/22/2003	4/22/2003	4/23/2003	4/22/2003	4/22/2003
								SA	SA	SA	SA	SA
								BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [1]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Boron	UG/L	891	72%	1000	0	13	18	92 J	51.1 J	79	53 J	45.7 U
Cadmium	UG/L	7.18	94%	5	2	17	18	4.16	2.05	0.808 J	1.57	**7.18**
Calcium	UG/L	57800	94%		0	17	18	29800 J	18800 J	32800	35300 J	38800 J
Chromium	UG/L	29.2	89%	50	0	16	18	29.2	14.3	7.13	7.12	20.8
Cobalt	UG/L	2.09	6%		0	1	18	1.5 U	0.535 U	1.88 U	1.17 U	1.39 U
Copper	UG/L	51.7	83%	200	0	15	18	34.8	16.9	10.8	16	32.9
Iron	UG/L	3880	89%	300	13	16	18	**3830**	**1740**	**653**	**1640**	**3190**
Lead	UG/L	165	94%	25	13	17	18	**165**	**88.2**	**27.4**	**42.7**	**116**
Magnesium	UG/L	6510	94%		0	17	18	3710 J	2200 J	3370	4490 J	4730 J
Manganese	UG/L	103	100%	300	0	18	18	88.1	44.1 J	37.9	50.5 J	93.2
Mercury	UG/L	0.166	6%	0.7	0	1	18	0.052 U	0.052 U	0.052 U	0.052 U	0.166 J
Molybdenum	UG/L	0	0%		0	0	18	0.705 U	0.635 U	1.7 U	1.22 U	0.838 U
Nickel	UG/L	14.6	67%	100	0	12	18	9.13 J	4.68 U	5.78	7.79 J	8.45 J
Phosphorous	UG/L	1120	83%		0	15	18	420	228 J	154	152 J	404
Potassium	UG/L	7120	100%		0	18	18	7120 J	3640 J	3550	5000 J	6100 J
Selenium	UG/L	6.22	39%	10	0	7	18	3.3 U	3.52 J	4.2 U	3.3 U	5
Silica	UG/L	16200	94%		0	17	18	12000 J	6290 J	8030	8760 J	7120 J
Silicon	UG/L	7550	94%		0	17	18	5510 J	2910 J	3760	3970 J	3350 J
Silver	UG/L	0	0%	50	0	0	18	0.288 U	0.288 U	2.5 U	0.288 U	0.288 U
Sodium	UG/L	17800	78%	20000	0	14	18	7030 U	3920 U	13700	14600 J	11300 J
Strontium	UG/L	259	78%		0	14	18	82.2 U	50.5 U	157	154 J	110 J
Sulfur	UG/L	17200	72%		0	13	18	8690 U	5040 U	15500	17200 J	11500 U
Thallium	UG/L	40.6	33%		0	6	18	40.6 J	18 U	6.27 U	28.4 J	35.9 J
Tin	UG/L	0	0%		0	0	18	1.21 U	1.21 U	3.75 U	6.04 U	1.21 U
Titanium	UG/L	57.2	106%		0	18	17	57.2	30.5	11.1	20.7	25.5
Uranium	UG/L	0	0%		0	0	18	16.3 U	14.2 U	4.98 U	17.5 U	18.4 U
Vanadium	UG/L	9.81	33%		0	6	18	9.81	4.8 U	3.12 U	3.01 U	7.25
Zinc	UG/L	4240	100%		0	18	18	2060	1070	690	490	1920

(1) Criteria Level is NYSDEC GA Groundwater Standard

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-4 RINSEATE 15001 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-43 RINSEATE 15005 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-47 RINSEATE 15006 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-63 RINSEATE 15007 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-64 RINSEATE 15011 0 0.17 4/23/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	17	1	R	1	R	1	R	1	R	1	U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	17	1	UJ	1	UJ	1	UJ	1	UJ	1	U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	17	1	UJ	1	UJ	1	UJ	1	UJ	1	U
1,2-Dichloropropane	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U	1	U	1	U
Acetone	UG/L	5.6	24%		0	4	17	3.5	J	5	U	5	U	5	U	5	U
Benzene	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	UG/L	0	0%		0	0	17	1	U	1	U	1	U	1	U	1	U
Bromoform	UG/L	0	0%		0	0	17	1	U	1	U	1	U	1	U	1	U
Carbon disulfide	UG/L	0	0%		0	0	17	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	UG/L	0	0%	5	0	0	17	1	R	1	R	1	R	1	R	1	U
Chlorobenzene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane	UG/L	0	0%		0	0	17	1	U	1	U	1	U	1	U	1	U
Chloroethane	UG/L	0	0%	5	0	0	17	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
Chloroform	UG/L	0	0%	7	0	0	17	1	U	1	U	1	U	1	U	1	U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	17	1	U	1	U	1	U	1	U	1	U
Ethyl benzene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Methyl bromide	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	UJ
Methyl butyl ketone	UG/L	0	0%		0	0	17	5	U	5	U	5	U	5	U	5	U
Methyl chloride	UG/L	0	0%	5	0	0	17	1	R	1	R	1	R	1	R	1	UJ
Methyl ethyl ketone	UG/L	0	0%		0	0	17	5	UJ	5	UJ	5	UJ	5	UJ	5	U
Methyl isobutyl ketone	UG/L	0	0%		0	0	17	5	UJ	5	UJ	5	UJ	5	UJ	5	U
Methylene chloride	UG/L	0	0%	5	0	0	17	5	U	5	U	5	U	5	U	5	U
Styrene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Toluene	UG/L	8.4	18%	5	2	3	17	**8.4**		2.2		1	U	1	U	1	U
Total Xylenes	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	17	1	U	1	U	1	U	1	U	1	U
Trichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U	1	U	1	U
Vinyl acetate	UG/L	0	0%		0	0	17	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ
Vinyl chloride	UG/L	0	0%	2	0	0	17	1	U	1	U	1	U	1	U	1	U
1,1'-Biphenyl	UG/L	0	0%	5	0	0	17	1	U	1.1	U	1	U	1.1	U	11	U

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-4 RINSEATE 15001 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-43 RINSEATE 15005 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-47 RINSEATE 15006 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-63 RINSEATE 15007 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-64 RINSEATE 15011 0 0.17 4/23/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
2,4-Dimethylphenol	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
2,4-Dinitrophenol	UG/L	0	0%		0	0	17	20.6	UJ	21.3	UJ	20	UJ	21.5	UJ	22	U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
2-Chloronaphthalene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
2-Chlorophenol	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
2-Methylnaphthalene	UG/L	1.6	6%		0	1	17	1	U	1.1	U	1	U	1.1	U	1.1	U
2-Methylphenol	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
2-Nitroaniline	UG/L	0	0%	5	0	0	17	10.3	UJ	10.6	UJ	10	UJ	10.8	UJ	11	U
2-Nitrophenol	UG/L	0	0%	1	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
3 or 4-Methylphenol	UG/L	0	0%	1	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
3-Nitroaniline	UG/L	0	0%	5	0	0	17	10.3	UJ	10.6	UJ	10	UJ	10.8	UJ	11	U
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
4-Chloroaniline	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
4-Nitroaniline	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
4-Nitrophenol	UG/L	0	0%	1	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Acenaphthene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Acenaphthylene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Anthracene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Atrazine	UG/L	0	0%	7.5	0	0	17	10.3	R	10.6	R	10	R	10.8	R	11	U
Benzaldehyde	UG/L	3	18%		0	3	17	10.3	U	0.83	J	10	U	10.8	U	11	U
Benzo(a)anthracene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Benzo(a)pyrene	UG/L	0	0%	0	0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Benzo(b)fluoranthene	UG/L	1	6%		0	1	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Benzo(ghi)perylene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-4 RINSEATE 15001 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-43 RINSEATE 15005 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-47 RINSEATE 15006 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-63 RINSEATE 15007 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-64 RINSEATE 15011 0 0.17 4/23/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Benzo(k)fluoranthene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	UJ
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	UJ
Bis(2-Ethylhexyl)phthalate	UG/L	10.8	29%	5	5	5	17	10.3	U	10.6	U	4.5	U	10.8	U	**5.6**	J
Butylbenzylphthalate	UG/L	2.3	41%		0	7	17	10.3	U	10.6	U	0.95	J	10.8	U	1.1	J
Carbazole	UG/L	1.7	6%		0	1	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Chrysene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Di-n-butylphthalate	UG/L	1.4	24%	50	0	4	17	10.3	U	3.9	U	1.5	U	3.4	U	1.4	J
Di-n-octylphthalate	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Dibenzofuran	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Diethyl phthalate	UG/L	2.4	47%		0	8	17	1.1	J	1	J	10	U	0.99	J	11	U
Dimethylphthalate	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Diphenylamine	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Fluoranthene	UG/L	1.4	6%		0	1	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Fluorene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	UJ
Hexachloroethane	UG/L	0	0%	5	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Indeno(1,2,3-cd)pyrene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Isophorone	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
N-Nitrosodipropylamine	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Naphthalene	UG/L	0	0%		0	0	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Nitrobenzene	UG/L	0	0%	0.4	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Pentachlorophenol	UG/L	8.9	12%	1	2	2	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Phenanthrene	UG/L	1.1	12%		0	2	17	1	U	1.1	U	1	U	1.1	U	1.1	U
Phenol	UG/L	0	0%	1	0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	U
Pyrene	UG/L	1	6%		0	1	17	1	U	1.1	U	1	U	1.1	U	1.1	U
alpha-Terpineol	UG/L	0	0%		0	0	17	10.3	U	10.6	U	10	U	10.8	U	11	UJ
Aluminum	UG/L	3000	89%		0	16	18	427		36.4	U	246		188		3000	
Antimony	UG/L	0	0%	3	0	0	18	4.41	U	2.73	U	2.8	U	2.7	U	6.81	U
Arsenic	UG/L	30.1	83%	25	5	15	18	9.59		1.82	U	6.19		5.5		16.9	
Barium	UG/L	107	72%	1000	0	13	18	25.4	U	64.4	J	64.9	J	107	J	87.5	
Beryllium	UG/L	0.145	6%		0	1	18	0.118	U	0.118	U	0.118	U	0.118	U	0.133	U

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-4 RINSEATE 15001 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-43 RINSEATE 15005 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-47 RINSEATE 15006 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-63 RINSEATE 15007 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-64 RINSEATE 15011 0 0.17 4/23/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level (1)**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Boron	UG/L	891	72%	1000	0	13	18	27.1	U	891		42	U	54.6	J	37.5	
Cadmium	UG/L	7.18	94%	5	2	17	18	1.27	J	0.507	J	1.32	J	1.04	J	**5.76**	
Calcium	UG/L	57800	94%		0	17	18	13600	U	18900	J	29400	J	26900	J	57800	
Chromium	UG/L	29.2	89%	50	0	16	18	8.71		1.15	J	2.46	J	1.99	J	29.2	
Cobalt	UG/L	2.09	6%		0	1	18	0.352	U	0.541	U	0.466	U	1.11	U	2.09	J
Copper	UG/L	51.7	83%	200	0	15	18	12.8		4.23	U	7.12	J	5.59	J	32	
Iron	UG/L	3880	89%	300	13	16	18	**843**		56.8	U	285		278		**3880**	
Lead	UG/L	165	94%	25	13	17	18	**73.1**		4.51	J	15.5		12.1		**118**	
Magnesium	UG/L	6510	94%		0	17	18	1720	U	2010	J	2820	J	3010	J	6230	
Manganese	UG/L	103	100%	300	0	18	18	28	J	14.1	J	25.4	J	30.2	J	103	
Mercury	UG/L	0.166	6%	0.7	0	1	18	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U
Molybdenum	UG/L	0	0%		0	0	18	0.634	U	0.71	U	0.703	U	0.634	U	1.7	U
Nickel	UG/L	14.6	67%	100	0	12	18	3.91	U	4.16	U	4.39	U	6.18	J	14.6	
Phosphorous	UG/L	1120	83%		0	15	18	143	J	56.9	U	136	J	97.2	U	405	
Potassium	UG/L	7120	100%		0	18	18	4590	J	2370	J	2950	J	2570	J	4420	
Selenium	UG/L	6.22	39%	10	0	7	18	3.3	U	3.36	J	3.3	U	6.22		4.2	U
Silica	UG/L	16200	94%		0	17	18	3190	U	4960	J	5930	J	8490	J	16200	
Silicon	UG/L	7550	94%		0	17	18	1480	U	2310	J	2820	J	3860	J	7550	
Silver	UG/L	0	0%	50	0	0	18	0.288	U	0.288	U	0.288	U	0.288	U	2.5	U
Sodium	UG/L	17800	78%	20000	0	14	18	5380	U	12100	J	13100	J	12400	J	15100	
Strontium	UG/L	259	78%		0	14	18	63.1	U	114	J	110	J	199	J	142	
Sulfur	UG/L	17200	72%		0	13	18	6900	U	12600	J	15500	J	16000	J	15900	
Thallium	UG/L	40.6	33%		0	6	18	27.2	J	13.1	U	15.5	U	13.2	U	6.27	U
Tin	UG/L	0	0%		0	0	18	1.21	U	1.21	U	6.04	U	6.04	U	3.75	U
Titanium	UG/L	57.2	106%		0	18	17	11	E	0.411	J	4.22		3.14		47.8	
Uranium	UG/L	0	0%		0	0	18	12.6	U	13.2	U	18.1	U	14.3	U	4.98	U
Vanadium	UG/L	9.81	33%		0	6	18	2.35	U	0.746	U	1.59	U	1.31	U	9.43	
Zinc	UG/L	4240	100%		0	18	18	785		73.8		619		276		1300	

(1) Criteria Level is NYSDEC GA Groundwater Standard

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-65 RINSEATE 15008 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-77 RINSEATE 15012 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-84 RINSEATE 15009 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-90 RINSEATE 015010D 0 0.17 4/22/2003 DU BLDG 307 1		SEAD-1 R307-90 RINSEATE 15010 0 0.17 4/22/2003 SA BLDG 307 1	R30
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	17	1	R	1	U	1	R			1	R	
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	17	1	UJ	1	U	1	UJ			1	UJ	
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U			1	U	
1,1-Dichloroethane	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
1,1-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	17	1	UJ	1	U	1	UJ			1	UJ	
1,2-Dichloropropane	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U			1	U	
Acetone	UG/L	5.6	24%		0	4	17	5	U	5	U	3.2	J			5	U	
Benzene	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U			1	U	
Bromodichloromethane	UG/L	0	0%		0	0	17	1	U	1	U	1	U			1	U	
Bromoform	UG/L	0	0%		0	0	17	1	U	1	U	1	U			1	U	
Carbon disulfide	UG/L	0	0%		0	0	17	5	U	5	U	5	U			5	U	
Carbon tetrachloride	UG/L	0	0%	5	0	0	17	1	R	1	U	1	R			1	R	
Chlorobenzene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
Chlorodibromomethane	UG/L	0	0%		0	0	17	1	U	1	U	1	U			1	U	
Chloroethane	UG/L	0	0%	5	0	0	17	1	UJ	1	UJ	1	UJ			1	UJ	
Chloroform	UG/L	0	0%	7	0	0	17	1	U	1	U	1	U			1	U	
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	17	1	U	1	U	1	U			1	U	
Ethyl benzene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
Methyl bromide	UG/L	0	0%	5	0	0	17	1	U	1	UJ	1	U			1	U	
Methyl butyl ketone	UG/L	0	0%		0	0	17	5	U	5	U	5	U			5	U	
Methyl chloride	UG/L	0	0%	5	0	0	17	1	R	1	UJ	1	R			1	R	
Methyl ethyl ketone	UG/L	0	0%		0	0	17	5	UJ	5	U	5	UJ			5	UJ	
Methyl isobutyl ketone	UG/L	0	0%		0	0	17	5	UJ	5	U	5	UJ			5	UJ	
Methylene chloride	UG/L	0	0%	5	0	0	17	5	U	5	UJ	5	U			5	U	
Styrene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
Tetrachloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
Toluene	UG/L	8.4	18%	5	2	3	17	1	U	1	U	1	U			1	U	
Total Xylenes	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	17	1	U	1	U	1	U			1	U	
Trichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U			1	U	
Vinyl acetate	UG/L	0	0%		0	0	17	5	UJ	5	U	5	UJ			5	UJ	
Vinyl chloride	UG/L	0	0%	2	0	0	17	1	U	1	U	1	U			1	U	
1,1'-Biphenyl	UG/L	0	0%	5	0	0	17	1.1	U	9.7	U	1	U			1	U	

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-65 RINSEATE 15008 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-77 RINSEATE 15012 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-84 RINSEATE 15009 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-90 RINSEATE 015010D 0 0.17 4/22/2003 DU BLDG 307 1		SEAD-1 R307-90 RINSEATE 15010 0 0.17 4/22/2003 SA BLDG 307 1	R30
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
2,4-Dimethylphenol	UG/L	0	0%		0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
2,4-Dinitrophenol	UG/L	0	0%		0	0	17	22.2	UJ	19.4	R	20.4	UJ			20.6	UJ	
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
2-Chloronaphthalene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
2-Chlorophenol	UG/L	0	0%		0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
2-Methylnaphthalene	UG/L	1.6	6%		0	1	17	1.1	U	0.97	U	1	U			1	U	
2-Methylphenol	UG/L	0	0%		0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
2-Nitroaniline	UG/L	0	0%	5	0	0	17	11.1	UJ	9.7	U	10.2	UJ			10.3	UJ	
2-Nitrophenol	UG/L	0	0%	1	0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
3 or 4-Methylphenol	UG/L	0	0%	1	0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
3-Nitroaniline	UG/L	0	0%	5	0	0	17	11.1	UJ	9.7	U	10.2	UJ			10.3	UJ	
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
4-Chloroaniline	UG/L	0	0%	5	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
4-Nitroaniline	UG/L	0	0%	5	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
4-Nitrophenol	UG/L	0	0%	1	0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
Acenaphthene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Acenaphthylene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Anthracene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Atrazine	UG/L	0	0%	7.5	0	0	17	11.1	R	9.7	U	10.2	R			10.3	R	
Benzaldehyde	UG/L	3	18%		0	3	17	11.1	U	9.7	U	10.2	U			10.3	U	
Benzo(a)anthracene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Benzo(a)pyrene	UG/L	0	0%	0	0	0	17	1.1	U	0.97	U	1	U			1	U	
Benzo(b)fluoranthene	UG/L	1	6%		0	1	17	1.1	U	0.97	U	1	U			1	U	
Benzo(ghi)perylene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 R307-65 RINSEATE 15008 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-77 RINSEATE 15012 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-84 RINSEATE 15009 0 0.17 4/22/2003 SA BLDG 307 1		SEAD-1 R307-90 RINSEATE 015010D 0 0.17 4/22/2003 DU BLDG 307 1		SEAD-1 R307-90 RINSEATE 15010 0 0.17 4/22/2003 SA BLDG 307 1		R30
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	
Benzo(k)fluoranthene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	17	11.1	U	9.7	UJ	10.2	U			10.3	U	
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	17	11.1	U	9.7	UJ	10.2	U			10.3	U	
Bis(2-Ethylhexyl)phthalate	UG/L	10.8	29%	5	5	5	17	11.1	U	**7.1**	J	10.2	U			4.6	U	
Butylbenzylphthalate	UG/L	2.3	41%		0	7	17	11.1	U	1.1	J	10.2	U			10.3	U	
Carbazole	UG/L	1.7	6%		0	1	17	11.1	U	9.7	U	10.2	U			10.3	U	
Chrysene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Di-n-butylphthalate	UG/L	1.4	24%	50	0	4	17	3.2	U	1.3	J	5.4	U			1.2	U	
Di-n-octylphthalate	UG/L	0	0%		0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Dibenzofuran	UG/L	0	0%		0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Diethyl phthalate	UG/L	2.4	47%		0	8	17	11.1	U	9.7	U	1.1	J			10.3	U	
Dimethylphthalate	UG/L	0	0%		0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Diphenylamine	UG/L	0	0%	5	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Fluoranthene	UG/L	1.4	6%		0	1	17	1.1	U	0.97	U	1	U			1	U	
Fluorene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	17	11.1	U	9.7	UJ	10.2	U			10.3	U	
Hexachloroethane	UG/L	0	0%	5	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Indeno(1,2,3-cd)pyrene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Isophorone	UG/L	0	0%		0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
N-Nitrosodipropylamine	UG/L	0	0%		0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Naphthalene	UG/L	0	0%		0	0	17	1.1	U	0.97	U	1	U			1	U	
Nitrobenzene	UG/L	0	0%	0.4	0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Pentachlorophenol	UG/L	8.9	12%	1	2	2	17	11.1	U	9.7	R	10.2	U			**5.9**	J	
Phenanthrene	UG/L	1.1	12%		0	2	17	1.1	U	0.97	U	1	U			1	U	
Phenol	UG/L	0	0%	1	0	0	17	11.1	U	9.7	R	10.2	U			10.3	U	
Pyrene	UG/L	1	6%		0	1	17	1.1	U	0.97	U	1	U			1	U	
alpha-Terpineol	UG/L	0	0%		0	0	17	11.1	U	9.7	U	10.2	U			10.3	U	
Aluminum	UG/L	3000	89%		0	16	18	32.2	U	36.2	J	1040		662		684		
Antimony	UG/L	0	0%	3	0	0	18	3.15	U	6.81	U	3.29	U	2.54	U	3.3	U	
Arsenic	UG/L	30.1	83%	25	5	15	18	3.32	J	4.1	U	**26.3**		**29.4**		**30.1**		
Barium	UG/L	107	72%	1000	0	13	18	100	J	68.8		33.2	U	84.2	J	85.4	J	
Beryllium	UG/L	0.145	6%		0	1	18	0.118	U	0.133	U	0.118	U	0.118	U	0.118	U	

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1		SEAD-1		SEAD-1		SEAD-1		SEAD-1	
								R307-65		R307-77		R307-84		R307-90		R307-90	R30
								RINSEATE		RINSEATE		RINSEATE		RINSEATE		RINSEATE	
								15008		15012		15009		015010D		15010	
								0		0		0		0		0	
								0.17		0.17		0.17		0.17		0.17	
								4/22/2003		4/23/2003		4/22/2003		4/22/2003		4/22/2003	
								SA		SA		SA		DU		SA	
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	BLDG 307		BLDG 307		BLDG 307		BLDG 307		BLDG 307	
								1		1		1		1		1	
Parameter	**Units**	**Value**	**Detection**	**Level** [(1)]	**Exceedances**	**Detected**	**Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Boron	UG/L	891	72%	1000	0	13	18	34.1	U	16.5	J	19.2	U	121		123	
Cadmium	UG/L	7.18	94%	5	2	17	18	0.471	J	0.807	U	2.03		3.39		3.25	
Calcium	UG/L	57800	94%		0	17	18	23500	J	24000		23200	J	43800	J	44200	J
Chromium	UG/L	29.2	89%	50	0	16	18	0.987	U	1.37	U	22.4		18.1		19.2	
Cobalt	UG/L	2.09	6%		0	1	18	1.02	U	1.88	U	0.724	U	1.03	U	1.02	U
Copper	UG/L	51.7	83%	200	0	15	18	2.49	U	3.91	U	21.7		50.7		51.7	
Iron	UG/L	3880	89%	300	13	16	18	35	U	82		**1890**		**736**		**767**	
Lead	UG/L	165	94%	25	13	17	18	2.9	U	10.1		**64.9**		**124**		**125**	
Magnesium	UG/L	6510	94%		0	17	18	2660	J	2490		2530	J	2900	J	2970	J
Manganese	UG/L	103	100%	300	0	18	18	21.2	J	16.1		50.8	J	71.9		73.2	
Mercury	UG/L	0.166	6%	0.7	0	1	18	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U
Molybdenum	UG/L	0	0%		0	0	18	0.857	U	1.7	U	0.884	U	0.634	U	0.634	U
Nickel	UG/L	14.6	67%	100	0	12	18	5.48	J	4.95	J	5.58	J	4.35	U	4.48	U
Phosphorous	UG/L	1120	83%		0	15	18	56.7	U	97.7		167	J	1100		1120	
Potassium	UG/L	7120	100%		0	18	18	2350	J	1920		3070	J	3460	J	3540	J
Selenium	UG/L	6.22	39%	10	0	7	18	3.3	U	4.2	U	3.3	U	5.96		6.14	
Silica	UG/L	16200	94%		0	17	18	7860	J	5410		5810	J	14000	J	14300	J
Silicon	UG/L	7550	94%		0	17	18	3590	J	2530		2710	J	6460	J	6520	J
Silver	UG/L	0	0%	50	0	0	18	0.288	U	2.5	U	0.288	U	0.288	U	0.288	U
Sodium	UG/L	17800	78%	20000	0	14	18	12500	J	12700		6570	U	17700	J	17800	J
Strontium	UG/L	259	78%		0	14	18	190	J	112		57.5	U	257	J	259	J
Sulfur	UG/L	17200	72%		0	13	18	15900	J	14200		7200	U	14000	J	14200	J
Thallium	UG/L	40.6	33%		0	6	18	13.5	U	6.27	U	18.5	U	21	J	21.2	J
Tin	UG/L	0	0%		0	0	18	1.21	U	3.75	U	1.21	U	1.21	U	1.21	U
Titanium	UG/L	57.2	106%		0	18	17	0.156	UE	0.836	J	21.3	E	11.6		11.5	E
Uranium	UG/L	0	0%		0	0	18	15.5	U	4.98	U	13.5	U	18.4	U	18.3	U
Vanadium	UG/L	9.81	33%		0	6	18	0.819	U	3.12	U	3.71	U	2.82	U	2.92	U
Zinc	UG/L	4240	100%		0	18	18	96.2		114		860		4220	J	4240	J

(1) Criteria Level is NYSDEC GA Groundwater Standard

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 7-EXTERIOR RINSEATE 15016 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-RMP-1 RINSEATE 15014 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-RMP-2 RINSEATE 15015 0 0.17 4/23/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	17	1	U	1	U	1	U
1,2-Dichloropropane	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U
Acetone	UG/L	5.6	24%		0	4	17	5	U	5	U	5	U
Benzene	UG/L	0	0%	1	0	0	17	1	U	1	U	1	U
Bromodichloromethane	UG/L	0	0%		0	0	17	1	U	1	U	1	U
Bromoform	UG/L	0	0%		0	0	17	1	U	1	U	1	U
Carbon disulfide	UG/L	0	0%		0	0	17	5	U	5	U	5	U
Carbon tetrachloride	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Chlorobenzene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Chlorodibromomethane	UG/L	0	0%		0	0	17	1	U	1	U	1	U
Chloroethane	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Chloroform	UG/L	0	0%	7	0	0	17	1	U	1	U	1	U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	17	1	U	1	U	1	U
Ethyl benzene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Methyl bromide	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Methyl butyl ketone	UG/L	0	0%		0	0	17	5	U	5	U	5	U
Methyl chloride	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Methyl ethyl ketone	UG/L	0	0%		0	0	17	5	U	5	U	5	U
Methyl isobutyl ketone	UG/L	0	0%		0	0	17	5	U	5	U	5	U
Methylene chloride	UG/L	0	0%	5	0	0	17	5	U	5	U	5	U
Styrene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Tetrachloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Toluene	UG/L	8.4	18%	5	2	3	17	1	U	1	U	1	U
Total Xylenes	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	17	1	U	1	U	1	U
Trichloroethene	UG/L	0	0%	5	0	0	17	1	U	1	U	1	U
Vinyl acetate	UG/L	0	0%		0	0	17	5	U	5	U	5	U
Vinyl chloride	UG/L	0	0%	2	0	0	17	1	U	1	U	1	U
1,1'-Biphenyl	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 7-EXTERIOR RINSEATE 15016 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-RMP-1 RINSEATE 15014 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-RMP-2 RINSEATE 15015 0 0.17 4/23/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	17	11.2	U	10.5	U	9.6	U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	17	11.2	U	10.5	U	9.6	U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	17	11.2	U	10.5	U	9.6	U
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	17	11.2	U	10.5	U	9.6	U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	17	11.2	U	10.5	U	9.6	U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
2,4-Dimethylphenol	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
2,4-Dinitrophenol	UG/L	0	0%		0	0	17	22.5	U	21	U	19.2	U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
2-Chloronaphthalene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
2-Chlorophenol	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
2-Methylnaphthalene	UG/L	1.6	6%		0	1	17	1.1	U	1	U	0.96	U
2-Methylphenol	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
2-Nitroaniline	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
2-Nitrophenol	UG/L	0	0%	1	0	0	17	11.2	U	10.5	U	9.6	U
3 or 4-Methylphenol	UG/L	0	0%	1	0	0	17	11.2	U	10.5	U	9.6	U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
3-Nitroaniline	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	17	11.2	U	10.5	U	9.6	U
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	17	11.2	U	10.5	U	9.6	U
4-Chloroaniline	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
4-Nitroaniline	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
4-Nitrophenol	UG/L	0	0%	1	0	0	17	11.2	U	10.5	U	9.6	U
Acenaphthene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Acenaphthylene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Anthracene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Atrazine	UG/L	0	0%	7.5	0	0	17	11.2	U	10.5	U	9.6	U
Benzaldehyde	UG/L	3	18%		0	3	17	11.2	U	10.5	U	9.6	U
Benzo(a)anthracene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Benzo(a)pyrene	UG/L	0	0%	0	0	0	17	1.1	U	1	U	0.96	U
Benzo(b)fluoranthene	UG/L	1	6%		0	1	17	1	J	1	U	0.96	U
Benzo(ghi)perylene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1		SEAD-1		SEAD-1	
								7-EXTERIOR		R307-RMP-1		R307-RMP-2	
								RINSEATE		RINSEATE		RINSEATE	
								15016		15014		15015	
								0		0		0	
								0.17		0.17		0.17	
								4/23/2003		4/23/2003		4/23/2003	
								SA		SA		SA	
			Frequency		Number	Number	Number	BLDG 307		BLDG 307		BLDG 307	
		Maximum	of	Criteria	of	of Times	of Samples	1		1		1	
Parameter	**Units**	**Value**	**Detection**	**Level [1]**	**Exceedances**	**Detected**	**Collected**	Value	(Q)	Value	(Q)	Value	(Q)
Benzo(k)fluoranthene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	17	11.2	UJ	10.5	UJ	9.6	UJ
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	17	11.2	U	10.5	U	9.6	U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	17	11.2	UJ	10.5	UJ	9.6	UJ
Bis(2-Ethylhexyl)phthalate	UG/L	10.8	29%	5	5	5	17	**10.8**	J	**8.7**	J	**5.9**	J
Butylbenzylphthalate	UG/L	2.3	41%		0	7	17	0.79	J	2.3	J	2	J
Carbazole	UG/L	1.7	6%		0	1	17	1.7	J	10.5	U	9.6	U
Chrysene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Di-n-butylphthalate	UG/L	1.4	24%	50	0	4	17	11.2	U	10.5	U	1.3	J
Di-n-octylphthalate	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Dibenzofuran	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
Diethyl phthalate	UG/L	2.4	47%		0	8	17	11.2	U	10.5	U	9.6	U
Dimethylphthalate	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
Diphenylamine	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
Fluoranthene	UG/L	1.4	6%		0	1	17	1.4		1	U	0.96	U
Fluorene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	17	11.2	U	10.5	U	9.6	U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	17	11.2	U	10.5	U	9.6	U
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	17	11.2	UJ	10.5	UJ	9.6	UJ
Hexachloroethane	UG/L	0	0%	5	0	0	17	11.2	U	10.5	U	9.6	U
Indeno(1,2,3-cd)pyrene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Isophorone	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
N-Nitrosodipropylamine	UG/L	0	0%		0	0	17	11.2	U	10.5	U	9.6	U
Naphthalene	UG/L	0	0%		0	0	17	1.1	U	1	U	0.96	U
Nitrobenzene	UG/L	0	0%	0.4	0	0	17	11.2	U	10.5	U	9.6	U
Pentachlorophenol	UG/L	8.9	12%	1	2	2	17	11.2	U	10.5	U	9.6	U
Phenanthrene	UG/L	1.1	12%		0	2	17	1.1	J	1	U	0.96	U
Phenol	UG/L	0	0%	1	0	0	17	11.2	U	10.5	U	9.6	U
Pyrene	UG/L	1	6%		0	1	17	1	J	1	U	0.96	U
alpha-Terpineol	UG/L	0	0%		0	0	17	11.2	UJ	10.5	UJ	9.6	UJ
Aluminum	UG/L	3000	89%		0	16	18	1730		1170		1230	
Antimony	UG/L	0	0%	3	0	0	18	6.81	U	6.81	U	6.81	U
Arsenic	UG/L	30.1	83%	25	5	15	18	4.1	U	5.02		8.75	
Barium	UG/L	107	72%	1000	0	13	18	36.4		24.9		61.8	
Beryllium	UG/L	0.145	6%		0	1	18	0.133	U	0.133	U	0.133	U

Appendix D Table 1
Building 307 (SEAD 1) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 7-EXTERIOR RINSEATE 15016 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-RMP-1 RINSEATE 15014 0 0.17 4/23/2003 SA BLDG 307 1		SEAD-1 R307-RMP-2 RINSEATE 15015 0 0.17 4/23/2003 SA BLDG 307 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)
Boron	UG/L	891	72%	1000	0	13	18	15	J	11.4	J	36.1	
Cadmium	UG/L	7.18	94%	5	2	17	18	0.877	J	1.3	J	2.79	J
Calcium	UG/L	57800	94%		0	17	18	30700		35300		28300	
Chromium	UG/L	29.2	89%	50	0	16	18	12.8		9.19		11.6	
Cobalt	UG/L	2.09	6%		0	1	18	1.88	U	1.88	U	1.88	U
Copper	UG/L	51.7	83%	200	0	15	18	16.4		26.3		19.5	
Iron	UG/L	3880	89%	300	13	16	18	**2450**		**2390**		**1760**	
Lead	UG/L	165	94%	25	13	17	18	**106**		**81.6**		**115**	
Magnesium	UG/L	6510	94%		0	17	18	6510		4970		3410	
Manganese	UG/L	103	100%	300	0	18	18	101		89.9		68.5	
Mercury	UG/L	0.166	6%	0.7	0	1	18	0.052	U	0.052	U	0.052	U
Molybdenum	UG/L	0	0%		0	0	18	1.7	U	1.7	U	1.7	U
Nickel	UG/L	14.6	67%	100	0	12	18	5.43		5.11		6.06	
Phosphorous	UG/L	1120	83%		0	15	18	176		172		210	
Potassium	UG/L	7120	100%		0	18	18	1600		1590		1620	
Selenium	UG/L	6.22	39%	10	0	7	18	4.2	U	4.52	J	4.2	U
Silica	UG/L	16200	94%		0	17	18	8180		5740		10400	
Silicon	UG/L	7550	94%		0	17	18	3820		2680		4860	
Silver	UG/L	0	0%	50	0	0	18	2.5	U	2.5	U	2.5	U
Sodium	UG/L	17800	78%	20000	0	14	18	4850		4340		6360	
Strontium	UG/L	259	78%		0	14	18	65.2		50.7		138	
Sulfur	UG/L	17200	72%		0	13	18	4750		4230		6870	
Thallium	UG/L	40.6	33%		0	6	18	6.27	U	6.27	U	6.27	U
Tin	UG/L	0	0%		0	0	18	3.75	U	3.75	U	3.75	U
Titanium	UG/L	57.2	106%		0	18	17	40.6		22.3		22.4	
Uranium	UG/L	0	0%		0	0	18	4.98	U	4.98	U	4.98	U
Vanadium	UG/L	9.81	33%		0	6	18	6		3.9	J	4.09	J
Zinc	UG/L	4240	100%		0	18	18	4070		1270		1100	

(1) Criteria Level is NYSDEC GA Groundwater Standard

Appendix D Table 2
Building 307 (SEAD 1) RPCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

		SEAD-1		SEAD-1		SEAD-1		SEAD-1		SEAD-1		SEAD-1	
		W307-00		W307-01		W307-02		W307-03		W307-04		W307-05	
		WIPE		WIPE		WIPE		WIPE		WIPE		WIPE	
		16000		16001		16002		16003		16004		16005	
		0		0		0		0		0		0	
		0.17		0.17		0.17		0.17		0.17		0.17	
		4/21/2003		4/21/2003		4/21/2003		4/21/2003		4/21/2003		4/21/2003	
		SA		SA		SA		SA		SA		SA	
		BLDG 307		BLDG 307		BLDG 307		BLDG 307		BLDG 307		BLDG 307	
		1		1		1		1		1		1	
Parameter	Units	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Aroclor-1016	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1221	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1232	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1242	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1248	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1254	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1260	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

Appendix D Table 2
Building 307 (SEAD 1) RPCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

		SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
		W307-06	W307-07	W307-08	W307-09	W307-10	W307-11
		WIPE	WIPE	WIPE	WIPE	WIPE	WIPE
		16006	16007	16008	16009	16010	16011
		0	0	0	0	0	0
		0.17	0.17	0.17	0.17	0.17	0.17
		4/21/2003	4/21/2003	4/21/2003	4/21/2003	4/21/2003	4/21/2003
		SA	SA	SA	SA	SA	SA
		BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307
		1	1	1	1	1	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1016	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1232	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Appendix D Table 2
Building 307 (SEAD 1) RPCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

		SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
		W307-12	W307-13	W307-14	W307-15	W307-16	W307-17
		WIPE	WIPE	WIPE	WIPE	WIPE	WIPE
		16012	16013	16014	16015	16016	16017
		0	0	0	0	0	0
		0.17	0.17	0.17	0.17	0.17	0.17
		4/21/2003	4/21/2003	4/21/2003	4/21/2003	4/21/2003	4/21/2003
		SA	SA	SA	SA	SA	SA
		BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307
		1	1	1	1	1	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1016	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1232	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Appendix D Table 2
Building 307 (SEAD 1) RPCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

		SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
		W307-18	W307-19	W307-20	W307-21	W307-22	W307-23
		WIPE	WIPE	WIPE	WIPE	WIPE	WIPE
		16018	16019	16020	16021	16022	16023
		0	0	0	0	0	0
		0.17	0.17	0.17	0.17	0.17	0.17
		4/21/2003	4/21/2003	4/21/2003	4/21/2003	4/21/2003	4/21/2003
		SA	SA	SA	SA	SA	SA
		BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307
		1	1	1	1	1	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1016	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1232	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Appendix D Table 2
Building 307 (SEAD 1) RPCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

		SEAD-1		SEAD-1		SEAD-1		SEAD-1		SEAD-1		SEAD-1	
		W307-24		W307-25		W307-26		W307-27		W307-28		W307-29	
		WIPE		WIPE		WIPE		WIPE		WIPE		WIPE	
		16024		16025		16026		16027		16028		16029	
		0		0		0		0		0		0	
		0.17		0.17		0.17		0.17		0.17		0.17	
		4/21/2003		4/22/2003		4/22/2003		4/22/2003		4/22/2003		4/22/2003	
		SA		SA		SA		SA		SA		SA	
		BLDG 307		BLDG 307		BLDG 307		BLDG 307		BLDG 307		BLDG 307	
		1		1		1		1		1		1	
Parameter	Units	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Aroclor-1016	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1221	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1232	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1242	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1248	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1254	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Aroclor-1260	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U

Appendix D Table 2
Building 307 (SEAD 1) RPCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

		SEAD-1		SEAD-1		SEAD-1		SEAD-1		SEAD-1		SEAD-1	
		W307-30		W307-31		W307-32		W307-33		W307-34		W307-35	
		WIPE		WIPE		WIPE		WIPE		WIPE		WIPE	
		16030		16031		16032		16033		16034		16035	
		0		0		0		0		0		0	
		0.17		0.17		0.17		0.17		0.17		0.17	
		4/22/2003		4/22/2003		4/22/2003		4/22/2003		4/22/2003		4/22/2003	
		SA		SA		SA		SA		SA		SA	
		BLDG 307		BLDG 307		BLDG 307		BLDG 307		BLDG 307		BLDG 307	
		1		1		1		1		1		1	
Parameter	Units	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Aroclor-1016	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	UJ	0.1	U
Aroclor-1221	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	UJ	0.1	U
Aroclor-1232	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	UJ	0.1	U
Aroclor-1242	UG/Filter	0.96	U	0.1	U	0.1	U	0.1	U	0.1	UJ	0.1	U
Aroclor-1248	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	UJ	0.1	U
Aroclor-1254	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	UJ	0.1	U
Aroclor-1260	UG/Filter	0.1	U	0.1	U	0.1	U	0.1	U	0.1	UJ	0.1	U

Appendix D Table 2
Building 307 (SEAD 1) RPCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

		SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
		W307-36	W307-37	W307-38	W307-39	W307-40	W307-41	W307-42	W307-RB
		WIPE	WIPE	WIPE	WIPE	WIPE	WIPE	WIPE	WIPE
		16036	16037	16038	16039	16040	16041	16042	16043
		0	0	0	0	0	0	0	0
		0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
		4/22/2003	4/22/2003	4/22/2003	4/22/2003	4/23/2003	4/23/2003	4/23/2003	4/21/2003
		SA	SA	SA	SA	SA	SA	SA	FB
		BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307
		1	1	1	1	1	1	1	1
Parameter	Units	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1016	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1232	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/Filter	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Appendix D Table 2
Building 307 (SEAD 1) RPCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

		SEAD-1		SEAD-1	
		W307-RB		W307-RB	
		WIPE		WIPE	
		16044		16045	
		0		0	
		0.17		0.17	
		4/22/2003		4/22/2003	
		FB		FB	
		BLDG 307		BLDG 307	
		1		1	
Parameter	Units	Value	(Q)	Value	(Q)
Aroclor-1016	UG/Filter	0.1	U	0.1	U
Aroclor-1221	UG/Filter	0.1	U	0.1	U
Aroclor-1232	UG/Filter	0.1	U	0.1	U
Aroclor-1242	UG/Filter	2.4	U	0.1	U
Aroclor-1248	UG/Filter	0.1	U	0.1	U
Aroclor-1254	UG/Filter	0.1	U	0.1	U
Aroclor-1260	UG/Filter	0.1	U	0.1	U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
								SS307-00	SS307-01	SS307-02	SS307-03	SS307-04
								SOIL	SOIL	SOIL	SOIL	SOIL
								11000	11001	11002	11003	11004
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								04/18/03	04/18/03	04/18/03	04/18/03	04/18/03
								SA	SA	SA	SA	SA
								BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1-Trichloroethane	UG/KG	0	0%	800	0	0	12	1.1 UJ	1 UJ	0.99 UJ	0.86 UJ	0.87 UJ
1,1,2,2-Tetrachloroethane	UG/KG	0	0%	600	0	0	12	1.1 UJ	1 UJ	0.99 UJ	0.86 UJ	0.87 UJ
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
1,1-Dichloroethane	UG/KG	0	0%	200	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
1,1-Dichloroethene	UG/KG	1.1	17%	400	0	2	12	1.1 U	1 U	0.55 J	1.1	0.87 U
1,2-Dichloroethane	UG/KG	0	0%	100	0	0	12	1.1 UJ	1 UJ	0.99 UJ	0.86 UJ	0.87 UJ
1,2-Dichloropropane	UG/KG	0	0%		0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Acetone	UG/KG	6.1	33%	200	0	4	12	5.5 U	5.2 U	4.2 J	6.1	4.4 U
Benzene	UG/KG	0	0%	60	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Bromodichloromethane	UG/KG	0	0%		0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Bromoform	UG/KG	0	0%		0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Carbon disulfide	UG/KG	0	0%	2700	0	0	12	5.5 U	5.2 U	4.9 U	4.3 U	4.4 U
Carbon tetrachloride	UG/KG	0	0%	600	0	0	12	1.1 UJ	1 UJ	0.99 UJ	0.86 UJ	0.87 UJ
Chlorobenzene	UG/KG	0	0%	1700	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Chlorodibromomethane	UG/KG	0	0%		0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Chloroethane	UG/KG	0	0%	1900	0	0	12	1.1 UJ	1 UJ	0.99 UJ	0.86 UJ	0.87 UJ
Chloroform	UG/KG	0	0%	300	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Cis-1,2-Dichloroethene	UG/KG	0	0%		0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Ethyl benzene	UG/KG	0	0%	5500	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Methyl bromide	UG/KG	0	0%		0	0	12	1.1 UJ	1 UJ	0.99 UJ	0.86 UJ	0.87 UJ
Methyl butyl ketone	UG/KG	0	0%		0	0	12	5.5 U	5.2 U	4.9 U	4.3 U	4.4 U
Methyl chloride	UG/KG	0	0%		0	0	12	1.1 UJ	1 UJ	0.99 UJ	0.86 UJ	0.87 UJ
Methyl ethyl ketone	UG/KG	0	0%	300	0	0	12	5.5 U	5.2 U	4.9 U	4.3 U	4.4 U
Methyl isobutyl ketone	UG/KG	0	0%	1000	0	0	12	5.5 U	5.2 U	4.9 U	4.3 U	4.4 U
Methylene chloride	UG/KG	0	0%	100	0	0	12	5.5 UJ	5.2 UJ	4.9 UJ	4.3 UJ	4.4 UJ
Styrene	UG/KG	0.43	8%		0	1	12	1.1 U	1 U	0.43 J	0.86 U	0.87 U
Tetrachloroethene	UG/KG	0	0%	1400	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Toluene	UG/KG	0.4	8%	1500	0	1	12	1.1 U	1 U	0.4 J	0.86 U	0.87 U
Total Xylenes	UG/KG	0	0%	1200	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Trans-1,2-Dichloroethene	UG/KG	0	0%	300	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Trichloroethene	UG/KG	0	0%	700	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
Vinyl acetate	UG/KG	0	0%		0	0	12	5.5 U	5.2 U	4.9 U	4.3 U	4.4 U
Vinyl chloride	UG/KG	0	0%	200	0	0	12	1.1 U	1 U	0.99 U	0.86 U	0.87 U
1,1'-Biphenyl	UG/KG	0	0%		0	0	12	140 U	36.6 U	36.3 U	34.8 U	34.9 U
1,2,4-Trichlorobenzene	UG/KG	0	0%	3400	0	0	12	1400 U	366 U	363 U	348 U	349 U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
								SS307-00	SS307-01	SS307-02	SS307-03	SS307-04
								SOIL	SOIL	SOIL	SOIL	SOIL
								11000	11001	11002	11003	11004
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								04/18/03	04/18/03	04/18/03	04/18/03	04/18/03
								SA	SA	SA	SA	SA
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	BLDG 307 1	BLDG 307 1	BLDG 307 1	BLDG 307 1	BLDG 307 1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,2-Dichlorobenzene	UG/KG	0	0%	7900	0	0	12	1400 U	366 U	363 U	348 U	349 U
1,3-Dichlorobenzene	UG/KG	0	0%	1600	0	0	12	1400 U	366 U	363 U	348 U	349 U
1,4-Dichlorobenzene	UG/KG	0	0%	8500	0	0	12	1400 U	366 U	363 U	348 U	349 U
2,4,5-Trichlorophenol	UG/KG	0	0%	100	0	0	12	1400 U	366 U	363 U	348 U	349 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	12	1400 U	366 U	363 U	348 U	349 U
2,4-Dichlorophenol	UG/KG	0	0%	400	0	0	12	1400 U	366 U	363 U	348 U	349 UJ
2,4-Dimethylphenol	UG/KG	0	0%		0	0	12	1400 U	366 U	363 U	348 U	349 U
2,4-Dinitrophenol	UG/KG	0	0%	200	0	0	12	2810 UJ	732 UJ	726 UJ	697 UJ	698 UJ
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	12	1400 U	366 U	363 U	348 U	349 U
2,6-Dinitrotoluene	UG/KG	0	0%	1000	0	0	12	1400 U	366 UJ	363 U	348 U	349 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	12	140 U	36.6 U	36.3 U	34.8 U	34.9 U
2-Chlorophenol	UG/KG	0	0%	800	0	0	12	1400 U	366 U	363 U	348 U	349 U
2-Methylnaphthalene	UG/KG	19.1	8%	36400	0	1	12	140 U	36.6 U	19.1 J	34.8 U	34.9 U
2-Methylphenol	UG/KG	0	0%	100	0	0	12	1400 U	366 U	363 UJ	348 UJ	349 U
2-Nitroaniline	UG/KG	0	0%	430	0	0	12	1400 U	366 U	363 U	348 U	349 U
2-Nitrophenol	UG/KG	0	0%	330	0	0	12	1400 U	366 U	363 U	348 U	349 U
3 or 4-Methylphenol	UG/KG	0	0%		0	0	12	1400 U	366 U	363 UJ	348 UJ	349 U
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	12	1400 U	366 UJ	363 U	348 U	349 U
3-Nitroaniline	UG/KG	0	0%	500	0	0	12	1400 U	366 U	363 U	348 U	349 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	12	1400 U	366 UJ	363 U	348 U	349 U
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	12	1400 U	366 U	363 U	348 U	349 U
4-Chloro-3-methylphenol	UG/KG	0	0%	240	0	0	12	1400 U	366 U	363 U	348 U	349 U
4-Chloroaniline	UG/KG	0	0%	220	0	0	12	1400 U	366 U	363 U	348 U	349 U
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	12	1400 U	366 U	363 U	348 U	349 U
4-Nitroaniline	UG/KG	0	0%		0	0	12	1400 U	366 U	363 U	348 U	349 U
4-Nitrophenol	UG/KG	0	0%	100	0	0	12	1400 U	366 U	363 UJ	348 UJ	349 U
Acenaphthene	UG/KG	50.3	100%	50000	0	12	12	36.2 J	28.5 J	42.5	10.4 J	12.8 J
Acenaphthylene	UG/KG	0	0%	41000	0	0	12	140 U	36.6 U	36.3 U	34.8 U	34.9 U
Anthracene	UG/KG	70.5	83%	50000	0	10	12	140 U	70.5	58.7	21.3 J	26.9 J
Atrazine	UG/KG	0	0%		0	0	12	1400 R	366 R	363 R	348 R	349 R
Benzaldehyde	UG/KG	0	0%		0	0	12	1400 UJ	366 U	363 U	348 U	349 UJ
Benzo(a)anthracene	UG/KG	514	58%	224	3	7	12	140 U	**402**	**514**	202	34.9 U
Benzo(a)pyrene	UG/KG	561	92%	61	11	11	12	140 UJ	**387**	**561**	**283**	**105**
Benzo(b)fluoranthene	UG/KG	1140	100%	1100	1	12	12	692 J	866	**1140**	344	237
Benzo(ghi)perylene	UG/KG	440	58%	50000	0	7	12	140 UJ	198	440	293	34.9 U
Benzo(k)fluoranthene	UG/KG	0	0%	1100	0	0	12	140 UJ	36.6 U	36.3 U	34.8 U	34.9 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	12	1400 U	366 U	363 U	348 U	349 U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

							SEAD-1		SEAD-1		SEAD-1		SEAD-1		SEAD-1
							SS307-00		SS307-01		SS307-02		SS307-03		SS307-04
							SOIL		SOIL		SOIL		SOIL		SOIL
							11000		11001		11002		11003		11004
							0		0		0		0		0
							0.17		0.17		0.17		0.17		0.17
							04/18/03		04/18/03		04/18/03		04/18/03		04/18/03
							SA		SA		SA		SA		SA
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	BLDG 307		BLDG 307		BLDG 307		BLDG 307		BLDG 307
								1		1		1		1		1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	12	1400	U	366	U	363	U	348	U	349	U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	12	1400	U	366	U	363	U	348	U	349	U
Bis(2-Ethylhexyl)phthalate	UG/KG	938	100%	50000	0	12	12	938	J	125	J	68.8	J	43.9	J	42	J
Butylbenzylphthalate	UG/KG	0	0%	50000	0	0	12	1400	U	366	U	363	U	348	U	349	U
Carbazole	UG/KG	51.6	25%		0	3	12	1400	U	51.6	J	363	U	348	U	349	U
Chrysene	UG/KG	591	100%	400	3	12	12	383		**405**		**591**		239		118	
Di-n-butylphthalate	UG/KG	124	25%	8100	0	3	12	124	J	366	U	363	U	348	U	349	U
Di-n-octylphthalate	UG/KG	0	0%	50000	0	0	12	1400	U	366	U	363	U	348	U	349	U
Dibenz(a,h)anthracene	UG/KG	0	0%	14	0	0	12	140	UJ	36.6	U	36.3	U	34.8	U	34.9	U
Dibenzofuran	UG/KG	25.6	8%	6200	0	1	12	1400	U	366	U	25.6	J	348	U	349	U
Diethyl phthalate	UG/KG	0	0%	7100	0	0	12	1400	U	366	U	363	U	348	U	349	U
Dimethylphthalate	UG/KG	0	0%	2000	0	0	12	1400	U	366	U	363	U	348	U	349	U
Diphenylamine	UG/KG	0	0%		0	0	12	1400	U	366	U	363	U	348	U	349	U
Fluoranthene	UG/KG	1100	100%	50000	0	12	12	598		920		1100		388		241	
Fluorene	UG/KG	43.6	100%	50000	0	12	12	26	J	22.5	J	43.6		9.7	J	11.8	J
Hexachlorobenzene	UG/KG	0	0%	410	0	0	12	1400	U	366	U	363	U	348	U	349	U
Hexachlorobutadiene	UG/KG	0	0%		0	0	12	1400	U	366	U	363	U	348	U	349	U
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	12	1400	U	366	UJ	363	U	348	U	349	U
Hexachloroethane	UG/KG	0	0%		0	0	12	1400	U	366	U	363	U	348	U	349	U
Indeno(1,2,3-cd)pyrene	UG/KG	408	58%	3200	0	7	12	140	U	242		408		274		34.9	U
Isophorone	UG/KG	0	0%	4400	0	0	12	1400	U	366	U	363	U	348	U	349	U
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	12	1400	U	366	U	363	U	348	U	349	U
Naphthalene	UG/KG	0	0%	13000	0	0	12	140	U	36.6	U	36.3	U	34.8	U	34.9	U
Nitrobenzene	UG/KG	0	0%	200	0	0	12	1400	U	366	U	363	U	348	U	349	U
Pentachlorophenol	UG/KG	0	0%	1000	0	0	12	1400	U	366	U	363	U	348	U	349	U
Phenanthrene	UG/KG	692	100%	50000	0	12	12	327		396		692		175		141	
Phenol	UG/KG	0	0%	30	0	0	12	1400	U	366	U	363	U	348	U	349	U
Pyrene	UG/KG	1080	100%	50000	0	12	12	705		691		1080		429		208	
alpha-Terpineol	UG/KG	0	0%		0	0	12	1400	U	366	U	363	UJ	348	UJ	349	U
Aroclor-1016	UG/KG	0	0%		0	0	12	35.1	U	36.6	U	36.3	U	34.8	U	34.9	U
Aroclor-1221	UG/KG	0	0%		0	0	12	35.1	U	36.6	U	36.3	U	34.8	U	34.9	U
Aroclor-1232	UG/KG	0	0%		0	0	12	35.1	U	36.6	U	36.3	U	34.8	U	34.9	U
Aroclor-1242	UG/KG	209	25%		0	3	12	35.1	U	23.4	J	209	J	34.8	U	34.9	U
Aroclor-1248	UG/KG	0	0%		0	0	12	35.1	U	36.6	U	36.3	U	34.8	U	34.9	U
Aroclor-1254	UG/KG	194	67%	10000	0	8	12	38		38.9		194	J	9.7	J	9.6	J
Aroclor-1260	UG/KG	28.8	42%	10000	0	5	12	21.4	J	28.8	J	28.4	J	34.8	U	34.9	U
Aroclor-1262	UG/KG	0	0%		0	0	12	35.1	U	36.6	U	36.3	U	34.8	U	34.9	U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
								SS307-00	SS307-01	SS307-02	SS307-03	SS307-04
								SOIL	SOIL	SOIL	SOIL	SOIL
								11000	11001	11002	11003	11004
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								04/18/03	04/18/03	04/18/03	04/18/03	04/18/03
								SA	SA	SA	SA	SA
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307
								1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1268	UG/KG	0	0%		0	0	12	35.1 U	36.6 U	36.3 U	34.8 U	34.9 U
Aluminum	UG/KG	16700000	100%	20500000	0	13	13	3900000	4520000	3820000	7310000	13000000
Antimony	UG/KG	1260	62%	6550	0	8	13	796 J	748 U	956 J	713 J	779 J
Arsenic	UG/KG	7440	100%	21500	0	13	13	5420	5670	6920	6250	7440
Barium	UG/KG	254000	100%	300000	0	13	13	32600	78000	254000	53800	101000
Beryllium	UG/KG	782	100%	1400	0	13	13	319	345	326	433	660
Boron	UG/KG	13100	100%		0	13	13	8510	10200	8100	8580	6860
Cadmium	UG/KG	1130	100%	2900	0	13	13	1130	933	877	620	259 J
Calcium	UG/KG	306000000	100%	293000000	1	13	13	209000000	178000000	245000000	173000000	19600000
Chromium	UG/KG	24900	100%	32700	0	13	13	16100	14900	14500	14000	20400
Cobalt	UG/KG	16600	100%	30000	0	13	13	4730	5910	5200	7030	9950
Copper	UG/KG	34300	100%	62800	0	13	13	24700	23200	30300	17000	20100
Iron	UG/KG	22500000	100%	38600000	0	13	13	11400000 J	9890000 J	9350000 J	13600000 J	18700000 J
Lead	UG/KG	116000	100%	400000	0	13	13	65700	116000	110000	29500	33200
Magnesium	UG/KG	15900000	100%	29100000	0	13	13	15400000	15900000	11700000	12400000	7730000
Manganese	UG/KG	815000	100%	2380000	0	13	13	458000 J	368000 J	508000 J	414000 J	672000 J
Mercury	UG/KG	370	100%	130	2	13	13	65.1	36.9	18.8	22.1	39.8
Molybdenum	UG/KG	1280	100%		0	13	13	894	891	758 J	365 J	455 J
Nickel	UG/KG	30200	100%	62300	0	13	13	20300	20400	16400	21400	25000
Phosphorous	UG/KG	844000	100%		0	13	13	371000	473000	412000	491000	618000
Potassium	UG/KG	2350000	100%	3160000	0	13	13	943000	1250000	830000	1350000	1780000
Selenium	UG/KG	1210	85%	2000	0	11	13	893	877	451 J	710	990
Silica	UG/KG	2000000	100%		0	13	13	1500000	1720000	1530000	1250000	1400000
Silicon	UG/KG	933000	100%		0	13	13	700000	803000	715000	583000	656000
Silver	UG/KG	345	15%	870	0	2	13	261 J	274 U	259 U	251 U	256 U
Sodium	UG/KG	348000	92%	269000	1	12	13	88100	77700	**348000**	85200 U	232000
Strontium	UG/KG	230000	100%		0	13	13	190000	172000	224000	151000	31200
Sulfur	UG/KG	3210000	100%		0	13	13	1880000 J	1440000 J	1090000 J	689000 J	370000 J
Thallium	UG/KG	0	0%	1200	0	0	13	617 U	688 U	650 U	630 U	644 U
Tin	UG/KG	3240	100%		0	13	13	1930	1590	1890	1350	657 J
Titanium	UG/KG	105000	100%		0	13	13	39000	75600	46600	50000	71500
Uranium	UG/KG	499	8%		0	1	13	490 U	547 U	517 U	501 U	511 U
Vanadium	UG/KG	33200	100%	150000	0	13	13	18100	22400	20200	19900	33200
Zinc	UG/KG	16200000	100%	126000	13	13	13	**2930000**	**905000**	**16200000**	**9650000**	**5800000**

(1) Criteria level is NYSDEC's TAGM #4046 value.

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level [1]	Number of Exceedances	Number of Times Detected	Number of Samples Collected	SEAD-1 SS307-05 SOIL 011005D 0 0.17 04/18/03 DU BLDG 307 1 Value (Q)	SEAD-1 SS307-05 SOIL 11005 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-06 SOIL 11006 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-07 SOIL 11007 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-08 SOIL 11008 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)
1,1,1-Trichloroethane	UG/KG	0	0%	800	0	0	12		1.4 UJ	1.2 UJ	1.2 UJ	1.1 UJ
1,1,2,2-Tetrachloroethane	UG/KG	0	0%	600	0	0	12		1.4 UJ	1.2 UJ	1.2 UJ	1.1 UJ
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
1,1-Dichloroethane	UG/KG	0	0%	200	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
1,1-Dichloroethene	UG/KG	1.1	17%	400	0	2	12		1.4 U	1.2 U	1.2 U	1.1 U
1,2-Dichloroethane	UG/KG	0	0%	100	0	0	12		1.4 UJ	1.2 UJ	1.2 UJ	1.1 UJ
1,2-Dichloropropane	UG/KG	0	0%		0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Acetone	UG/KG	6.1	33%	200	0	4	12		5.6 J	5.8 U	6 U	5.3 U
Benzene	UG/KG	0	0%	60	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Bromodichloromethane	UG/KG	0	0%		0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Bromoform	UG/KG	0	0%		0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Carbon disulfide	UG/KG	0	0%	2700	0	0	12		6.9 U	5.8 U	6 U	5.3 U
Carbon tetrachloride	UG/KG	0	0%	600	0	0	12		1.4 UJ	1.2 UJ	1.2 UJ	1.1 UJ
Chlorobenzene	UG/KG	0	0%	1700	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Chlorodibromomethane	UG/KG	0	0%		0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Chloroethane	UG/KG	0	0%	1900	0	0	12		1.4 UJ	1.2 UJ	1.2 UJ	1.1 UJ
Chloroform	UG/KG	0	0%	300	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Cis-1,2-Dichloroethene	UG/KG	0	0%		0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Ethyl benzene	UG/KG	0	0%	5500	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Methyl bromide	UG/KG	0	0%		0	0	12		1.4 UJ	1.2 UJ	1.2 UJ	1.1 UJ
Methyl butyl ketone	UG/KG	0	0%		0	0	12		6.9 U	5.8 U	6 U	5.3 U
Methyl chloride	UG/KG	0	0%		0	0	12		1.4 UJ	1.2 UJ	1.2 UJ	1.1 UJ
Methyl ethyl ketone	UG/KG	0	0%	300	0	0	12		6.9 U	5.8 U	6 U	5.3 U
Methyl isobutyl ketone	UG/KG	0	0%	1000	0	0	12		6.9 U	5.8 U	6 U	5.3 U
Methylene chloride	UG/KG	0	0%	100	0	0	12		6.9 UJ	5.8 UJ	6 UJ	5.3 UJ
Styrene	UG/KG	0.43	8%		0	1	12		1.4 U	1.2 U	1.2 U	1.1 U
Tetrachloroethene	UG/KG	0	0%	1400	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Toluene	UG/KG	0.4	8%	1500	0	1	12		1.4 U	1.2 U	1.2 U	1.1 U
Total Xylenes	UG/KG	0	0%	1200	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Trans-1,2-Dichloroethene	UG/KG	0	0%	300	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Trichloroethene	UG/KG	0	0%	700	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
Vinyl acetate	UG/KG	0	0%		0	0	12		6.9 U	5.8 U	6 U	5.3 U
Vinyl chloride	UG/KG	0	0%	200	0	0	12		1.4 U	1.2 U	1.2 U	1.1 U
1,1'-Biphenyl	UG/KG	0	0%		0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
1,2,4-Trichlorobenzene	UG/KG	0	0%	3400	0	0	12		423 U	384 U	378 U	406 U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
								SS307-05	SS307-05	SS307-06	SS307-07	SS307-08
								SOIL	SOIL	SOIL	SOIL	SOIL
								011005D	11005	11006	11007	11008
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								04/18/03	04/18/03	04/18/03	04/18/03	04/18/03
								DU	SA	SA	SA	SA
								BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,2-Dichlorobenzene	UG/KG	0	0%	7900	0	0	12		423 U	384 U	378 U	406 U
1,3-Dichlorobenzene	UG/KG	0	0%	1600	0	0	12		423 U	384 U	378 U	406 U
1,4-Dichlorobenzene	UG/KG	0	0%	8500	0	0	12		423 U	384 U	378 U	406 U
2,4,5-Trichlorophenol	UG/KG	0	0%	100	0	0	12		423 U	384 U	378 U	406 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
2,4-Dichlorophenol	UG/KG	0	0%	400	0	0	12		423 U	384 U	378 U	406 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
2,4-Dinitrophenol	UG/KG	0	0%	200	0	0	12		847 UJ	769 UJ	756 UJ	813 UJ
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
2,6-Dinitrotoluene	UG/KG	0	0%	1000	0	0	12		423 U	384 U	378 U	406 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
2-Chlorophenol	UG/KG	0	0%	800	0	0	12		423 U	384 U	378 U	406 U
2-Methylnaphthalene	UG/KG	19.1	8%	36400	0	1	12		42.3 U	38.4 U	37.8 U	40.6 U
2-Methylphenol	UG/KG	0	0%	100	0	0	12		423 UJ	384 U	378 UJ	406 UJ
2-Nitroaniline	UG/KG	0	0%	430	0	0	12		423 U	384 U	378 U	406 U
2-Nitrophenol	UG/KG	0	0%	330	0	0	12		423 U	384 U	378 U	406 U
3 or 4-Methylphenol	UG/KG	0	0%		0	0	12		423 UJ	384 U	378 UJ	406 UJ
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
3-Nitroaniline	UG/KG	0	0%	500	0	0	12		423 U	384 U	378 U	406 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
4-Chloro-3-methylphenol	UG/KG	0	0%	240	0	0	12		423 U	384 U	378 U	406 U
4-Chloroaniline	UG/KG	0	0%	220	0	0	12		423 U	384 U	378 U	406 U
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
4-Nitroaniline	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
4-Nitrophenol	UG/KG	0	0%	100	0	0	12		423 UJ	384 UJ	378 UJ	406 UJ
Acenaphthene	UG/KG	50.3	100%	50000	0	12	12		18.4 J	17.8 J	11.4 J	19.9 J
Acenaphthylene	UG/KG	0	0%	41000	0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
Anthracene	UG/KG	70.5	83%	50000	0	10	12		38 J	35.6 J	25.5 J	48.9
Atrazine	UG/KG	0	0%		0	0	12		423 R	384 R	378 R	406 R
Benzaldehyde	UG/KG	0	0%		0	0	12		423 U	384 UJ	378 U	406 U
Benzo(a)anthracene	UG/KG	514	58%	224	3	7	12		211	38.4 U	185	**291**
Benzo(a)pyrene	UG/KG	561	92%	61	11	11	12		**283**	**188**	**273**	**360**
Benzo(b)fluoranthene	UG/KG	1140	100%	1100	1	12	12		367	387	383	578
Benzo(ghi)perylene	UG/KG	440	58%	50000	0	7	12		282	38.4 U	266	322
Benzo(k)fluoranthene	UG/KG	0	0%	1100	0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level [(1)]	Number of Exceedances	Number of Times Detected	Number of Samples Collected	SEAD-1 SS307-05 SOIL 011005D 0 0.17 04/18/03 DU BLDG 307 1 Value (Q)	SEAD-1 SS307-05 SOIL 11005 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-06 SOIL 11006 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-07 SOIL 11007 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-08 SOIL 11008 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
Bis(2-Ethylhexyl)phthalate	UG/KG	938	100%	50000	0	12	12		70.7 J	65.4 J	170 J	94.4 J
Butylbenzylphthalate	UG/KG	0	0%	50000	0	0	12		423 U	384 U	378 U	406 U
Carbazole	UG/KG	51.6	25%		0	3	12		423 U	24.3 J	378 U	406 U
Chrysene	UG/KG	591	100%	400	3	12	12		188	194	219	302
Di-n-butylphthalate	UG/KG	124	25%	8100	0	3	12		423 U	384 U	35.9 J	406 U
Di-n-octylphthalate	UG/KG	0	0%	50000	0	0	12		423 U	384 U	378 U	406 U
Dibenz(a,h)anthracene	UG/KG	0	0%	14	0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
Dibenzofuran	UG/KG	25.6	8%	6200	0	1	12		423 U	384 U	378 U	406 U
Diethyl phthalate	UG/KG	0	0%	7100	0	0	12		423 U	384 U	378 U	406 U
Dimethylphthalate	UG/KG	0	0%	2000	0	0	12		423 U	384 U	378 U	406 U
Diphenylamine	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
Fluoranthene	UG/KG	1100	100%	50000	0	12	12		374	338	390	584
Fluorene	UG/KG	43.6	100%	50000	0	12	12		20.6 J	21.8 J	14.2 J	19.7 J
Hexachlorobenzene	UG/KG	0	0%	410	0	0	12		423 U	384 U	378 U	406 U
Hexachlorobutadiene	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
Hexachloroethane	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
Indeno(1,2,3-cd)pyrene	UG/KG	408	58%	3200	0	7	12		265	38.4 U	251	300
Isophorone	UG/KG	0	0%	4400	0	0	12		423 U	384 U	378 U	406 U
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	12		423 U	384 U	378 U	406 U
Naphthalene	UG/KG	0	0%	13000	0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
Nitrobenzene	UG/KG	0	0%	200	0	0	12		423 U	384 U	378 U	406 U
Pentachlorophenol	UG/KG	0	0%	1000	0	0	12		423 U	384 U	378 U	406 U
Phenanthrene	UG/KG	692	100%	50000	0	12	12		231	194	188	286
Phenol	UG/KG	0	0%	30	0	0	12		423 U	384 U	378 U	406 U
Pyrene	UG/KG	1080	100%	50000	0	12	12		368	330	379	560
alpha-Terpineol	UG/KG	0	0%		0	0	12		423 UJ	384 U	378 UJ	406 UJ
Aroclor-1016	UG/KG	0	0%		0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
Aroclor-1221	UG/KG	0	0%		0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
Aroclor-1232	UG/KG	0	0%		0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
Aroclor-1242	UG/KG	209	25%		0	3	12		42.3 U	38.4 U	37.8 U	40.6 U
Aroclor-1248	UG/KG	0	0%		0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
Aroclor-1254	UG/KG	194	67%	10000	0	8	12		42.3 U	38.4 U	37.8 U	40.6 U
Aroclor-1260	UG/KG	28.8	42%	10000	0	5	12		42.3 U	38.4 U	37.8 U	40.6 U
Aroclor-1262	UG/KG	0	0%		0	0	12		42.3 U	38.4 U	37.8 U	40.6 U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1	SEAD-1	SEAD-1	SEAD-1	SEAD-1
								SS307-05	SS307-05	SS307-06	SS307-07	SS307-08
								SOIL	SOIL	SOIL	SOIL	SOIL
								011005D	11005	11006	11007	11008
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								04/18/03	04/18/03	04/18/03	04/18/03	04/18/03
								DU	SA	SA	SA	SA
								BLDG 307	BLDG 307	BLDG 307	BLDG 307	BLDG 307
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1268	UG/KG	0	0%		0	0	12		42.3 U	38.4 U	37.8 U	40.6 U
Aluminum	UG/KG	16700000	100%	20500000	0	13	13	16700000	15900000	16600000	7760000	10400000
Antimony	UG/KG	1260	62%	6550	0	8	13	865 U	1260	785 U	1170	930 J
Arsenic	UG/KG	7440	100%	21500	0	13	13	5740	5690	6610	5430	5110
Barium	UG/KG	254000	100%	300000	0	13	13	116000	106000	113000	34500	70300
Beryllium	UG/KG	782	100%	1400	0	13	13	773	752	782	467	538
Boron	UG/KG	13100	100%		0	13	13	11300	10900	9030	6100	6790
Cadmium	UG/KG	1130	100%	2900	0	13	13	437	475	468	553	580
Calcium	UG/KG	306000000	100%	293000000	1	13	13	12700000	10900000	13400000	4090000	7270000
Chromium	UG/KG	24900	100%	32700	0	13	13	24900	23700	24800	19200	20100
Cobalt	UG/KG	16600	100%	30000	0	13	13	9830	9580	16600	7530	7770
Copper	UG/KG	34300	100%	62800	0	13	13	27200	25100	21100	34300	23700
Iron	UG/KG	22500000	100%	38600000	0	13	13	20300000 J	19400000 J	22500000 J	16500000 J	15700000 J
Lead	UG/KG	116000	100%	400000	0	13	13	54800	49500	47600	73200	68300
Magnesium	UG/KG	15900000	100%	29100000	0	13	13	6860000	6120000	6960000	3390000	5340000
Manganese	UG/KG	815000	100%	2380000	0	13	13	505000 J	516000 J	815000 J	242000 J	365000 J
Mercury	UG/KG	370	100%	130	2	13	13	**370**	**354**	47.3	48.3	62
Molybdenum	UG/KG	1280	100%		0	13	13	957	985	981	1270	820 J
Nickel	UG/KG	30200	100%	62300	0	13	13	29100	28100	28800	28200	25200
Phosphorous	UG/KG	844000	100%		0	13	13	827000	739000	667000	537000	451000
Potassium	UG/KG	2350000	100%	3160000	0	13	13	2350000	2190000	1810000	904000	1110000
Selenium	UG/KG	1210	85%	2000	0	11	13	805	504 U	515 J	1210	830
Silica	UG/KG	2000000	100%		0	13	13	2000000	1860000	1960000	1640000	1820000
Silicon	UG/KG	933000	100%		0	13	13	933000	870000	916000	766000	851000
Silver	UG/KG	345	15%	870	0	2	13	317 U	345 J	288 U	283 U	282 U
Sodium	UG/KG	348000	92%	269000	1	12	13	51200	46200	177000	161000	158000
Strontium	UG/KG	230000	100%		0	13	13	27300	25100	20800	15700	15000
Sulfur	UG/KG	3210000	100%		0	13	13	466000 J	396000 J	323000 J	1420000 J	444000 J
Thallium	UG/KG	0	0%	1200	0	0	13	797 U	751 U	723 U	711 U	708 U
Tin	UG/KG	3240	100%		0	13	13	2290	1510	881 J	3240	1050 J
Titanium	UG/KG	105000	100%		0	13	13	94700	71800	93600	96300	105000
Uranium	UG/KG	499	8%		0	1	13	633 U	597 U	575 U	565 U	563 U
Vanadium	UG/KG	33200	100%	150000	0	13	13	32100	30100	32000	27100	32400
Zinc	UG/KG	16200000	100%	126000	13	13	13	**180000**	**157000**	**6350000**	**8660000**	**14100000**

(1) Criteria level is NYSDEC's TAGM #4046 value.

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1 SS307-09 SOIL 11009 0 0.17 04/18/03 SA BLDG 307 1	SEAD-1 SS307-10 SOIL 11010 0 0.17 04/18/03 SA BLDG 307 1	SEAD-1 SS307-11 SOIL 11011 0 0.17 04/18/03 SA BLDG 307 1
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)
1,1,1-Trichloroethane	UG/KG	0	0%	800	0	0	12	0.82 UJ	0.95 UJ	0.97 UJ
1,1,2,2-Tetrachloroethane	UG/KG	0	0%	600	0	0	12	0.82 UJ	0.95 UJ	0.97 UJ
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	12	0.82 U	0.95 U	0.97 U
1,1-Dichloroethane	UG/KG	0	0%	200	0	0	12	0.82 U	0.95 U	0.97 U
1,1-Dichloroethene	UG/KG	1.1	17%	400	0	2	12	0.82 U	0.95 U	0.97 U
1,2-Dichloroethane	UG/KG	0	0%	100	0	0	12	0.82 UJ	0.95 UJ	0.97 UJ
1,2-Dichloropropane	UG/KG	0	0%		0	0	12	0.82 U	0.95 U	0.97 U
Acetone	UG/KG	6.1	33%	200	0	4	12	4.1 U	5.7	4.9 U
Benzene	UG/KG	0	0%	60	0	0	12	0.82 U	0.95 U	0.97 U
Bromodichloromethane	UG/KG	0	0%		0	0	12	0.82 U	0.95 U	0.97 U
Bromoform	UG/KG	0	0%		0	0	12	0.82 U	0.95 U	0.97 U
Carbon disulfide	UG/KG	0	0%	2700	0	0	12	4.1 U	4.8 U	4.9 U
Carbon tetrachloride	UG/KG	0	0%	600	0	0	12	0.82 UJ	0.95 UJ	0.97 UJ
Chlorobenzene	UG/KG	0	0%	1700	0	0	12	0.82 U	0.95 U	0.97 U
Chlorodibromomethane	UG/KG	0	0%		0	0	12	0.82 U	0.95 U	0.97 U
Chloroethane	UG/KG	0	0%	1900	0	0	12	0.82 UJ	0.95 UJ	0.97 UJ
Chloroform	UG/KG	0	0%	300	0	0	12	0.82 U	0.95 U	0.97 U
Cis-1,2-Dichloroethene	UG/KG	0	0%		0	0	12	0.82 U	0.95 U	0.97 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	0.82 U	0.95 U	0.97 U
Ethyl benzene	UG/KG	0	0%	5500	0	0	12	0.82 U	0.95 U	0.97 U
Methyl bromide	UG/KG	0	0%		0	0	12	0.82 UJ	0.95 UJ	0.97 UJ
Methyl butyl ketone	UG/KG	0	0%		0	0	12	4.1 U	4.8 U	4.9 U
Methyl chloride	UG/KG	0	0%		0	0	12	0.82 UJ	0.95 UJ	0.97 UJ
Methyl ethyl ketone	UG/KG	0	0%	300	0	0	12	4.1 U	4.8 U	4.9 U
Methyl isobutyl ketone	UG/KG	0	0%	1000	0	0	12	4.1 U	4.8 U	4.9 U
Methylene chloride	UG/KG	0	0%	100	0	0	12	4.1 UJ	4.8 UJ	4.9 UJ
Styrene	UG/KG	0.43	8%		0	1	12	0.82 U	0.95 U	0.97 U
Tetrachloroethene	UG/KG	0	0%	1400	0	0	12	0.82 U	0.95 U	0.97 U
Toluene	UG/KG	0.4	8%	1500	0	1	12	0.82 U	0.95 U	0.97 U
Total Xylenes	UG/KG	0	0%	1200	0	0	12	0.82 U	0.95 U	0.97 U
Trans-1,2-Dichloroethene	UG/KG	0	0%	300	0	0	12	0.82 U	0.95 U	0.97 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	0.82 U	0.95 U	0.97 U
Trichloroethene	UG/KG	0	0%	700	0	0	12	0.82 U	0.95 U	0.97 U
Vinyl acetate	UG/KG	0	0%		0	0	12	4.1 U	4.8 U	4.9 U
Vinyl chloride	UG/KG	0	0%	200	0	0	12	0.82 U	0.95 U	0.97 U
1,1'-Biphenyl	UG/KG	0	0%		0	0	12	36.7 U	35.5 U	145 U
1,2,4-Trichlorobenzene	UG/KG	0	0%	3400	0	0	12	367 U	355 U	1450 U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level [1]	Number of Exceedances	Number of Times Detected	Number of Samples Collected	SEAD-1 SS307-09 SOIL 11009 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-10 SOIL 11010 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-11 SOIL 11011 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)
1,2-Dichlorobenzene	UG/KG	0	0%	7900	0	0	12	367 U	355 U	1450 U
1,3-Dichlorobenzene	UG/KG	0	0%	1600	0	0	12	367 U	355 U	1450 U
1,4-Dichlorobenzene	UG/KG	0	0%	8500	0	0	12	367 U	355 U	1450 U
2,4,5-Trichlorophenol	UG/KG	0	0%	100	0	0	12	367 U	355 U	1450 U
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	12	367 U	355 U	1450 U
2,4-Dichlorophenol	UG/KG	0	0%	400	0	0	12	367 U	355 U	1450 U
2,4-Dimethylphenol	UG/KG	0	0%		0	0	12	367 U	355 U	1450 U
2,4-Dinitrophenol	UG/KG	0	0%	200	0	0	12	734 UJ	710 UJ	2900 UJ
2,4-Dinitrotoluene	UG/KG	0	0%		0	0	12	367 U	355 U	1450 U
2,6-Dinitrotoluene	UG/KG	0	0%	1000	0	0	12	367 U	355 U	1450 U
2-Chloronaphthalene	UG/KG	0	0%		0	0	12	36.7 U	35.5 U	145 U
2-Chlorophenol	UG/KG	0	0%	800	0	0	12	367 U	355 U	1450 U
2-Methylnaphthalene	UG/KG	19.1	8%	36400	0	1	12	36.7 U	35.5 U	145 U
2-Methylphenol	UG/KG	0	0%	100	0	0	12	367 U	355 UJ	1450 U
2-Nitroaniline	UG/KG	0	0%	430	0	0	12	367 U	355 U	1450 U
2-Nitrophenol	UG/KG	0	0%	330	0	0	12	367 U	355 U	1450 U
3 or 4-Methylphenol	UG/KG	0	0%		0	0	12	367 U	355 UJ	1450 U
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	12	367 U	355 U	1450 U
3-Nitroaniline	UG/KG	0	0%	500	0	0	12	367 U	355 U	1450 U
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	12	367 U	355 U	1450 U
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	12	367 U	355 U	1450 U
4-Chloro-3-methylphenol	UG/KG	0	0%	240	0	0	12	367 U	355 U	1450 U
4-Chloroaniline	UG/KG	0	0%	220	0	0	12	367 U	355 U	1450 U
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	12	367 U	355 U	1450 U
4-Nitroaniline	UG/KG	0	0%		0	0	12	367 U	355 U	1450 U
4-Nitrophenol	UG/KG	0	0%	100	0	0	12	367 U	355 UJ	1450 U
Acenaphthene	UG/KG	50.3	100%	50000	0	12	12	27.4 J	13.4 J	50.3 J
Acenaphthylene	UG/KG	0	0%	41000	0	0	12	36.7 U	35.5 U	145 U
Anthracene	UG/KG	70.5	83%	50000	0	10	12	37.8	19.1 J	145 U
Atrazine	UG/KG	0	0%		0	0	12	367 R	355 R	1450 R
Benzaldehyde	UG/KG	0	0%		0	0	12	367 UJ	355 U	1450 UJ
Benzo(a)anthracene	UG/KG	514	58%	224	3	7	12	36.7 U	166	145 U
Benzo(a)pyrene	UG/KG	561	92%	61	11	11	12	**162**	**226**	**334** NJ
Benzo(b)fluoranthene	UG/KG	1140	100%	1100	1	12	12	245	308	840
Benzo(ghi)perylene	UG/KG	440	58%	50000	0	7	12	36.7 U	240	145 U
Benzo(k)fluoranthene	UG/KG	0	0%	1100	0	0	12	36.7 U	35.5 U	145 U
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	12	367 U	355 U	1450 U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-1		SEAD-1		SEAD-1	
								SS307-09		SS307-10		SS307-11	
								SOIL		SOIL		SOIL	
								11009		11010		11011	
								0		0		0	
								0.17		0.17		0.17	
								04/18/03		04/18/03		04/18/03	
								SA		SA		SA	
								BLDG 307		BLDG 307		BLDG 307	
								1		1		1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	12	367	U	355	U	1450	U
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	12	367	U	355	U	1450	U
Bis(2-Ethylhexyl)phthalate	UG/KG	938	100%	50000	0	12	12	33.2	NJ	38.7	J	605	J
Butylbenzylphthalate	UG/KG	0	0%	50000	0	0	12	367	U	355	U	1450	U
Carbazole	UG/KG	51.6	25%		0	3	12	29.4	J	355	U	1450	U
Chrysene	UG/KG	591	100%	400	3	12	12	190		159		427	
Di-n-butylphthalate	UG/KG	124	25%	8100	0	3	12	367	U	36.9	J	1450	U
Di-n-octylphthalate	UG/KG	0	0%	50000	0	0	12	367	U	355	U	1450	U
Dibenz(a,h)anthracene	UG/KG	0	0%	14	0	0	12	36.7	U	35.5	U	145	U
Dibenzofuran	UG/KG	25.6	8%	6200	0	1	12	367	U	355	U	1450	U
Diethyl phthalate	UG/KG	0	0%	7100	0	0	12	367	U	355	U	1450	U
Dimethylphthalate	UG/KG	0	0%	2000	0	0	12	367	U	355	U	1450	U
Diphenylamine	UG/KG	0	0%		0	0	12	367	U	355	U	1450	U
Fluoranthene	UG/KG	1100	100%	50000	0	12	12	327		276		685	
Fluorene	UG/KG	43.6	100%	50000	0	12	12	17.6	J	9	J	35.2	J
Hexachlorobenzene	UG/KG	0	0%	410	0	0	12	367	U	355	U	1450	U
Hexachlorobutadiene	UG/KG	0	0%		0	0	12	367	U	355	U	1450	U
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	12	367	U	355	U	1450	U
Hexachloroethane	UG/KG	0	0%		0	0	12	367	U	355	U	1450	U
Indeno(1,2,3-cd)pyrene	UG/KG	408	58%	3200	0	7	12	36.7	U	214		145	U
Isophorone	UG/KG	0	0%	4400	0	0	12	367	U	355	U	1450	U
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	12	367	U	355	U	1450	U
Naphthalene	UG/KG	0	0%	13000	0	0	12	36.7	U	35.5	U	145	U
Nitrobenzene	UG/KG	0	0%	200	0	0	12	367	U	355	U	1450	U
Pentachlorophenol	UG/KG	0	0%	1000	0	0	12	367	U	355	U	1450	U
Phenanthrene	UG/KG	692	100%	50000	0	12	12	205		143		420	
Phenol	UG/KG	0	0%	30	0	0	12	367	U	355	U	1450	U
Pyrene	UG/KG	1080	100%	50000	0	12	12	312		286		759	
alpha-Terpineol	UG/KG	0	0%		0	0	12	367	U	355	UJ	1450	U
Aroclor-1016	UG/KG	0	0%		0	0	12	36.7	U	35.5	U	36.3	U
Aroclor-1221	UG/KG	0	0%		0	0	12	36.7	U	35.5	U	36.3	U
Aroclor-1232	UG/KG	0	0%		0	0	12	36.7	U	35.5	U	36.3	U
Aroclor-1242	UG/KG	209	25%		0	3	12	36.7	U	35.5	U	29.6	J
Aroclor-1248	UG/KG	0	0%		0	0	12	36.7	U	35.5	U	36.3	U
Aroclor-1254	UG/KG	194	67%	10000	0	8	12	11.3	J	17.7	J	44.4	
Aroclor-1260	UG/KG	28.8	42%	10000	0	5	12	36.7	U	18.1	J	24.5	J
Aroclor-1262	UG/KG	0	0%		0	0	12	36.7	U	35.5	U	36.3	U

Appendix D Table 3
Building 307 (SEAD 1) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Parameter	Units	Maximum Value	Frequency of Detection	Criteria Level [1]	Number of Exceedances	Number of Times Detected	Number of Samples Collected	SEAD-1 SS307-09 SOIL 11009 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-10 SOIL 11010 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)	SEAD-1 SS307-11 SOIL 11011 0 0.17 04/18/03 SA BLDG 307 1 Value (Q)
Aroclor-1268	UG/KG	0	0%		0	0	12	36.7 U	35.5 U	36.3 U
Aluminum	UG/KG	16700000	100%	20500000	0	13	13	2210000	4120000	5130000
Antimony	UG/KG	1260	62%	6550	0	8	13	682 U	899 J	681 U
Arsenic	UG/KG	7440	100%	21500	0	13	13	3900	6760	5210
Barium	UG/KG	254000	100%	300000	0	13	13	15400	58000	38500
Beryllium	UG/KG	782	100%	1400	0	13	13	234	369	311
Boron	UG/KG	13100	100%		0	13	13	8220	13100	7450
Cadmium	UG/KG	1130	100%	2900	0	13	13	535	663	944
Calcium	UG/KG	306000000	100%	293000000	1	13	13	**306000000**	159000000	155000000
Chromium	UG/KG	24900	100%	32700	0	13	13	7550	15100	15000
Cobalt	UG/KG	16600	100%	30000	0	13	13	3770	9490	5420
Copper	UG/KG	34300	100%	62800	0	13	13	11800	24300	22200
Iron	UG/KG	22500000	100%	38600000	0	13	13	4470000 J	10000000 J	12000000 J
Lead	UG/KG	116000	100%	400000	0	13	13	56900	73700	60900
Magnesium	UG/KG	15900000	100%	29100000	0	13	13	7670000	15300000	13700000
Manganese	UG/KG	815000	100%	2380000	0	13	13	163000 J	316000 J	254000 J
Mercury	UG/KG	370	100%	130	2	13	13	13.9	64.1	61.8
Molybdenum	UG/KG	1280	100%		0	13	13	506 J	1280	868 J
Nickel	UG/KG	30200	100%	62300	0	13	13	14200	30200	23200
Phosphorous	UG/KG	844000	100%		0	13	13	265000	844000	340000
Potassium	UG/KG	2350000	100%	3160000	0	13	13	642000	1300000	940000
Selenium	UG/KG	1210	85%	2000	0	11	13	421 U	650	489 J
Silica	UG/KG	2000000	100%		0	13	13	1460000	1750000	1280000
Silicon	UG/KG	933000	100%		0	13	13	683000	819000	597000
Silver	UG/KG	345	15%	870	0	2	13	250 U	258 U	249 U
Sodium	UG/KG	348000	92%	269000	1	12	13	88600	96700	68000
Strontium	UG/KG	230000	100%		0	13	13	230000	147000	135000
Sulfur	UG/KG	3210000	100%		0	13	13	898000 J	3210000 J	2010000 J
Thallium	UG/KG	0	0%	1200	0	0	13	628 U	649 U	627 U
Tin	UG/KG	3240	100%		0	13	13	685 J	950 J	1560
Titanium	UG/KG	105000	100%		0	13	13	23600	40000	42900
Uranium	UG/KG	499	8%		0	1	13	499	516 U	498 U
Vanadium	UG/KG	33200	100%	150000	0	13	13	15800	22900	19300
Zinc	UG/KG	16200000	100%	126000	13	13	13	**3020000**	**1050000**	**2470000**

(1) Criteria level is NYSDEC's TAGM #4046 value.

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-1 RINSEATE 25011 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-13 RINSEATE 25014 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-28 RINSEATE 25000 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-30 RINSEATE 25013 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-4 RINSEATE 25015 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	16	1	UJ	1	UJ	1	U	1	UJ	1	UJ
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	16	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	16	1	U	1	UJ	1	U	1	U	1	U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	16	1	UJ	1	U	1	U	1	UJ	1	UJ
1,2-Dichloropropane	UG/L	0	0%	1	0	0	16	1	U	1	U	1	U	1	U	1	U
Acetone	UG/L	3.4	13%		0	2	16	5	U	5	U	5	U	3.4	J	5	U
Benzene	UG/L	0	0%	1	0	0	16	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	UG/L	0	0%		0	0	16	1	U	1	U	1	U	1	U	1	U
Bromoform	UG/L	0	0%		0	0	16	1	U	1	U	1	U	1	U	1	U
Carbon disulfide	UG/L	0	0%		0	0	16	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	UG/L	0	0%	5	0	0	16	1	UJ	1	UJ	1	U	1	UJ	1	UJ
Chlorobenzene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane	UG/L	0	0%		0	0	16	1	U	1	U	1	U	1	U	1	U
Chloroethane	UG/L	0	0%	5	0	0	16	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
Chloroform	UG/L	0	0%	7	0	0	16	1	U	1	U	1	U	1	U	1	U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	16	1	U	1	U	1	U	1	U	1	U
Ethyl benzene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Methyl bromide	UG/L	0	0%	5	0	0	16	1	U	1	U	1	UJ	1	U	1	U
Methyl butyl ketone	UG/L	0	0%		0	0	16	5	U	5	U	5	U	5	U	5	U
Methyl chloride	UG/L	0	0%	5	0	0	16	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
Methyl ethyl ketone	UG/L	0	0%		0	0	16	5	U	5	U	5	U	5	U	5	U
Methyl isobutyl ketone	UG/L	0	0%		0	0	16	5	U	5	U	5	U	5	U	5	U
Methylene chloride	UG/L	0	0%	5	0	0	16	5	U	5	U	5	UJ	5	U	5	U
Styrene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Toluene	UG/L	1.3	6%	5	0	1	16	1	U	1	U	1	U	1	U	1	U
Total Xylenes	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	16	1	U	1	U	1	U	1	U	1	U
Trichloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Vinyl acetate	UG/L	0	0%		0	0	16	5	U	5	U	5	UJ	5	U	5	U
Vinyl chloride	UG/L	0	0%	2	0	0	16	1	U	1	U	1	U	1	U	1	U
1,1'-Biphenyl	UG/L	7.7	23%	5	1	3	13	44.4	U	2.2	J	10.8	U	10.9	U	0.51	J
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-1 RINSEATE 25011 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-13 RINSEATE 25014 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-28 RINSEATE 25000 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-30 RINSEATE 25013 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-4 RINSEATE 25015 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2,4-Dimethylphenol	UG/L	1.9	8%		0	1	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2,4-Dinitrophenol	UG/L	0	0%		0	0	13	88.9	U	80	U	21.5	U	21.7	U	19.8	U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2-Chloronaphthalene	UG/L	0	0%		0	0	13	4.4	U	4	U	1.1	U	1.1	U	0.99	U
2-Chlorophenol	UG/L	0	0%		0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2-Methylnaphthalene	UG/L	37	38%		0	5	13	4.4	U	9.2		1.1	U	0.55	J	2	
2-Methylphenol	UG/L	2	8%		0	1	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2-Nitroaniline	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
2-Nitrophenol	UG/L	0	0%	1	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
3 or 4-Methylphenol	UG/L	3.4	8%	1	1	1	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	13	44.4	UJ	40	UJ	10.8	U	10.9	UJ	9.9	UJ
3-Nitroaniline	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
4-Chloroaniline	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
4-Nitroaniline	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
4-Nitrophenol	UG/L	0	0%	1	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Acenaphthene	UG/L	51.7	46%		0	6	13	4.4	U	11.7		1.1	U	0.74	J	2.2	
Acenaphthylene	UG/L	0	0%		0	0	13	4.4	U	4	U	1.1	U	1.1	U	0.99	U
Anthracene	UG/L	78.4	54%		0	7	13	2.4	J	19.5		1.1	U	1.3		3.7	
Atrazine	UG/L	0	0%	7.5	0	0	13	44.4	R	40	R	10.8	U	10.9	R	9.9	R
Benzaldehyde	UG/L	0	0%		0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Benzo(a)anthracene	UG/L	146	62%		0	8	13	6.5	NJ	42.7		1.5		1.1	U	6	
Benzo(a)pyrene	UG/L	116	69%	0	0	9	13	5.8		34.2		1	J	2.2		5.5	
Benzo(b)fluoranthene	UG/L	148	54%		0	7	13	4.4	U	45.3		1.8		1.1	U	9.3	
Benzo(ghi)perylene	UG/L	54.2	38%		0	5	13	4.4	U	16.5		1.1	U	1.1	U	2.4	
Benzo(k)fluoranthene	UG/L	2.6	15%		0	2	13	4.4	U	4	U	1.1	U	1.1	U	0.99	U
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	UJ	10.9	U	9.9	U

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-1 RINSEATE 25011 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-13 RINSEATE 25014 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-28 RINSEATE 25000 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-30 RINSEATE 25013 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-4 RINSEATE 25015 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	UJ	10.9	U	9.9	U
Bis(2-Ethylhexyl)phthalate	UG/L	12.7	46%	5	2	6	13	6.8	U	40	U	3.3	J	5.4	U	4.2	U
Butylbenzylphthalate	UG/L	1.3	23%		0	3	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Carbazole	UG/L	52.6	69%		0	9	13	2.4	J	15.2	J	1.8	J	1.2	J	2.4	J
Chrysene	UG/L	125	69%		0	9	13	6.5		39.6		1.1		2.5		6.4	
Di-n-butylphthalate	UG/L	2.4	54%	50	0	7	13	44.4	U	40	U	1.3	J	3.1	U	9.9	U
Di-n-octylphthalate	UG/L	0	0%		0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	13	4.4	U	4	U	1.1	U	1.1	U	0.99	U
Dibenzofuran	UG/L	51.8	46%		0	6	13	44.4	U	12.8	J	10.8	U	0.97	J	2.8	J
Diethyl phthalate	UG/L	0	0%		0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Dimethylphthalate	UG/L	0	0%		0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Diphenylamine	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Fluoranthene	UG/L	258	77%		0	10	13	12.7		80.8		2.6		6.1		14.1	
Fluorene	UG/L	62.1	46%		0	6	13	4.4	U	16.1		1.1	U	0.89	J	3.4	
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	UJ	10.9	U	9.9	U
Hexachloroethane	UG/L	0	0%	5	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Indeno(1,2,3-cd)pyrene	UG/L	55.2	46%		0	6	13	2.9	J	16.7		1.1	U	1.1	U	2.4	
Isophorone	UG/L	0	0%		0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
N-Nitrosodipropylamine	UG/L	0	0%		0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Naphthalene	UG/L	102	69%		0	9	13	4.4	U	24.6		0.46	J	1.6		5.4	
Nitrobenzene	UG/L	0	0%	0.4	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Pentachlorophenol	UG/L	0	0%	1	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Phenanthrene	UG/L	330	85%		0	11	13	13.5		98.4		2.1		7.6		17.9	
Phenol	UG/L	0	0%	1	0	0	13	44.4	U	40	U	10.8	U	10.9	U	9.9	U
Pyrene	UG/L	229	77%		0	10	13	10.6		70.6		2		5.2		12	
alpha-Terpineol	UG/L	0	0%		0	0	13	44.4	UJ	40	UJ	10.8	UJ	10.9	UJ	9.9	UJ
Aluminum	UG/L	2230	69%		0	11	16	182		565		326		193	J	1230	
Antimony	UG/L	0	0%	3	0	0	16	6.81	U	6.81	U	6.81	U	6.81	U	6.81	U
Arsenic	UG/L	0	0%	25	0	0	16	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U
Barium	UG/L	118	100%	1000	0	16	16	67.5	J	108	J	111		81		118	
Beryllium	UG/L	0.191	13%		0	2	16	0.133	U	0.133	U	0.133	U	0.133	U	0.133	U
Boron	UG/L	50.8	63%	1000	0	10	16	16	U	32.2	U	36.5		21.4	U	50.8	J
Cadmium	UG/L	6.23	25%	5	1	4	16	0.807	U	0.807	U	0.807	U	0.807	U	0.807	U
Calcium	UG/L	85200	100%		0	16	16	29700	J	30400	J	32800		52900	J	70100	J

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-1 RINSEATE 25011 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-13 RINSEATE 25014 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-28 RINSEATE 25000 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-30 RINSEATE 25013 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-4 RINSEATE 25015 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Chromium	UG/L	3.31	25%	50	0	4	16	1.37	U	1.37	U	2.02	J	1.37	U	2.67	J
Cobalt	UG/L	2.54	25%		0	4	16	1.88	U	1.88	U	1.88	U	1.88	U	2.09	J
Copper	UG/L	124	44%	200	0	7	16	3.91	U	5.12		5.2		3.91	U	5.87	
Iron	UG/L	2930	100%	300	6	16	16	**302**		**639**		**466**		296		**2050**	
Lead	UG/L	1050	100%	25	12	16	16	**93.2**		**64**		**584**		**112**		**284**	
Magnesium	UG/L	8370	100%		0	16	16	2880	J	4250	J	3620		4040	J	8370	J
Manganese	UG/L	254	100%	300	0	16	16	30.3	J	86.8		50.7		66		254	
Mercury	UG/L	0	0%	0.7	0	0	16	0.052	U	0.052	U	0.052	U	0.061	U	0.067	U
Molybdenum	UG/L	0	0%		0	0	16	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Nickel	UG/L	8.97	100%	100	0	16	16	4.32	J	6.98		7.39		4.21	B	8.97	
Phosphorous	UG/L	400	94%		0	15	16	63	J	94.6	J	400		82.1	J	150	J
Potassium	UG/L	3440	100%		0	16	16	2250	J	1950	J	2210		1910	J	2260	J
Selenium	UG/L	5.06	13%	10	0	2	16	4.88	J	4.2	U	4.2	U	5.06		4.2	U
Silica	UG/L	27200	100%		0	16	16	5600	J	10600	J	8310		10200	J	27200	J
Silicon	UG/L	12700	100%		0	16	16	2620	J	4940	J	3890		4770	J	12700	J
Silver	UG/L	0	0%	50	0	0	16	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Sodium	UG/L	15000	100%	20000	0	16	16	11600		12100		13300		12300		15000	
Strontium	UG/L	371	100%		0	16	16	115	J	207	J	184		189	J	371	J
Sulfur	UG/L	14600	100%		0	16	16	13500	J	14500	J	14600		13600	J	14200	J
Thallium	UG/L	0	0%		0	0	16	6.27	U	6.27	U	6.27	U	6.27	U	6.27	U
Tin	UG/L	6.36	6%		0	1	16	3.75	U	3.75	U	3.75	U	3.75	U	3.75	U
Titanium	UG/L	96.6	75%		0	12	16	8.24		38.5		7.12		13.4		30.7	
Uranium	UG/L	0	0%		0	0	16	4.98	U	4.98	U	4.98	U	4.98	U	4.98	U
Vanadium	UG/L	13.6	19%		0	3	16	3.12	U	3.12	U	3.12	U	3.12	U	7.38	
Zinc	UG/L	599	100%		0	16	16	56.7		145		245		64.1		178	

(1) Criteria Level is NYSDEC's GA Groundwater Standard

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-42 RINSEATE 25008 0 0 4/23/2003 SA BLDG 301 1	SEAD-2 R301-43 RINSEATE 25007 0 0 4/23/2003 SA BLDG 301 1	SEAD-2 R301-47 RINSEATE 25003 0 0 4/23/2003 SA BLDG 301 1	SEAD-2 R301-47 RINSEATE 25002 0 0 4/23/2003 SA BLDG 301 1	SEAD-2 R301-63 RINSEATE 25006 0 0 4/23/2003 SA BLDG 301 1
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	16	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	16	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	UG/L	0	0%	1	0	0	16	1 U	1 U	1 U	1 U	1 U
Acetone	UG/L	3.4	13%		0	2	16	5 U	5 U	5 U	5 U	5 U
Benzene	UG/L	0	0%	1	0	0	16	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	UG/L	0	0%		0	0	16	1 U	1 U	1 U	1 U	1 U
Bromoform	UG/L	0	0%		0	0	16	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	UG/L	0	0%		0	0	16	5 U	5 U	5 U	5 U	5 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
Chlorodibromomethane	UG/L	0	0%		0	0	16	1 U	1 U	1 U	1 U	1 U
Chloroethane	UG/L	0	0%	5	0	0	16	1 UJ	1 U	1 UJ	1 UJ	1 UJ
Chloroform	UG/L	0	0%	7	0	0	16	1 U	1 U	1 U	1 U	1 U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	16	1 U	1 U	1 U	1 U	1 U
Ethyl benzene	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
Methyl bromide	UG/L	0	0%	5	0	0	16	1 UJ	1 U	1 UJ	1 UJ	1 UJ
Methyl butyl ketone	UG/L	0	0%		0	0	16	5 U	5 U	5 U	5 U	5 U
Methyl chloride	UG/L	0	0%	5	0	0	16	1 UJ	1 U	1 UJ	1 UJ	1 UJ
Methyl ethyl ketone	UG/L	0	0%		0	0	16	5 U	5 U	5 U	5 U	5 U
Methyl isobutyl ketone	UG/L	0	0%		0	0	16	5 U	5 U	5 U	5 U	5 U
Methylene chloride	UG/L	0	0%	5	0	0	16	5 UJ	5 U	5 UJ	5 UJ	5 UJ
Styrene	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
Toluene	UG/L	1.3	6%	5	0	1	16	1 U	1 U	1 U	1 U	1 U
Total Xylenes	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	16	1 U	1 U	1 U	1 U	1 U
Trichloroethene	UG/L	0	0%	5	0	0	16	1 U	1 U	1 U	1 U	1 U
Vinyl acetate	UG/L	0	0%		0	0	16	5 U	5 UJ	5 UJ	5 UJ	5 UJ
Vinyl chloride	UG/L	0	0%	2	0	0	16	1 U	1 U	1 U	1 U	1 U
1,1'-Biphenyl	UG/L	7.7	23%	5	1	3	13	11.1 U	10 U	10.8 U	10.1 U	10.8 U
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	13	11.1 U	10 U	10.8 U	10.1 U	10.8 U

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-42 RINSEATE 25008 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-43 RINSEATE 25007 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-47 RINSEATE 25003 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-47 RINSEATE 25002 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-63 RINSEATE 25006 0 0 4/23/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2,4-Dimethylphenol	UG/L	1.9	8%		0	1	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2,4-Dinitrophenol	UG/L	0	0%		0	0	13	22.2	U	20	U	21.5	U	20.2	U	21.5	U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2-Chloronaphthalene	UG/L	0	0%		0	0	13	1.1	U	1	U	1.1	U	1	U	1.1	U
2-Chlorophenol	UG/L	0	0%		0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2-Methylnaphthalene	UG/L	37	38%		0	5	13	1.1	U	1.5		1.1	U	1	U	1.1	U
2-Methylphenol	UG/L	2	8%		0	1	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2-Nitroaniline	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
2-Nitrophenol	UG/L	0	0%	1	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
3 or 4-Methylphenol	UG/L	3.4	8%	1	1	1	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
3-Nitroaniline	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
4-Chloroaniline	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
4-Nitroaniline	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
4-Nitrophenol	UG/L	0	0%	1	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Acenaphthene	UG/L	51.7	46%		0	6	13	1.1	U	1.6		1.1	U	1	U	0.67	J
Acenaphthylene	UG/L	0	0%		0	0	13	1.1	U	1	U	1.1	U	1	U	1.1	U
Anthracene	UG/L	78.4	54%		0	7	13	1.1	U	3.5		1.1	U	1	U	1.4	
Atrazine	UG/L	0	0%	7.5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Benzaldehyde	UG/L	0	0%		0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Benzo(a)anthracene	UG/L	146	62%		0	8	13	0.99	J	5.6		1.1	U	1	U	3	
Benzo(a)pyrene	UG/L	116	69%	0	0	9	13	0.65	J	4.4		1.1	U	1	U	2.4	
Benzo(b)fluoranthene	UG/L	148	54%		0	7	13	1.1	J	5.3		1.1	U	1	U	3.2	
Benzo(ghi)perylene	UG/L	54.2	38%		0	5	13	1.1	U	1.7		1.1	U	1	U	0.91	J
Benzo(k)fluoranthene	UG/L	2.6	15%		0	2	13	1.1	U	2.6		1.1	U	1	U	1.8	
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	13	11.1	UJ	10	UJ	10.8	UJ	10.1	UJ	10.8	UJ

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-42 RINSEATE 25008 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-43 RINSEATE 25007 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-47 RINSEATE 25003 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-47 RINSEATE 25002 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-63 RINSEATE 25006 0 0 4/23/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	13	11.1	UJ	10	UJ	10.8	UJ	10.1	UJ	10.8	UJ
Bis(2-Ethylhexyl)phthalate	UG/L	12.7	46%	5	2	6	13	4.4	J	**12.7**		10.8	U	1.4	J	**9.5**	J
Butylbenzylphthalate	UG/L	1.3	23%		0	3	13	0.85	J	1.3	J	10.8	U	10.1	U	1.3	J
Carbazole	UG/L	52.6	69%		0	9	13	1.8	J	3.3	J	10.8	U	10.1	U	2.4	J
Chrysene	UG/L	125	69%		0	9	13	0.72	J	4.9		1.1	U	1	U	3.3	
Di-n-butylphthalate	UG/L	2.4	54%	50	0	7	13	1.4	J	1.4	J	1.2	J	10.1	U	2.4	J
Di-n-octylphthalate	UG/L	0	0%		0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	13	1.1	U	1	U	1.1	U	1	U	1.1	U
Dibenzofuran	UG/L	51.8	46%		0	6	13	11.1	U	2	J	10.8	U	10.1	U	0.83	J
Diethyl phthalate	UG/L	0	0%		0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Dimethylphthalate	UG/L	0	0%		0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Diphenylamine	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Fluoranthene	UG/L	258	77%		0	10	13	1.8		12		1.1	U	1	U	7.1	
Fluorene	UG/L	62.1	46%		0	6	13	1.1	U	3.1		1.1	U	1	U	0.92	J
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	13	11.1	UJ	10	UJ	10.8	UJ	10.1	UJ	10.8	UJ
Hexachloroethane	UG/L	0	0%	5	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Indeno(1,2,3-cd)pyrene	UG/L	55.2	46%		0	6	13	1.1	U	1.8		1.1	U	1	U	1	J
Isophorone	UG/L	0	0%		0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
N-Nitrosodipropylamine	UG/L	0	0%		0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Naphthalene	UG/L	102	69%		0	9	13	0.37	J	4.5		0.15	J	1	U	1.5	
Nitrobenzene	UG/L	0	0%	0.4	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Pentachlorophenol	UG/L	0	0%	1	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Phenanthrene	UG/L	330	85%		0	11	13	1.8		14.2		0.58	J	1	U	7	
Phenol	UG/L	0	0%	1	0	0	13	11.1	U	10	U	10.8	U	10.1	U	10.8	U
Pyrene	UG/L	229	77%		0	10	13	1.4		8.9		1.1	U	1	U	5.7	
alpha-Terpineol	UG/L	0	0%		0	0	13	11.1	UJ	10	UJ	10.8	UJ	10.1	UJ	10.8	UJ
Aluminum	UG/L	2230	69%		0	11	16	19.9	U	45.2	J	19.9	U	19.9	U	19.9	U
Antimony	UG/L	0	0%	3	0	0	16	6.81	U	6.81	U	6.81	U	6.81	U	6.81	U
Arsenic	UG/L	0	0%	25	0	0	16	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U
Barium	UG/L	118	100%	1000	0	16	16	73.9		112		94.1		91.7		103	
Beryllium	UG/L	0.191	13%		0	2	16	0.133	U	0.133	U	0.133	U	0.133	U	0.133	U
Boron	UG/L	50.8	63%	1000	0	10	16	23.4		41.9		27.9		31		36.6	
Cadmium	UG/L	6.23	25%	5	1	4	16	1.2	J	0.807	U	0.807	U	0.807	U	0.807	U
Calcium	UG/L	85200	100%		0	16	16	24100		22900		23200		22400		21700	

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Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-42 RINSEATE 25008 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-43 RINSEATE 25007 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-47 RINSEATE 25003 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-47 RINSEATE 25002 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-63 RINSEATE 25006 0 0 4/23/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Chromium	UG/L	3.31	25%	50	0	4	16	1.37	U	1.37	U	1.37	U	1.37	U	1.37	U
Cobalt	UG/L	2.54	25%		0	4	16	1.88	U	1.88	U	1.88	U	1.88	U	1.88	U
Copper	UG/L	124	44%	200	0	7	16	3.91	U	3.91	U	3.91	U	3.91	U	3.91	U
Iron	UG/L	2930	100%	300	6	16	16	76.5		102		18.8	J	14.8	J	20.7	J
Lead	UG/L	1050	100%	25	12	16	16	**146**		**209**		7.36		8.7		22	
Magnesium	UG/L	8370	100%		0	16	16	2550		2780		2530		2440		2610	
Manganese	UG/L	254	100%	300	0	16	16	21.1		33.5		17		16.2		23.7	
Mercury	UG/L	0	0%	0.7	0	0	16	0.052	U	0.052	U	0.052	U	0.052	U	0.052	U
Molybdenum	UG/L	0	0%		0	0	16	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Nickel	UG/L	8.97	100%	100	0	16	16	5.97		7.2		5.42		5.29		6.55	
Phosphorous	UG/L	400	94%		0	15	16	81.6		93.6		46.1		55.2		40.2	J
Potassium	UG/L	3440	100%		0	16	16	2130		1850		1790		1830		1940	
Selenium	UG/L	5.06	13%	10	0	2	16	4.2	U	4.2	U	4.2	U	4.2	U	4.2	U
Silica	UG/L	27200	100%		0	16	16	10000		16000		6690		6490		11100	
Silicon	UG/L	12700	100%		0	16	16	4680		7460		3130		3030		5210	
Silver	UG/L	0	0%	50	0	0	16	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Sodium	UG/L	15000	100%	20000	0	16	16	13300		13600		12700		12500		13000	
Strontium	UG/L	371	100%		0	16	16	160		291		152		148		235	
Sulfur	UG/L	14600	100%		0	16	16	14200		14500		14000		14100		14300	
Thallium	UG/L	0	0%		0	0	16	6.27	U	6.27	U	6.27	U	6.27	U	6.27	U
Tin	UG/L	6.36	6%		0	1	16	3.75	U	3.75	U	3.75	U	3.75	U	3.75	U
Titanium	UG/L	96.6	75%		0	12	16	1.04	J	1.11	J	0.622	U	0.622	U	0.622	U
Uranium	UG/L	0	0%		0	0	16	4.98	U	4.98	U	4.98	U	4.98	U	4.98	U
Vanadium	UG/L	13.6	19%		0	3	16	3.12	U	3.12	U	3.12	U	3.12	U	3.12	U
Zinc	UG/L	599	100%		0	16	16	145		104		14.5		17.6		32.2	

(1) Criteria Level is NYSDEC's GA Groundwater Standard

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-65 RINSEATE 25004 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-68 RINSEATE 25001 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-73 RINSEATE 25005 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-84 RINSEATE 25009 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-90 RINSEATE 25010 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	UJ	1	UJ
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	16	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	16	1	U	1	U	1	U	1	UJ	1	UJ
1,2-Dichloropropane	UG/L	0	0%	1	0	0	16	1	U	1	U	1	U	1	U	1	U
Acetone	UG/L	3.4	13%		0	2	16	5	U	5	U	5	U	5	U	3	J
Benzene	UG/L	0	0%	1	0	0	16	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	UG/L	0	0%		0	0	16	1	U	1	U	1	U	1	U	1	U
Bromoform	UG/L	0	0%		0	0	16	1	U	1	U	1	U	1	U	1	U
Carbon disulfide	UG/L	0	0%		0	0	16	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	UJ	1	UJ
Chlorobenzene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane	UG/L	0	0%		0	0	16	1	U	1	U	1	U	1	U	1	U
Chloroethane	UG/L	0	0%	5	0	0	16	1	UJ	1	UJ	1	U	1	UJ	1	UJ
Chloroform	UG/L	0	0%	7	0	0	16	1	U	1	U	1	U	1	U	1	U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	16	1	U	1	U	1	U	1	U	1	U
Ethyl benzene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Methyl bromide	UG/L	0	0%	5	0	0	16	1	UJ	1	UJ	1	U	1	U	1	U
Methyl butyl ketone	UG/L	0	0%		0	0	16	5	U	5	U	5	U	5	U	5	U
Methyl chloride	UG/L	0	0%	5	0	0	16	1	UJ	1	UJ	1	U	1	UJ	1	UJ
Methyl ethyl ketone	UG/L	0	0%		0	0	16	5	U	5	U	5	U	5	U	5	U
Methyl isobutyl ketone	UG/L	0	0%		0	0	16	5	U	5	U	5	U	5	U	5	U
Methylene chloride	UG/L	0	0%	5	0	0	16	5	UJ	5	UJ	5	U	5	U	5	U
Styrene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Toluene	UG/L	1.3	6%	5	0	1	16	1.3		1	U	1	U	1	U	1	U
Total Xylenes	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	16	1	U	1	U	1	U	1	U	1	U
Trichloroethene	UG/L	0	0%	5	0	0	16	1	U	1	U	1	U	1	U	1	U
Vinyl acetate	UG/L	0	0%		0	0	16	5	UJ	5	UJ	5	U	5	U	5	U
Vinyl chloride	UG/L	0	0%	2	0	0	16	1	U	1	U	1	U	1	U	1	U
1,1'-Biphenyl	UG/L	7.7	23%	5	1	3	13	11.1	U	11	U					7.7	J
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-65 RINSEATE 25004 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-68 RINSEATE 25001 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-73 RINSEATE 25005 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-84 RINSEATE 25009 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-90 RINSEATE 25010 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	13	11.1	U	11	U					40.8	U
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	13	11.1	U	11	U					40.8	U
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	13	11.1	U	11	U					40.8	U
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	13	11.1	U	11	U					40.8	U
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	13	11.1	U	11	U					40.8	U
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U
2,4-Dimethylphenol	UG/L	1.9	8%		0	1	13	11.1	U	11	U					1.9	J
2,4-Dinitrophenol	UG/L	0	0%		0	0	13	22.2	U	22	U					81.6	U
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U
2-Chloronaphthalene	UG/L	0	0%		0	0	13	1.1	U	1.1	U					4.1	U
2-Chlorophenol	UG/L	0	0%		0	0	13	11.1	U	11	U					40.8	U
2-Methylnaphthalene	UG/L	37	38%		0	5	13	1.1	U	1.1	U					37	
2-Methylphenol	UG/L	2	8%		0	1	13	11.1	U	11	U					2	J
2-Nitroaniline	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U
2-Nitrophenol	UG/L	0	0%	1	0	0	13	11.1	U	11	U					40.8	U
3 or 4-Methylphenol	UG/L	3.4	8%	1	1	1	13	11.1	U	11	U					3.4	J
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	UJ
3-Nitroaniline	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	13	11.1	U	11	U					40.8	U
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	13	11.1	U	11	U					40.8	U
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	13	11.1	U	11	U					40.8	U
4-Chloroaniline	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	13	11.1	U	11	U					40.8	U
4-Nitroaniline	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U
4-Nitrophenol	UG/L	0	0%	1	0	0	13	11.1	U	11	U					40.8	U
Acenaphthene	UG/L	51.7	46%		0	6	13	1.1	U	1.1	U					51.7	
Acenaphthylene	UG/L	0	0%		0	0	13	1.1	U	1.1	U					4.1	U
Anthracene	UG/L	78.4	54%		0	7	13	1.1	U	1.1	U					78.4	
Atrazine	UG/L	0	0%	7.5	0	0	13	11.1	U	11	U					40.8	R
Benzaldehyde	UG/L	0	0%		0	0	13	11.1	U	11	U					40.8	U
Benzo(a)anthracene	UG/L	146	62%		0	8	13	1.1	U	1.1	U					146	
Benzo(a)pyrene	UG/L	116	69%	0	0	9	13	1.1	U	1.1	U					116	
Benzo(b)fluoranthene	UG/L	148	54%		0	7	13	1.1	U	1.1	U					148	
Benzo(ghi)perylene	UG/L	54.2	38%		0	5	13	1.1	U	1.1	U					54.2	
Benzo(k)fluoranthene	UG/L	2.6	15%		0	2	13	1.1	U	1.1	U					4.1	U
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	13	11.1	UJ	11	UJ					40.8	U

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-65 RINSEATE 25004 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-68 RINSEATE 25001 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-73 RINSEATE 25005 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-84 RINSEATE 25009 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-90 RINSEATE 25010 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	13	11.1	U	11	U					40.8	U
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	13	11.1	U	11	UJ					40.8	U
Bis(2-Ethylhexyl)phthalate	UG/L	12.7	46%	5	2	6	13	2.1	J	11	U					40.8	U
Butylbenzylphthalate	UG/L	1.3	23%		0	3	13	11.1	U	11	U					40.8	U
Carbazole	UG/L	52.6	69%		0	9	13	11.1	U	11	U					52.6	
Chrysene	UG/L	125	69%		0	9	13	1.1	U	1.1	U					125	
Di-n-butylphthalate	UG/L	2.4	54%	50	0	7	13	1.5	J	1.6	J					40.8	U
Di-n-octylphthalate	UG/L	0	0%		0	0	13	11.1	U	11	U					40.8	U
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	13	1.1	U	1.1	U					4.1	U
Dibenzofuran	UG/L	51.8	46%		0	6	13	11.1	U	11	U					51.8	
Diethyl phthalate	UG/L	0	0%		0	0	13	11.1	U	11	U					40.8	U
Dimethylphthalate	UG/L	0	0%		0	0	13	11.1	U	11	U					40.8	U
Diphenylamine	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U
Fluoranthene	UG/L	258	77%		0	10	13	1.1	U	0.87	J					258	
Fluorene	UG/L	62.1	46%		0	6	13	1.1	U	1.1	U					62.1	
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	13	11.1	U	11	U					40.8	U
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	13	11.1	U	11	U					40.8	U
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	13	11.1	UJ	11	UJ					40.8	U
Hexachloroethane	UG/L	0	0%	5	0	0	13	11.1	U	11	U					40.8	U
Indeno(1,2,3-cd)pyrene	UG/L	55.2	46%		0	6	13	1.1	U	1.1	U					55.2	
Isophorone	UG/L	0	0%		0	0	13	11.1	U	11	U					40.8	U
N-Nitrosodipropylamine	UG/L	0	0%		0	0	13	11.1	U	11	U					40.8	U
Naphthalene	UG/L	102	69%		0	9	13	1.1	U	1.1	U					102	
Nitrobenzene	UG/L	0	0%	0.4	0	0	13	11.1	U	11	U					40.8	U
Pentachlorophenol	UG/L	0	0%	1	0	0	13	11.1	U	11	U					40.8	U
Phenanthrene	UG/L	330	85%		0	11	13	1.1	U	0.88	J					330	
Phenol	UG/L	0	0%	1	0	0	13	11.1	U	11	U					40.8	U
Pyrene	UG/L	229	77%		0	10	13	1.1	U	0.59	J					229	
alpha-Terpineol	UG/L	0	0%		0	0	13	11.1	UJ	11	UJ					40.8	UJ
Aluminum	UG/L	2230	69%		0	11	16	19.9	U	36.2	J	74.9	J	2230		1840	
Antimony	UG/L	0	0%	3	0	0	16	6.81	U	6.81	U	6.81	U	6.81	U	6.81	U
Arsenic	UG/L	0	0%	25	0	0	16	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U
Barium	UG/L	118	100%	1000	0	16	16	110		81.2		93.4		86.1	J	80.8	J
Beryllium	UG/L	0.191	13%		0	2	16	0.133	U	0.133	U	0.133	U	0.167	J	0.191	J
Boron	UG/L	50.8	63%	1000	0	10	16	45.4		27.2		37.8		46.6	U	34.2	U
Cadmium	UG/L	6.23	25%	5	1	4	16	0.807	U	0.807	U	1.57	B	**6.23**		4.17	
Calcium	UG/L	85200	100%		0	16	16	22000		22500		22800		35400	J	85200	J

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 R301-65 RINSEATE 25004 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-68 RINSEATE 25001 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-73 RINSEATE 25005 0 0 4/23/2003 SA BLDG 301 1		SEAD-2 R301-84 RINSEATE 25009 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 R301-90 RINSEATE 25010 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [1]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Chromium	UG/L	3.31	25%	50	0	4	16	1.37	U	1.37	U	1.37	U	2.47	J	3.31	J
Cobalt	UG/L	2.54	25%		0	4	16	1.88	U	1.88	U	1.9	J	2.54	J	2.06	J
Copper	UG/L	124	44%	200	0	7	16	3.91	U	3.91	U	4.52	J	11.6		124	
Iron	UG/L	2930	100%	300	6	16	16	26.7	J	72.3		205		**2930**		**2320**	
Lead	UG/L	1050	100%	25	12	16	16	**78.7**		18.7		**304**		**602**		**1050**	
Magnesium	UG/L	8370	100%		0	16	16	2620		2420		2640		4410	J	7040	J
Manganese	UG/L	254	100%	300	0	16	16	29.5		17		28.8		111		224	
Mercury	UG/L	0	0%	0.7	0	0	16	0.052	U	0.052	U	0.052	U	0.063	U	0.068	U
Molybdenum	UG/L	0	0%		0	0	16	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Nickel	UG/L	8.97	100%	100	0	16	16	6.71		5	J	5.22		5.62		7.46	
Phosphorous	UG/L	400	94%		0	15	16	95.7		87.4		106		180	J	393	
Potassium	UG/L	3440	100%		0	16	16	1900		1970		2530		3440	J	3310	J
Selenium	UG/L	5.06	13%	10	0	2	16	4.2	U	4.2	U	4.2	U	4.2	U	4.2	U
Silica	UG/L	27200	100%		0	16	16	14800		6820		11700		12300	J	11500	J
Silicon	UG/L	12700	100%		0	16	16	6930		3190		5460		5770	J	5370	J
Silver	UG/L	0	0%	50	0	0	16	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Sodium	UG/L	15000	100%	20000	0	16	16	13500		12500		13400		12700		12700	N
Strontium	UG/L	371	100%		0	16	16	278		145		213		112	J	156	J
Sulfur	UG/L	14600	100%		0	16	16	14600		13900		14500		13300	J	13700	J
Thallium	UG/L	0	0%		0	0	16	6.27	U	6.27	U	6.27	U	6.27	U	6.27	U
Tin	UG/L	6.36	6%		0	1	16	3.75	U	3.75	U	3.75	U	3.75	U	6.36	J
Titanium	UG/L	96.6	75%		0	12	16	0.622	U	1.69	J	3.02	J	96.6		77.8	
Uranium	UG/L	0	0%		0	0	16	4.98	U	4.98	U	4.98	U	4.98	U	4.98	U
Vanadium	UG/L	13.6	19%		0	3	16	3.12	U	3.12	U	3.12	U	4.98	J	13.6	
Zinc	UG/L	599	100%		0	16	16	64.6		107		180		383		599	

(1) Criteria Level is NYSDEC's GA Groundwater Standard

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2
								R301-93
								RINSEATE
								25012
								0
								0
								4/24/2003
								SA
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	BLDG 301
								1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)
1,1,1-Trichloroethane	UG/L	0	0%	5	0	0	16	1 UJ
1,1,2,2-Tetrachloroethane	UG/L	0	0%	5	0	0	16	1 U
1,1,2-Trichloroethane	UG/L	0	0%	1	0	0	16	1 U
1,1-Dichloroethane	UG/L	0	0%	5	0	0	16	1 U
1,1-Dichloroethene	UG/L	0	0%	5	0	0	16	1 U
1,2-Dichloroethane	UG/L	0	0%	0.6	0	0	16	1 UJ
1,2-Dichloropropane	UG/L	0	0%	1	0	0	16	1 U
Acetone	UG/L	3.4	13%		0	2	16	5 U
Benzene	UG/L	0	0%	1	0	0	16	1 U
Bromodichloromethane	UG/L	0	0%		0	0	16	1 U
Bromoform	UG/L	0	0%		0	0	16	1 U
Carbon disulfide	UG/L	0	0%		0	0	16	5 U
Carbon tetrachloride	UG/L	0	0%	5	0	0	16	1 UJ
Chlorobenzene	UG/L	0	0%	5	0	0	16	1 U
Chlorodibromomethane	UG/L	0	0%		0	0	16	1 U
Chloroethane	UG/L	0	0%	5	0	0	16	1 UJ
Chloroform	UG/L	0	0%	7	0	0	16	1 U
Cis-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	1 U
Cis-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	16	1 U
Ethyl benzene	UG/L	0	0%	5	0	0	16	1 U
Methyl bromide	UG/L	0	0%	5	0	0	16	1 U
Methyl butyl ketone	UG/L	0	0%		0	0	16	5 U
Methyl chloride	UG/L	0	0%	5	0	0	16	1 UJ
Methyl ethyl ketone	UG/L	0	0%		0	0	16	5 U
Methyl isobutyl ketone	UG/L	0	0%		0	0	16	5 U
Methylene chloride	UG/L	0	0%	5	0	0	16	5 U
Styrene	UG/L	0	0%	5	0	0	16	1 U
Tetrachloroethene	UG/L	0	0%	5	0	0	16	1 U
Toluene	UG/L	1.3	6%	5	0	1	16	1 U
Total Xylenes	UG/L	0	0%	5	0	0	16	1 U
Trans-1,2-Dichloroethene	UG/L	0	0%	5	0	0	16	1 U
Trans-1,3-Dichloropropene	UG/L	0	0%	0.4	0	0	16	1 U
Trichloroethene	UG/L	0	0%	5	0	0	16	1 U
Vinyl acetate	UG/L	0	0%		0	0	16	5 U
Vinyl chloride	UG/L	0	0%	2	0	0	16	1 U
1,1'-Biphenyl	UG/L	7.7	23%	5	1	3	13	
1,2,4-Trichlorobenzene	UG/L	0	0%	5	0	0	13	

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2
								R301-93
								RINSEATE
								25012
								0
								0
								4/24/2003
								SA
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	BLDG 301
								1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)
1,2-Dichlorobenzene	UG/L	0	0%	3	0	0	13	
1,3-Dichlorobenzene	UG/L	0	0%	3	0	0	13	
1,4-Dichlorobenzene	UG/L	0	0%	3	0	0	13	
2,4,5-Trichlorophenol	UG/L	0	0%	1	0	0	13	
2,4,6-Trichlorophenol	UG/L	0	0%	1	0	0	13	
2,4-Dichlorophenol	UG/L	0	0%	5	0	0	13	
2,4-Dimethylphenol	UG/L	1.9	8%		0	1	13	
2,4-Dinitrophenol	UG/L	0	0%		0	0	13	
2,4-Dinitrotoluene	UG/L	0	0%	5	0	0	13	
2,6-Dinitrotoluene	UG/L	0	0%	5	0	0	13	
2-Chloronaphthalene	UG/L	0	0%		0	0	13	
2-Chlorophenol	UG/L	0	0%		0	0	13	
2-Methylnaphthalene	UG/L	37	38%		0	5	13	
2-Methylphenol	UG/L	2	8%		0	1	13	
2-Nitroaniline	UG/L	0	0%	5	0	0	13	
2-Nitrophenol	UG/L	0	0%	1	0	0	13	
3 or 4-Methylphenol	UG/L	3.4	8%	1	1	1	13	
3,3'-Dichlorobenzidine	UG/L	0	0%	5	0	0	13	
3-Nitroaniline	UG/L	0	0%	5	0	0	13	
4,6-Dinitro-2-methylphenol	UG/L	0	0%	1	0	0	13	
4-Bromophenyl phenyl ether	UG/L	0	0%		0	0	13	
4-Chloro-3-methylphenol	UG/L	0	0%	1	0	0	13	
4-Chloroaniline	UG/L	0	0%	5	0	0	13	
4-Chlorophenyl phenyl ether	UG/L	0	0%		0	0	13	
4-Nitroaniline	UG/L	0	0%	5	0	0	13	
4-Nitrophenol	UG/L	0	0%	1	0	0	13	
Acenaphthene	UG/L	51.7	46%		0	6	13	
Acenaphthylene	UG/L	0	0%		0	0	13	
Anthracene	UG/L	78.4	54%		0	7	13	
Atrazine	UG/L	0	0%	7.5	0	0	13	
Benzaldehyde	UG/L	0	0%		0	0	13	
Benzo(a)anthracene	UG/L	146	62%		0	8	13	
Benzo(a)pyrene	UG/L	116	69%	0	0	9	13	
Benzo(b)fluoranthene	UG/L	148	54%		0	7	13	
Benzo(ghi)perylene	UG/L	54.2	38%		0	5	13	
Benzo(k)fluoranthene	UG/L	2.6	15%		0	2	13	
Bis(2-Chloroethoxy)methane	UG/L	0	0%	5	0	0	13	

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2
								R301-93
								RINSEATE
								25012
								0
								0
								4/24/2003
								SA
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	BLDG 301 1
Parameter	**Units**	**Value**	**Detection**	**Level [1]**	**Exceedances**	**Detected**	**Collected**	Value (Q)
Bis(2-Chloroethyl)ether	UG/L	0	0%	1	0	0	13	
Bis(2-Chloroisopropyl)ether	UG/L	0	0%	5	0	0	13	
Bis(2-Ethylhexyl)phthalate	UG/L	12.7	46%	5	2	6	13	
Butylbenzylphthalate	UG/L	1.3	23%		0	3	13	
Carbazole	UG/L	52.6	69%		0	9	13	
Chrysene	UG/L	125	69%		0	9	13	
Di-n-butylphthalate	UG/L	2.4	54%	50	0	7	13	
Di-n-octylphthalate	UG/L	0	0%		0	0	13	
Dibenz(a,h)anthracene	UG/L	0	0%		0	0	13	
Dibenzofuran	UG/L	51.8	46%		0	6	13	
Diethyl phthalate	UG/L	0	0%		0	0	13	
Dimethylphthalate	UG/L	0	0%		0	0	13	
Diphenylamine	UG/L	0	0%	5	0	0	13	
Fluoranthene	UG/L	258	77%		0	10	13	
Fluorene	UG/L	62.1	46%		0	6	13	
Hexachlorobenzene	UG/L	0	0%	0.04	0	0	13	
Hexachlorobutadiene	UG/L	0	0%	0.5	0	0	13	
Hexachlorocyclopentadiene	UG/L	0	0%	5	0	0	13	
Hexachloroethane	UG/L	0	0%	5	0	0	13	
Indeno(1,2,3-cd)pyrene	UG/L	55.2	46%		0	6	13	
Isophorone	UG/L	0	0%		0	0	13	
N-Nitrosodipropylamine	UG/L	0	0%		0	0	13	
Naphthalene	UG/L	102	69%		0	9	13	
Nitrobenzene	UG/L	0	0%	0.4	0	0	13	
Pentachlorophenol	UG/L	0	0%	1	0	0	13	
Phenanthrene	UG/L	330	85%		0	11	13	
Phenol	UG/L	0	0%	1	0	0	13	
Pyrene	UG/L	229	77%		0	10	13	
alpha-Terpineol	UG/L	0	0%		0	0	13	
Aluminum	UG/L	2230	69%		0	11	16	121
Antimony	UG/L	0	0%	3	0	0	16	6.81 U
Arsenic	UG/L	0	0%	25	0	0	16	4.1 U
Barium	UG/L	118	100%	1000	0	16	16	95 J
Beryllium	UG/L	0.191	13%		0	2	16	0.133 U
Boron	UG/L	50.8	63%	1000	0	10	16	29.1 U
Cadmium	UG/L	6.23	25%	5	1	4	16	0.807 U
Calcium	UG/L	85200	100%		0	16	16	23300 J

Appendix D Table 4
Building 301 (SEAD 2) Rinseate Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	
								R301-93	
								RINSEATE	
								25012	
								0	
								0	
								4/24/2003	
								SA	
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	BLDG 301	
								1	
Parameter	**Units**	**Value**	**Detection**	**Level** [(1)]	**Exceedances**	**Detected**	**Collected**	Value	(Q)
Chromium	UG/L	3.31	25%	50	0	4	16	1.37	U
Cobalt	UG/L	2.54	25%		0	4	16	1.88	U
Copper	UG/L	124	44%	200	0	7	16	4.49	J
Iron	UG/L	2930	100%	300	6	16	16	168	
Lead	UG/L	1050	100%	25	12	16	16	**213**	
Magnesium	UG/L	8370	100%		0	16	16	2550	J
Manganese	UG/L	254	100%	300	0	16	16	26.3	J
Mercury	UG/L	0	0%	0.7	0	0	16	0.067	U
Molybdenum	UG/L	0	0%		0	0	16	1.7	U
Nickel	UG/L	8.97	100%	100	0	16	16	4.99	J
Phosphorous	UG/L	400	94%		0	15	16	45.6	U
Potassium	UG/L	3440	100%		0	16	16	1870	J
Selenium	UG/L	5.06	13%	10	0	2	16	4.2	U
Silica	UG/L	27200	100%		0	16	16	6940	J
Silicon	UG/L	12700	100%		0	16	16	3250	J
Silver	UG/L	0	0%	50	0	0	16	2.5	U
Sodium	UG/L	15000	100%	20000	0	16	16	11600	N
Strontium	UG/L	371	100%		0	16	16	153	J
Sulfur	UG/L	14600	100%		0	16	16	14400	J
Thallium	UG/L	0	0%		0	0	16	6.27	U
Tin	UG/L	6.36	6%		0	1	16	3.75	U
Titanium	UG/L	96.6	75%		0	12	16	5.4	
Uranium	UG/L	0	0%		0	0	16	4.98	U
Vanadium	UG/L	13.6	19%		0	3	16	3.12	U
Zinc	UG/L	599	100%		0	16	16	135	

(1) Criteria Level is NYSDEC's GA Groundwater Standard

Appendix D Table 5
Building 301 (SEAD 2) PCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
								W301-00	W301-01	W301-02	W301-03	W301-04	W301-05
								WIPE	WIPE	WIPE	WIPE	WIPE	WIPE
								26000	26001	26002	26003	26004	26005
								0	0	0	0	0	0
								0	0	0	0	0	0
								04/24/03	04/24/03	04/24/03	04/24/03	04/24/03	04/24/03
								SA	SA	SA	SA	SA	SA
								BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1016	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1232	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Appendix D Table 5
Building 301 (SEAD 2) PCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
								W301-06	W301-07	W301-08	W301-09	W301-10	W301-11
								WIPE	WIPE	WIPE	WIPE	WIPE	WIPE
								26006	26007	26008	26009	26010	26011
								0	0	0	0	0	0
								0	0	0	0	0	0
								04/24/03	04/24/03	04/24/03	04/24/03	04/24/03	04/24/03
								SA	SA	SA	SA	SA	SA
								BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301
								1	1	1	1	1	1
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1016	UG/Filter	0	0%	10	0	0	18	0.1 UJ	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U
Aroclor-1221	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1232	UG/Filter	0	0%	10	0	0	18	0.1 UJ	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U
Aroclor-1242	UG/Filter	0	0%	10	0	0	18	0.1 UJ	0.1 UJ	0.1 U	0.1 UJ	0.1 U	0.1 U
Aroclor-1248	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Appendix D Table 5
Building 301 (SEAD 2) PCB Wipe Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
								W301-12	W301-13	W301-14	W301-15	W301-23	W301-24
								WIPE	WIPE	WIPE	WIPE	WIPE	WIPE
								26012	26013	26014	26015	26023	26024
								0	0	0	0	0	0
								0	0	0	0	0	0
								04/24/03	04/24/03	04/24/03	04/24/03	04/24/03	04/24/03
								SA	SA	SA	SA	SA	SA
								BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Aroclor-1016	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1221	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1232	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1242	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1248	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1254	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor-1260	UG/Filter	0	0%	10	0	0	18	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Appendix D Table 6
Building 301 (SEAD 2) PCB Chip Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 W301-16 CHIP 26016 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 W301-17 CHIP 26017 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 W301-18 CHIP 26018 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 W301-19 CHIP 26019 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Aroclor-1016	UG/KG	0	0%	1000	0	0	7	1000	U	1000	U	1000	U	1020	U
Aroclor-1221	UG/KG	0	0%	1000	0	0	7	1000	U	1000	U	1000	U	1020	U
Aroclor-1232	UG/KG	0	0%	1000	0	0	7	1000	U	1000	U	1000	U	1020	U
Aroclor-1242	UG/KG	0	0%	1000	0	0	7	1000	U	1000	U	1000	U	1020	U
Aroclor-1248	UG/KG	0	0%	1000	0	0	7	1000	U	1000	U	1000	U	1020	U
Aroclor-1254	UG/KG	388	14%	1000	0	1	7	1000	U	388	J	1000	U	1020	U
Aroclor-1260	UG/KG	0	0%	1000	0	0	7	1000	U	1000	U	1000	U	1020	U
Aroclor-1262	UG/KG	0	0%	1000	0	0	7	1000	U	1000	U	1000	U	1020	U
Aroclor-1268	UG/KG	0	0%	1000	0	0	7	1000	U	1000	U	1000	U	1020	U

Appendix D Table 6
Building 301 (SEAD 2) PCB Chip Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 W301-20 CHIP 26020 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 W301-21 CHIP 26021 0 0 4/24/2003 SA BLDG 301 1		SEAD-2 W301-22 CHIP 26022 0 0 4/24/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)
Aroclor-1016	UG/KG	0	0%	1000	0	0	7	1020	U	1030	U	1030	U
Aroclor-1221	UG/KG	0	0%	1000	0	0	7	1020	U	1030	U	1030	U
Aroclor-1232	UG/KG	0	0%	1000	0	0	7	1020	U	1030	U	1030	U
Aroclor-1242	UG/KG	0	0%	1000	0	0	7	1020	U	1030	U	1030	U
Aroclor-1248	UG/KG	0	0%	1000	0	0	7	1020	U	1030	U	1030	U
Aroclor-1254	UG/KG	388	14%	1000	0	1	7	1020	U	1030	U	1030	U
Aroclor-1260	UG/KG	0	0%	1000	0	0	7	1020	U	1030	U	1030	U
Aroclor-1262	UG/KG	0	0%	1000	0	0	7	1020	U	1030	U	1030	U
Aroclor-1268	UG/KG	0	0%	1000	0	0	7	1020	U	1030	U	1030	U

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
								SS301-00	SS301-01	SS301-02	SS301-03	SS301-04
								SOIL	SOIL	SOIL	SOIL	SOIL
								21000	21001	21002	21003	021004D
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003
								SA	SA	SA	SA	DU
								BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1-Trichloroethane	UG/KG	0	0%	800	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
1,1,2,2-Tetrachloroethane	UG/KG	0	0%	600	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
1,1-Dichloroethane	UG/KG	0	0%	200	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
1,1-Dichloroethene	UG/KG	7.6	42%	400	0	5	12	1.7	0.88 U	0.84 U	1.1 U	
1,2-Dichloroethane	UG/KG	0	0%	100	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
1,2-Dichloropropane	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Acetone	UG/KG	20.9	33%	200	0	4	12	4 U	4.4 U	4.2 U	5.6 U	
Benzene	UG/KG	0	0%	60	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Bromodichloromethane	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Bromoform	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Carbon disulfide	UG/KG	0	0%	2700	0	0	12	4 U	4.4 U	4.2 U	5.6 U	
Carbon tetrachloride	UG/KG	0	0%	600	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Chlorobenzene	UG/KG	0	0%	1700	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Chlorodibromomethane	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Chloroethane	UG/KG	0	0%	1900	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Chloroform	UG/KG	0	0%	300	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Cis-1,2-Dichloroethene	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Ethyl benzene	UG/KG	0	0%	5500	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Methyl bromide	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Methyl butyl ketone	UG/KG	0	0%		0	0	12	4 U	4.4 U	4.2 U	5.6 U	
Methyl chloride	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Methyl ethyl ketone	UG/KG	17	8%	300	0	1	12	4 U	4.4 U	4.2 U	5.6 U	
Methyl isobutyl ketone	UG/KG	0	0%	1000	0	0	12	4 U	4.4 U	4.2 U	5.6 U	
Methylene chloride	UG/KG	0	0%	100	0	0	12	4 U	4.4 U	4.2 U	5.6 U	
Styrene	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Tetrachloroethene	UG/KG	0	0%	1400	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Toluene	UG/KG	0.76	50%	1500	0	6	12	0.43 J	0.88 U	0.35 J	1.1 U	
Total Xylenes	UG/KG	0	0%	1200	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Trans-1,2-Dichloroethene	UG/KG	0	0%	300	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Trichloroethene	UG/KG	0	0%	700	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
Vinyl acetate	UG/KG	0	0%		0	0	12	4 U	4.4 U	4.2 U	5.6 U	
Vinyl chloride	UG/KG	0	0%	200	0	0	12	0.8 U	0.88 U	0.84 U	1.1 U	
1,1'-Biphenyl	UG/KG	2900	50%		0	6	12	849 J	3460 UJ	50.1 UJ	109 UJ	
1,2,4-Trichlorobenzene	UG/KG	0	0%	3400	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
1,2-Dichlorobenzene	UG/KG	0	0%	7900	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
								SS301-00	SS301-01	SS301-02	SS301-03	SS301-04
								SOIL	SOIL	SOIL	SOIL	SOIL
								21000	21001	21002	21003	021004D
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003
								SA	SA	SA	SA	DU
								BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [1]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,3-Dichlorobenzene	UG/KG	0	0%	1600	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
1,4-Dichlorobenzene	UG/KG	0	0%	8500	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2,4,5-Trichlorophenol	UG/KG	0	0%	100	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2,4-Dichlorophenol	UG/KG	0	0%	400	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2,4-Dimethylphenol	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2,4-Dinitrophenol	UG/KG	0	0%	200	0	0	12	27500 UJ	6920 UJ	7090 UJ	27500 UJ	
2,4-Dinitrotoluene	UG/KG	35700	33%		0	4	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2,6-Dinitrotoluene	UG/KG	951	8%	1000	0	1	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2-Chloronaphthalene	UG/KG	0	0%		0	0	12	1370 UJ	346 UJ	354 UJ	1380 UJ	
2-Chlorophenol	UG/KG	0	0%	800	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2-Methylnaphthalene	UG/KG	15200	92%	36400	0	11	12	3700 J	178 J	204 J	1380 UJ	
2-Methylphenol	UG/KG	0	0%	100	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2-Nitroaniline	UG/KG	0	0%	430	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
2-Nitrophenol	UG/KG	0	0%	330	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
3 or 4-Methylphenol	UG/KG	464	8%		0	1	12	13700 U	3460 UJ	3540 UJ	13800 UJ	
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
3-Nitroaniline	UG/KG	0	0%	500	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
4-Chloro-3-methylphenol	UG/KG	0	0%	240	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
4-Chloroaniline	UG/KG	0	0%	220	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
4-Nitroaniline	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
4-Nitrophenol	UG/KG	0	0%	100	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Acenaphthene	UG/KG	18200	100%	50000	0	12	12	7570 J	290 J	717 J	1870 J	
Acenaphthylene	UG/KG	2410	83%	41000	0	10	12	1230 J	900 J	382 J	2410 J	
Anthracene	UG/KG	33900	100%	50000	0	12	12	24200 J	1030 J	2650 J	7560 J	
Atrazine	UG/KG	0	0%		0	0	12	13700 UJ	3460 R	3540 R	13800 R	
Benzaldehyde	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Benzo(a)anthracene	UG/KG	66600	100%	224	12	12	12	**39300** J	**4670** J	**7690** J	**27900** J	
Benzo(a)pyrene	UG/KG	56900	100%	61	12	12	12	**31600** J	**5300** J	**7240** J	**22900** J	
Benzo(b)fluoranthene	UG/KG	102000	100%	1100	12	12	12	**56700** J	**6540** J	**8980** J	**28800** J	
Benzo(ghi)perylene	UG/KG	25100	100%	50000	0	12	12	11600 J	3540 J	3860 J	11900 J	
Benzo(k)fluoranthene	UG/KG	11700	58%	1100	7	7	12	1370 UJ	**3660** J	**4340** J	**11700** J	
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 SS301-00 SOIL 21000 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-01 SOIL 21001 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-02 SOIL 21002 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-03 SOIL 21003 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-04 SOIL 021004D 0 0.17 4/17/2003 DU BLDG 301 1
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%	50000	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Butylbenzylphthalate	UG/KG	0	0%	50000	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Carbazole	UG/KG	28200	83%		0	10	12	11300 J	807 J	1920 J	5810 J	
Chrysene	UG/KG	67700	100%	400	12	12	12	**35000** J	**5540** J	**7950** J	**29900** J	
Di-n-butylphthalate	UG/KG	1780	25%	8100	0	3	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Di-n-octylphthalate	UG/KG	0	0%	50000	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Dibenz(a,h)anthracene	UG/KG	19900	25%	14	3	3	12	**19900** J	346 UJ	354 UJ	1380 UJ	
Dibenzofuran	UG/KG	22100	100%	6200	2	12	12	**11300** J	250 J	761 J	2210 J	
Diethyl phthalate	UG/KG	0	0%	7100	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Dimethylphthalate	UG/KG	0	0%	2000	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Diphenylamine	UG/KG	3150	25%		0	3	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Fluoranthene	UG/KG	151000	100%	50000	3	12	12	**88900** J	9100 J	17400 J	**53200** J	
Fluorene	UG/KG	19200	100%	50000	0	12	12	18100 J	637 J	1550 J	4440 J	
Hexachlorobenzene	UG/KG	0	0%	410	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Hexachlorobutadiene	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Hexachloroethane	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Indeno(1,2,3-cd)pyrene	UG/KG	24900	100%	3200	7	12	12	**11600** J	2630 J	**3640** J	**10700** J	
Isophorone	UG/KG	0	0%	4400	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Naphthalene	UG/KG	33900	67%	13000	1	8	12	838 J	346 UJ	354 UJ	1380 UJ	
Nitrobenzene	UG/KG	0	0%	200	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Pentachlorophenol	UG/KG	0	0%	1000	0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Phenanthrene	UG/KG	159000	100%	50000	2	12	12	**81500** J	5340 J	12400 J	38300 J	
Phenol	UG/KG	1680	25%	30	3	3	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Pyrene	UG/KG	148000	100%	50000	3	12	12	**98600** J	10500 J	15700 J	**61200**	
alpha-Terpineol	UG/KG	0	0%		0	0	12	13700 UJ	3460 UJ	3540 UJ	13800 UJ	
Aroclor-1016	UG/KG	0	0%		0	0	12	34.3 U	34.6 U	35.4 U	34.4 U	
Aroclor-1221	UG/KG	0	0%		0	0	12	34.3 U	34.6 U	35.4 U	34.4 U	
Aroclor-1232	UG/KG	0	0%		0	0	12	34.3 U	34.6 U	35.4 U	34.4 U	
Aroclor-1242	UG/KG	0	0%		0	0	12	34.3 U	34.6 U	35.4 U	34.4 U	
Aroclor-1248	UG/KG	0	0%		0	0	12	34.3 U	34.6 U	35.4 U	34.4 U	
Aroclor-1254	UG/KG	120	17%	10000	0	2	12	34.3 U	34.6 U	35.4 U	34.4 U	
Aroclor-1260	UG/KG	0	0%	10000	0	0	12	34.3 U	34.6 U	35.4 U	34.4 U	
Aroclor-1262	UG/KG	0	0%		0	0	12	34.3 U	34.6 U	35.4 U	34.4 U	
Aroclor-1268	UG/KG	0	0%		0	0	12	34.3 U	34.6 U	35.4 U	34.4 U	
Aluminum	UG/KG	16800000	100%	20500000	0	13	13	2780000	4430000	4300000	5610000	16800000
Antimony	UG/KG	4940	77%	6550	0	10	13	755 J	667 UJ	678 J	682 UJ	1580 J

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
								SS301-00	SS301-01	SS301-02	SS301-03	SS301-04
								SOIL	SOIL	SOIL	SOIL	SOIL
								21000	21001	21002	21003	021004D
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003
								SA	SA	SA	SA	DU
								BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [1]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Arsenic	UG/KG	17600	100%	21500	0	13	13	2920	3430	3150	4600	17300
Barium	UG/KG	162000	100%	300000	0	13	13	162000 J	29500 J	41000 J	29200 J	132000 J
Beryllium	UG/KG	845	100%	1400	0	13	13	194	257	268	322	845
Boron	UG/KG	13800	100%	0	0	13	13	9990 J	9620 J	12500 J	10900 J	13800 J
Cadmium	UG/KG	4200	92%	2900	3	12	13	359	134 J	78.8 U	150 J	329
Calcium	UG/KG	221000000	100%	293000000	0	13	13	221000000	137000000	212000000	129000000	7200000
Chromium	UG/KG	52800	100%	32700	3	13	13	6410	8080	7570	10700	**52800**
Cobalt	UG/KG	10500	100%	30000	0	13	13	2360	4100	4400	5020	10500
Copper	UG/KG	86400	100%	62800	1	13	13	8110	10600	9500	11400	35100
Iron	UG/KG	26300000	100%	38600000	0	13	13	5150000 J	8200000 J	6860000 J	9430000 J	21100000 J
Lead	UG/KG	1570000	100%	400000	1	13	13	24700	23400	14800	26800	29300
Magnesium	UG/KG	56100000	100%	29100000	8	13	13	19800000	**32500000**	**35700000**	**37500000**	5230000
Manganese	UG/KG	522000	100%	2380000	0	13	13	340000 J	297000 J	323000 J	363000 J	522000 J
Mercury	UG/KG	87.4	100%	130	0	13	13	18.8	11.3	10.6	12.2	66
Molybdenum	UG/KG	3860	62%	0	0	8	13	158 U	167 U	166 U	170 U	500
Nickel	UG/KG	55200	100%	62300	0	13	13	9180	12600	11600	14600	30400
Phosphorous	UG/KG	1380000	100%	0	0	13	13	250000	312000	312000	371000	620000
Potassium	UG/KG	2490000	100%	3160000	0	13	13	1100000 J	1370000 J	1520000 J	1570000 J	2490000 J
Selenium	UG/KG	1400	62%	2000	0	8	13	390 U	412 U	410 U	421 U	1280
Silica	UG/KG	1650000	100%	0	0	13	13	1190000 J	1290000 J	1420000 J	1050000 J	962000 J
Silicon	UG/KG	771000	100%	0	0	13	13	556000 J	603000 J	665000 J	491000 J	450000 J
Silver	UG/KG	465	8%	870	0	1	13	232 U	245 U	244 U	250 U	287 U
Sodium	UG/KG	162000	100%	2690000	0	13	13	162000	122000	162000	145000	44700
Strontium	UG/KG	250000	100%	0	0	13	13	250000	112000	213000	118000	19200
Sulfur	UG/KG	1680000	100%	0	0	13	13	1680000 J	1160000 J	810000 J	850000 J	322000 J
Thallium	UG/KG	0	0%	1200	0	0	13	582 U	614 U	612 U	628 U	721 U
Tin	UG/KG	19100	92%	0	0	12	13	537 J	438 J	376 J	450 J	1060
Titanium	UG/KG	381000	100%	0	0	13	13	29900 J	53800 J	55300 J	97200 J	72600 J
Uranium	UG/KG	573	8%	0	0	1	13	462 UJ	488 UJ	486 UJ	499 UJ	573 J
Vanadium	UG/KG	36400	100%	150000	0	13	13	32100	15500	11200	13500	28300
Zinc	UG/KG	752000	100%	126000	4	13	13	28100	36200	29400	63900	**156000**

(1) Criteria Level is NYSDEC's TAGM #4046

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
								SS301-04	SS301-05	SS301-06	SS301-07	SS301-08
								SOIL	SOIL	SOIL	SOIL	SOIL
								21004	21005	21006	21007	21008
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003
								SA	SA	SA	SA	SA
								BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,1,1-Trichloroethane	UG/KG	0	0%	800	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%	600	0	0	12	1.5 U	1.2 UJ	1.2 U	1.2 U	0.94 U
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
1,1-Dichloroethane	UG/KG	0	0%	200	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
1,1-Dichloroethene	UG/KG	7.6	42%	400	0	5	12	1.5 U	1.2 U	1.2 U	6.2	0.94 U
1,2-Dichloroethane	UG/KG	0	0%	100	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
1,2-Dichloropropane	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Acetone	UG/KG	20.9	33%	200	0	4	12	7.4 U	6.3 U	6.5 J	20.9 J	4.7 U
Benzene	UG/KG	0	0%	60	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Bromodichloromethane	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Bromoform	UG/KG	0	0%		0	0	12	1.5 U	1.2 UJ	1.2 U	1.2 U	0.94 U
Carbon disulfide	UG/KG	0	0%	2700	0	0	12	7.4 U	6.3 U	5.9 U	5.9 U	4.7 U
Carbon tetrachloride	UG/KG	0	0%	600	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Chlorobenzene	UG/KG	0	0%	1700	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Chlorodibromomethane	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Chloroethane	UG/KG	0	0%	1900	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Chloroform	UG/KG	0	0%	300	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Cis-1,2-Dichloroethene	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Ethyl benzene	UG/KG	0	0%	5500	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Methyl bromide	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Methyl butyl ketone	UG/KG	0	0%		0	0	12	7.4 U	6.3 U	5.9 U	5.9 U	4.7 U
Methyl chloride	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Methyl ethyl ketone	UG/KG	17	8%	300	0	1	12	7.4 U	6.3 U	17	5.9 U	4.7 U
Methyl isobutyl ketone	UG/KG	0	0%	1000	0	0	12	7.4 U	6.3 U	5.9 U	5.9 U	4.7 U
Methylene chloride	UG/KG	0	0%	100	0	0	12	7.4 U	6.3 U	5.9 U	5.9 U	4.7 U
Styrene	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Tetrachloroethene	UG/KG	0	0%	1400	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Toluene	UG/KG	0.76	50%	1500	0	6	12	1.5 U	1.2 U	1.2 U	0.74 J	0.94 U
Total Xylenes	UG/KG	0	0%	1200	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Trans-1,2-Dichloroethene	UG/KG	0	0%	300	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Trichloroethene	UG/KG	0	0%	700	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
Vinyl acetate	UG/KG	0	0%		0	0	12	7.4 U	6.3 U	5.9 U	5.9 U	4.7 U
Vinyl chloride	UG/KG	0	0%	200	0	0	12	1.5 U	1.2 U	1.2 U	1.2 U	0.94 U
1,1'-Biphenyl	UG/KG	2900	50%		0	6	12	40 J	344 U	249 J	2900 J	283 J
1,2,4-Trichlorobenzene	UG/KG	0	0%	3400	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
1,2-Dichlorobenzene	UG/KG	0	0%	7900	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
								SS301-04	SS301-05	SS301-06	SS301-07	SS301-08
								SOIL	SOIL	SOIL	SOIL	SOIL
								21004	21005	21006	21007	21008
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003
								SA	SA	SA	SA	SA
								BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
1,3-Dichlorobenzene	UG/KG	0	0%	1600	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
1,4-Dichlorobenzene	UG/KG	0	0%	8500	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
2,4,5-Trichlorophenol	UG/KG	0	0%	100	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
2,4-Dichlorophenol	UG/KG	0	0%	400	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
2,4-Dimethylphenol	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
2,4-Dinitrophenol	UG/KG	0	0%	200	0	0	12	828 U	689 U	7280 UJ	81600 UJ	7500 UJ
2,4-Dinitrotoluene	UG/KG	35700	33%		0	4	12	414 U	344 U	3790 J	35700 J	16800 J
2,6-Dinitrotoluene	UG/KG	951	8%	1000	0	1	12	414 U	344 U	3640 UJ	40800 UJ	951 J
2-Chloronaphthalene	UG/KG	0	0%		0	0	12	41.4 U	34.4 U	364 UJ	4080 UJ	375 UJ
2-Chlorophenol	UG/KG	0	0%	800	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
2-Methylnaphthalene	UG/KG	15200	92%	36400	0	11	12	198	44.4	1230 J	15200 J	1320 J
2-Methylphenol	UG/KG	0	0%	100	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
2-Nitroaniline	UG/KG	0	0%	430	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
2-Nitrophenol	UG/KG	0	0%	330	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
3 or 4-Methylphenol	UG/KG	464	8%		0	1	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
3-Nitroaniline	UG/KG	0	0%	500	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
4-Chloro-3-methylphenol	UG/KG	0	0%	240	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
4-Chloroaniline	UG/KG	0	0%	220	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
4-Nitroaniline	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
4-Nitrophenol	UG/KG	0	0%	100	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Acenaphthene	UG/KG	18200	100%	50000	0	12	12	250	44.1	1610 J	18200 J	2260 J
Acenaphthylene	UG/KG	2410	83%	41000	0	10	12	41.4 U	287	1450 J	4080 UJ	284 J
Anthracene	UG/KG	33900	100%	50000	0	12	12	401	164	3500 J	33900 J	4520 J
Atrazine	UG/KG	0	0%		0	0	12	414 R	344 R	3640 R	40800 UJ	3750 R
Benzaldehyde	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Benzo(a)anthracene	UG/KG	66600	100%	224	12	12	12	**1330**	**1740**	**11300** J	**66600** J	**9100** J
Benzo(a)pyrene	UG/KG	56900	100%	61	12	12	12	**1080**	**1710**	**11500** J	**56900** J	**8840** J
Benzo(b)fluoranthene	UG/KG	102000	100%	1100	12	12	12	**1670**	**2510**	**11900** J	**102000** J	**12500** J
Benzo(ghi)perylene	UG/KG	25100	100%	50000	0	12	12	551	818	4570 J	25100 J	3830 J
Benzo(k)fluoranthene	UG/KG	11700	58%	1100	7	7	12	41.4 U	34.4 U	**5240** J	4080 UJ	**5760** J
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	12	414 UJ	344 UJ	3640 UJ	40800 UJ	3750 UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 SS301-04 SOIL 21004 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-05 SOIL 21005 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-06 SOIL 21006 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-07 SOIL 21007 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-08 SOIL 21008 0 0.17 4/17/2003 SA BLDG 301 1
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%	50000	0	0	12	177 UJ	180 UJ	3640 UJ	40800 UJ	3750 UJ
Butylbenzylphthalate	UG/KG	0	0%	50000	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Carbazole	UG/KG	28200	83%		0	10	12	281 J	344 U	2620 J	28200 J	3090 J
Chrysene	UG/KG	67700	100%	400	12	12	12	**1150**	**2060**	**12200** J	**67700** J	**9480** J
Di-n-butylphthalate	UG/KG	1780	25%	8100	0	3	12	414 U	344 U	3640 UJ	40800 UJ	1780 J
Di-n-octylphthalate	UG/KG	0	0%	50000	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Dibenz(a,h)anthracene	UG/KG	19900	25%	14	3	3	12	**281**	**354**	364 UJ	4080 UJ	375 UJ
Dibenzofuran	UG/KG	22100	100%	6200	2	12	12	265 J	40.9 J	1750 J	**22100** J	2300 J
Diethyl phthalate	UG/KG	0	0%	7100	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Dimethylphthalate	UG/KG	0	0%	2000	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Diphenylamine	UG/KG	3150	25%		0	3	12	414 U	344 U	629 J	40800 UJ	3150 J
Fluoranthene	UG/KG	151000	100%	50000	3	12	12	2560	1500	17400 J	**151000** J	19400 J
Fluorene	UG/KG	19200	100%	50000	0	12	12	288	89.9	1900 J	19200 J	2320 J
Hexachlorobenzene	UG/KG	0	0%	410	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Hexachlorobutadiene	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Hexachloroethane	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Indeno(1,2,3-cd)pyrene	UG/KG	24900	100%	3200	7	12	12	572	662	**3770** J	**24900** J	**4020** J
Isophorone	UG/KG	0	0%	4400	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Naphthalene	UG/KG	33900	67%	13000	1	8	12	572	62.7	2030 J	**33900** J	2440 J
Nitrobenzene	UG/KG	0	0%	200	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Pentachlorophenol	UG/KG	0	0%	1000	0	0	12	414 U	344 U	3640 UJ	40800 UJ	3750 UJ
Phenanthrene	UG/KG	159000	100%	50000	2	12	12	2000	669	14700 J	**159000** J	18800 J
Phenol	UG/KG	1680	25%	30	3	3	12	414 U	344 U	3640 UJ	**1680** J	**178** J
Pyrene	UG/KG	148000	100%	50000	3	12	12	2150	3280	23500 J	**148000** J	18400 J
alpha-Terpineol	UG/KG	0	0%		0	0	12	414 UJ	344 UJ	3640 UJ	40800 UJ	3750 UJ
Aroclor-1016	UG/KG	0	0%		0	0	12	41.4 U	34.4 U	36.4 U	40.8 U	37.5 U
Aroclor-1221	UG/KG	0	0%		0	0	12	41.4 U	34.4 U	36.4 U	40.8 U	37.5 U
Aroclor-1232	UG/KG	0	0%		0	0	12	41.4 U	34.4 U	36.4 U	40.8 U	37.5 U
Aroclor-1242	UG/KG	0	0%		0	0	12	41.4 U	34.4 U	36.4 U	40.8 U	37.5 U
Aroclor-1248	UG/KG	0	0%		0	0	12	41.4 U	34.4 U	36.4 U	40.8 U	37.5 U
Aroclor-1254	UG/KG	120	17%	10000	0	2	12	41.4 U	34.4 U	36.4 U	120	53.2
Aroclor-1260	UG/KG	0	0%	10000	0	0	12	41.4 U	34.4 U	36.4 U	40.8 U	37.5 U
Aroclor-1262	UG/KG	0	0%		0	0	12	41.4 U	34.4 U	36.4 U	40.8 U	37.5 U
Aroclor-1268	UG/KG	0	0%		0	0	12	41.4 U	34.4 U	36.4 U	40.8 U	37.5 U
Aluminum	UG/KG	16800000	100%	20500000	0	13	13	15700000	2460000	3540000	6710000	6490000
Antimony	UG/KG	4940	77%	6550	0	10	13	1080 J	645 UJ	1200 J	3480 J	4940 J

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
								SS301-04	SS301-05	SS301-06	SS301-07	SS301-08
								SOIL	SOIL	SOIL	SOIL	SOIL
								21004	21005	21006	21007	21008
								0	0	0	0	0
								0.17	0.17	0.17	0.17	0.17
								4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003
								SA	SA	SA	SA	SA
								BLDG 301	BLDG 301	BLDG 301	BLDG 301	BLDG 301
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1	1	1	1	1
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Arsenic	UG/KG	17600	100%	21500	0	13	13	17600	2270	3380	7850	5340
Barium	UG/KG	162000	100%	300000	0	13	13	121000 J	34500 J	37900 J	111000 J	155000 J
Beryllium	UG/KG	845	100%	1400	0	13	13	804	183	275	537	410
Boron	UG/KG	13800	100%	0	0	13	13	11000 J	10400 J	11500 J	12700 J	8150 J
Cadmium	UG/KG	4200	92%	2900	3	12	13	325 J	97.4 J	300 J	**4120**	**4200**
Calcium	UG/KG	221000000	100%	293000000	0	13	13	7730000	204000000	147000000	105000000	23800000
Chromium	UG/KG	52800	100%	32700	3	13	13	**52300**	5230	8970	30700	**39100**
Cobalt	UG/KG	10500	100%	30000	0	13	13	9010	2910	5300	10400	9640
Copper	UG/KG	86400	100%	62800	1	13	13	34300	6230	11600	**86400**	53800
Iron	UG/KG	26300000	100%	38600000	0	13	13	21800000 J	4620000 J	19700000 J	26300000 J	24700000 J
Lead	UG/KG	1570000	100%	400000	1	13	13	27600	9510	97900	**1570000**	372000
Magnesium	UG/KG	56100000	100%	29100000	8	13	13	5670000	**56100000**	**34800000**	9450000	6580000
Manganese	UG/KG	522000	100%	2380000	0	13	13	400000 J	222000 J	446000 J	476000 J	508000 J
Mercury	UG/KG	87.4	100%	130	0	13	13	63.9	11.3	21.2	87.4	56.7
Molybdenum	UG/KG	3860	62%	0	0	8	13	508 J	161 U	369 J	3860	1220
Nickel	UG/KG	55200	100%	62300	0	13	13	28700	9610	14100	55200	26900
Phosphorous	UG/KG	1380000	100%	0	0	13	13	649000	325000	377000	898000	534000
Potassium	UG/KG	2490000	100%	3160000	0	13	13	2070000 J	1240000 J	1340000 J	1250000 J	1250000 J
Selenium	UG/KG	1400	62%	2000	0	8	13	1310	488	692	1400	953
Silica	UG/KG	1650000	100%	0	0	13	13	1650000 J	1420000 J	1500000 J	1500000 J	1350000 J
Silicon	UG/KG	771000	100%	0	0	13	13	771000 J	665000 J	700000 J	700000 J	633000 J
Silver	UG/KG	465	8%	870	0	1	13	307 U	237 U	250 U	288 U	465 J
Sodium	UG/KG	162000	100%	2690000	0	13	13	42400	137000	150000	148000	64700
Strontium	UG/KG	250000	100%	0	0	13	13	18400	176000	137000	128000	78100
Sulfur	UG/KG	1680000	100%	0	0	13	13	352000 J	524000 J	972000 J	1000000 J	563000 J
Thallium	UG/KG	0	0%	1200	0	0	13	771 U	594 U	628 U	724 U	665 U
Tin	UG/KG	19100	92%	0	0	12	13	767 J	443 J	375 U	19100	4010
Titanium	UG/KG	381000	100%	0	0	13	13	70100 J	19300 J	381000 J	164000 J	72000 J
Uranium	UG/KG	573	8%	0	0	1	13	613 UJ	472 UJ	499 UJ	575 UJ	529 UJ
Vanadium	UG/KG	36400	100%	150000	0	13	13	26100	8460	36400	18200	14700
Zinc	UG/KG	752000	100%	126000	4	13	13	**151000**	30600	56600	**752000**	**325000**

(1) Criteria Level is NYSDEC's TAGM #4046

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 SS301-09 SOIL 21009 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-20 SOIL 21020 0 0.17 4/17/2003 SA BLDG 301 1	SEAD-2 SS301-21 SOIL 21021 0 0 4/17/2003 SA BLDG 301 1
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)
1,1,1-Trichloroethane	UG/KG	0	0%	800	0	0	12	0.91 U	0.82 U	1.4 U
1,1,2,2-Tetrachloroethane	UG/KG	0	0%	600	0	0	12	0.91 U	0.82 U	1.4 UJ
1,1,2-Trichloroethane	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
1,1-Dichloroethane	UG/KG	0	0%	200	0	0	12	0.91 U	0.82 U	1.4 U
1,1-Dichloroethene	UG/KG	7.6	42%	400	0	5	12	4.6	4.9	7.6
1,2-Dichloroethane	UG/KG	0	0%	100	0	0	12	0.91 U	0.82 U	1.4 U
1,2-Dichloropropane	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
Acetone	UG/KG	20.9	33%	200	0	4	12	8.4 J	6.5 J	6.8 U
Benzene	UG/KG	0	0%	60	0	0	12	0.91 U	0.82 U	1.4 U
Bromodichloromethane	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
Bromoform	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 UJ
Carbon disulfide	UG/KG	0	0%	2700	0	0	12	4.6 U	4.1 U	6.8 U
Carbon tetrachloride	UG/KG	0	0%	600	0	0	12	0.91 U	0.82 U	1.4 U
Chlorobenzene	UG/KG	0	0%	1700	0	0	12	0.91 U	0.82 U	1.4 U
Chlorodibromomethane	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
Chloroethane	UG/KG	0	0%	1900	0	0	12	0.91 U	0.82 U	1.4 U
Chloroform	UG/KG	0	0%	300	0	0	12	0.91 U	0.82 U	1.4 U
Cis-1,2-Dichloroethene	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
Cis-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
Ethyl benzene	UG/KG	0	0%	5500	0	0	12	0.91 U	0.82 U	1.4 U
Methyl bromide	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
Methyl butyl ketone	UG/KG	0	0%		0	0	12	4.6 U	4.1 U	6.8 U
Methyl chloride	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
Methyl ethyl ketone	UG/KG	17	8%	300	0	1	12	4.6 U	4.1 U	6.8 U
Methyl isobutyl ketone	UG/KG	0	0%	1000	0	0	12	4.6 U	4.1 U	6.8 U
Methylene chloride	UG/KG	0	0%	100	0	0	12	4.6 U	4.1 U	6.8 U
Styrene	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
Tetrachloroethene	UG/KG	0	0%	1400	0	0	12	0.91 U	0.82 U	1.4 U
Toluene	UG/KG	0.76	50%	1500	0	6	12	0.43 J	0.73 J	0.76 J
Total Xylenes	UG/KG	0	0%	1200	0	0	12	0.91 U	0.82 U	1.4 U
Trans-1,2-Dichloroethene	UG/KG	0	0%	300	0	0	12	0.91 U	0.82 U	1.4 U
Trans-1,3-Dichloropropene	UG/KG	0	0%		0	0	12	0.91 U	0.82 U	1.4 U
Trichloroethene	UG/KG	0	0%	700	0	0	12	0.91 U	0.82 U	1.4 U
Vinyl acetate	UG/KG	0	0%		0	0	12	4.6 U	4.1 U	6.8 U
Vinyl chloride	UG/KG	0	0%	200	0	0	12	0.91 U	0.82 U	1.4 U
1,1'-Biphenyl	UG/KG	2900	50%		0	6	12	57.5 UJ	355 U	689 J
1,2,4-Trichlorobenzene	UG/KG	0	0%	3400	0	0	12	3530 UJ	355 U	3560 UJ
1,2-Dichlorobenzene	UG/KG	0	0%	7900	0	0	12	3530 UJ	355 U	3560 UJ

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 SS301-09 SOIL 21009 0 0.17 4/17/2003 SA BLDG 301 1		SEAD-2 SS301-20 SOIL 21020 0 0.17 4/17/2003 SA BLDG 301 1		SEAD-2 SS301-21 SOIL 21021 0 0 4/17/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)
1,3-Dichlorobenzene	UG/KG	0	0%	1600	0	0	12	3530	UJ	355	U	3560	UJ
1,4-Dichlorobenzene	UG/KG	0	0%	8500	0	0	12	3530	UJ	355	U	3560	UJ
2,4,5-Trichlorophenol	UG/KG	0	0%	100	0	0	12	3530	UJ	355	U	3560	UJ
2,4,6-Trichlorophenol	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
2,4-Dichlorophenol	UG/KG	0	0%	400	0	0	12	3530	UJ	355	U	3560	UJ
2,4-Dimethylphenol	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
2,4-Dinitrophenol	UG/KG	0	0%	200	0	0	12	7070	UJ	710	U	7120	UJ
2,4-Dinitrotoluene	UG/KG	35700	33%		0	4	12	3530	UJ	355	U	4650	J
2,6-Dinitrotoluene	UG/KG	951	8%	1000	0	1	12	3530	UJ	355	U	3560	UJ
2-Chloronaphthalene	UG/KG	0	0%		0	0	12	353	UJ	35.5	U	356	UJ
2-Chlorophenol	UG/KG	0	0%	800	0	0	12	3530	UJ	355	U	3560	UJ
2-Methylnaphthalene	UG/KG	15200	92%	36400	0	11	12	260	J	94.4		3360	J
2-Methylphenol	UG/KG	0	0%	100	0	0	12	3530	UJ	355	U	3560	UJ
2-Nitroaniline	UG/KG	0	0%	430	0	0	12	3530	UJ	355	U	3560	UJ
2-Nitrophenol	UG/KG	0	0%	330	0	0	12	3530	UJ	355	U	3560	UJ
3 or 4-Methylphenol	UG/KG	464	8%		0	1	12	3530	UJ	355	U	464	J
3,3'-Dichlorobenzidine	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
3-Nitroaniline	UG/KG	0	0%	500	0	0	12	3530	UJ	355	U	3560	UJ
4,6-Dinitro-2-methylphenol	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
4-Bromophenyl phenyl ether	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
4-Chloro-3-methylphenol	UG/KG	0	0%	240	0	0	12	3530	UJ	355	U	3560	UJ
4-Chloroaniline	UG/KG	0	0%	220	0	0	12	3530	UJ	355	U	3560	UJ
4-Chlorophenyl phenyl ether	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
4-Nitroaniline	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
4-Nitrophenol	UG/KG	0	0%	100	0	0	12	3530	UJ	355	U	3560	UJ
Acenaphthene	UG/KG	18200	100%	50000	0	12	12	424	J	79.2		4320	J
Acenaphthylene	UG/KG	2410	83%	41000	0	10	12	323	J	403		1900	J
Anthracene	UG/KG	33900	100%	50000	0	12	12	1160	J	320		8180	J
Atrazine	UG/KG	0	0%		0	0	12	3530	R	355	R	3560	R
Benzaldehyde	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
Benzo(a)anthracene	UG/KG	66600	100%	224	12	12	12	**3300**	J	**2660**		**19400**	J
Benzo(a)pyrene	UG/KG	56900	100%	61	12	12	12	**3240**	J	**2100**	J	**19600**	J
Benzo(b)fluoranthene	UG/KG	102000	100%	1100	12	12	12	**4050**	J	**3210**	J	**22700**	J
Benzo(ghi)perylene	UG/KG	25100	100%	50000	0	12	12	2220	J	1150	J	7440	J
Benzo(k)fluoranthene	UG/KG	11700	58%	1100	7	7	12	**1540**	J	35.5	UJ	**11200**	J
Bis(2-Chloroethoxy)methane	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
Bis(2-Chloroethyl)ether	UG/KG	0	0%		0	0	12	3530	UJ	355	UJ	3560	UJ
Bis(2-Chloroisopropyl)ether	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2 SS301-09 SOIL 21009 0 0.17 4/17/2003 SA BLDG 301 1		SEAD-2 SS301-20 SOIL 21020 0 0.17 4/17/2003 SA BLDG 301 1		SEAD-2 SS301-21 SOIL 21021 0 0 4/17/2003 SA BLDG 301 1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Criteria Level [(1)]**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)
Bis(2-Ethylhexyl)phthalate	UG/KG	0	0%	50000	0	0	12	3530	UJ	355	UJ	3560	UJ
Butylbenzylphthalate	UG/KG	0	0%	50000	0	0	12	3530	UJ	355	U	3560	UJ
Carbazole	UG/KG	28200	83%		0	10	12	640	J	355	U	6070	J
Chrysene	UG/KG	67700	100%	400	12	12	12	**4150**	J	**2620**		**20000**	J
Di-n-butylphthalate	UG/KG	1780	25%	8100	0	3	12	419	J	329	J	3560	UJ
Di-n-octylphthalate	UG/KG	0	0%	50000	0	0	12	3530	UJ	355	U	3560	UJ
Dibenz(a,h)anthracene	UG/KG	19900	25%	14	3	3	12	353	UJ	35.5	UJ	356	UJ
Dibenzofuran	UG/KG	22100	100%	6200	2	12	12	468	J	46.3	J	5000	J
Diethyl phthalate	UG/KG	0	0%	7100	0	0	12	3530	UJ	355	U	3560	UJ
Dimethylphthalate	UG/KG	0	0%	2000	0	0	12	3530	UJ	355	U	3560	UJ
Diphenylamine	UG/KG	3150	25%		0	3	12	3530	UJ	119	J	3560	UJ
Fluoranthene	UG/KG	151000	100%	50000	3	12	12	6980	J	2490		34500	J
Fluorene	UG/KG	19200	100%	50000	0	12	12	728	J	174		5100	J
Hexachlorobenzene	UG/KG	0	0%	410	0	0	12	3530	UJ	355	U	3560	UJ
Hexachlorobutadiene	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
Hexachlorocyclopentadiene	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
Hexachloroethane	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
Indeno(1,2,3-cd)pyrene	UG/KG	24900	100%	3200	7	12	12	1730	J	864		**7020**	J
Isophorone	UG/KG	0	0%	4400	0	0	12	3530	UJ	355	U	3560	UJ
N-Nitrosodipropylamine	UG/KG	0	0%		0	0	12	3530	UJ	355	U	3560	UJ
Naphthalene	UG/KG	33900	67%	13000	1	8	12	353	UJ	106		10100	J
Nitrobenzene	UG/KG	0	0%	200	0	0	12	3530	UJ	355	U	3560	UJ
Pentachlorophenol	UG/KG	0	0%	1000	0	0	12	3530	UJ	355	U	3560	UJ
Phenanthrene	UG/KG	159000	100%	50000	2	12	12	5240	J	1050		34100	J
Phenol	UG/KG	1680	25%	30	3	3	12	3530	UJ	355	U	**372**	J
Pyrene	UG/KG	148000	100%	50000	3	12	12	8150	J	5350		39000	J
alpha-Terpineol	UG/KG	0	0%		0	0	12	3530	UJ	355	UJ	3560	U
Aroclor-1016	UG/KG	0	0%		0	0	12	35.3	U	35.5	U	35.6	U
Aroclor-1221	UG/KG	0	0%		0	0	12	35.3	U	35.5	U	35.6	U
Aroclor-1232	UG/KG	0	0%		0	0	12	35.3	U	35.5	U	35.6	U
Aroclor-1242	UG/KG	0	0%		0	0	12	35.3	U	35.5	U	35.6	U
Aroclor-1248	UG/KG	0	0%		0	0	12	35.3	U	35.5	U	35.6	U
Aroclor-1254	UG/KG	120	17%	10000	0	2	12	35.3	U	35.5	U	35.6	U
Aroclor-1260	UG/KG	0	0%	10000	0	0	12	35.3	U	35.5	U	35.6	U
Aroclor-1262	UG/KG	0	0%		0	0	12	35.3	U	35.5	U	35.6	U
Aroclor-1268	UG/KG	0	0%		0	0	12	35.3	U	35.5	U	35.6	U
Aluminum	UG/KG	16800000	100%	20500000	0	13	13	5080000		5400000		3710000	
Antimony	UG/KG	4940	77%	6550	0	10	13	1770	J	1050	J	1110	J

Appendix D Table 7
Building 301 (SEAD 2) Exterior Soil Sample Results

Record of Decision - Five former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

								SEAD-2		SEAD-2		SEAD-2	
								SS301-09		SS301-20		SS301-21	
								SOIL		SOIL		SOIL	
								21009		21020		21021	
								0		0		0	
								0.17		0.17		0	
								4/17/2003		4/17/2003		4/17/2003	
								SA		SA		SA	
								BLDG 301		BLDG 301		BLDG 301	
		Maximum	Frequency of	Criteria	Number of	Number of Times	Number of Samples	1		1		1	
Parameter	**Units**	**Value**	**Detection**	**Level [(1)]**	**Exceedances**	**Detected**	**Collected**	Value	(Q)	Value	(Q)	Value	(Q)
Arsenic	UG/KG	17600	100%	21500	0	13	13	3350		3470		2740	
Barium	UG/KG	162000	100%	300000	0	13	13	30200	J	54000	J	35100	J
Beryllium	UG/KG	845	100%	1400	0	13	13	301		316		224	
Boron	UG/KG	13800	100%	0	0	13	13	13100	J	13700	J	10200	J
Cadmium	UG/KG	4200	92%	2900	3	12	13	470		**4200**		251	J
Calcium	UG/KG	221000000	100%	293000000	0	13	13	126000000		123000000		128000000	
Chromium	UG/KG	52800	100%	32700	3	13	13	11900		17400		12700	
Cobalt	UG/KG	10500	100%	30000	0	13	13	4110		4760		3630	
Copper	UG/KG	86400	100%	62800	1	13	13	14100		16900		10700	
Iron	UG/KG	26300000	100%	38600000	0	13	13	7850000	J	8550000	J	6780000	J
Lead	UG/KG	1570000	100%	400000	1	13	13	62800		77600		141000	
Magnesium	UG/KG	56100000	100%	29100000	8	13	13	**36700000**		**53900000**		**38200000**	
Manganese	UG/KG	522000	100%	2380000	0	13	13	295000	J	288000	J	255000	J
Mercury	UG/KG	87.4	100%	130	0	13	13	17.1		24.9		18.6	
Molybdenum	UG/KG	3860	62%	0	0	8	13	189	J	204	J	241	J
Nickel	UG/KG	55200	100%	62300	0	13	13	12100		11800		11400	
Phosphorous	UG/KG	1380000	100%	0	0	13	13	421000		1380000		387000	
Potassium	UG/KG	2490000	100%	3160000	0	13	13	1730000	J	1890000	J	1200000	J
Selenium	UG/KG	1400	62%	2000	0	8	13	414	J	407	U	556	
Silica	UG/KG	1650000	100%	0	0	13	13	832000	J	1500000	J	1370000	J
Silicon	UG/KG	771000	100%	0	0	13	13	389000	J	703000	J	639000	J
Silver	UG/KG	465	8%	870	0	1	13	243	U	242	U	247	U
Sodium	UG/KG	162000	100%	2690000	0	13	13	136000		129000		115000	
Strontium	UG/KG	250000	100%	0	0	13	13	114000		84100		105000	
Sulfur	UG/KG	1680000	100%	0	0	13	13	619000	J	430000	J	828000	J
Thallium	UG/KG	0	0%	1200	0	0	13	610	U	607	U	620	U
Tin	UG/KG	19100	92%	0	0	12	13	858	J	909	J	694	J
Titanium	UG/KG	381000	100%	0	0	13	13	79100	J	101000	J	43800	J
Uranium	UG/KG	573	8%	0	0	1	13	485	UJ	482	UJ	493	UJ
Vanadium	UG/KG	36400	100%	150000	0	13	13	20500		17500		17900	
Zinc	UG/KG	752000	100%	126000	4	13	13	76400		88000		57100	

(1) Criteria Level is NYSDEC's TAGM #4046

Appendix D Table 8a
SEAD 5 Final Excavation Confirmation Soil Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1] (mg/kg)	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil)	SEAD5-PX-SS-003-FS2		SEAD5-PX-SS-004FS		SEAD5-PX-SS-005FS		SEAD5-PX-SS-005-FS1		SEAD5-PX-SS-005-FS2		SEAD5-PX-SS-008-FS2		SEAD5-PX-SS-009FS		SEAD5-FX-SS-011FS		SEAD5-FX-SS-012FS		SEAD5-PX-SS-016FS		SEAD5-PX-SS-019FS		SEAD5-PX-SS-020-FS2		SEAD5-PX-SS-021-FS2		SEAD5-PX-SS-024FS	
Sampling Depth			0" - 6"		0- 6"		0- 6"		6" -12"		0" - 6"		0" - 6"		0- 6"		0- 6"		0- 6"		0- 6"		0- 6"		0" - 6"		0" - 6"		0- 6"	
Sampling Date			10/2/2003		8/14/2003		8/14/2003		10/2/2003		10/2/2003		10/2/2003		8/14/2003		8/14/2003		8/14/2003		8/15/2003		8/15/2003		10/2/2003		10/2/2003		8/15/2003	
Matrix			Soil		Solid		Solid		Soil		Soil		Soil		Solid		Solid		Solid		Solid		Solid		Soil		Soil		Solid	
Polyaromatic Hydrocarbons (ug/Kg - dry)																														
Naphthalene	13,000	190,000	290	U	320	U	290	U	320	U	300	U	290	U	270	U	260	U	280	U	300	U	290	U	320	U	340	U	280	
2-Methylnaphthalene	36400	NA	290	U	320	U	290	U	320	U	300	U	290	U	270	U	260	U	280	U	300	U	290	U	320	U	340	U	280	
Acenaphthylene	41,000	NA	290	U	320	U	290	U	320	U	300	U	83	J	270	U	130	J	110	J	300	U	290	U	320	U	150	J	280	
Acenaphthene	50,000	29,000,000	290	U	320	U	290	U	320	U	300	U	290	U	270	U	110	J	81	J	300	U	290	U	320	U	340	U	280	
Fluorene	50,000	26,000,000	290	U	320	U	290	U	320	U	300	U	290	U	270	U	130	J	180	J	300	U	290	U	320	U	340	U	280	
Phenanthrene	50,000	NA	290	U	320	U	290	U	320	U	100	J	420		340		1800		2500		69	J	290	U	110	J	810		280	
Anthracene	50,000	100,000,000	290	U	320	U	290	U	320	U	300	U	130	J	98	J	440		650		300	U	290	U	320	U	170	J	280	
Fluoranthene	50,000	22,000,000	61	J	150	J	290	U	320	U	170	J	790		610		2700		2800		140	J	290	U	250	J	2000		280	
Pyrene	50,000	29,000,000	290	U	140	J	290	U	320	U	170	J	790		520		2300		2400		140	J	290	U	250	J	1800		280	
Benz(a)anthracene	224	2,100	290	U	100	J	290	U	320	U	79	J	430		310		1200		1200		89	J	290	U	140	J	1000		280	
Chrysene	400	210,000	290	U	110	J	290	U	320	U	83	J	420		300		1200		1100		84	J	290	U	140	J	1000		280	
Benzo(b)fluoranthene	1,100	2,100	290	U	120	J	290	U	320	U	96	J	630		380		1400		1300		86	J	290	U	170	J	1300		280	
Benzo(k)fluoranthene	1,100	21,000	290	U	320	U	290	U	320	U	300	U	220	J	140	J	510		420		300	U	290	U	63	J	530		280	
Benzo(a)pyrene	61	210	290	U	94	J	290	U	320	U	67	J	410		300		1100		1000		86	J	290	U	130	J	980		280	
Dibenzo(a,h)anthracene	14	210	290	U	320	U	290	U	320	U	300	U	290	U	270	U	170	J	180	J	300	U	290	U	320	U	150	J	280	
Indeo(1,2,3-cd)pyrene	3,200	2,100	290	U	320	U	290	U	320	U	300	U	290		230	J	760		730		300	U	290	U	81	J	650		280	
Benzo(g,h,i)perylene	50,000	NA	290	U	72	J	290	U	320	U	300	U	250	J	180	J	680		580		300	U	290	U	86	J	590		280	
[2]Benzo(a)pyrene TEQ	10,000	NA	672.8		472.3		672.8		742.4		418.33		841.4		666.4		1623.1		1518.2		437.34		672.8		491.13		1440.3		649.6	
ICP Metals (mg/Kg - dry)																														
Arsenic	8.24	1.6	3.9	J	4.6	J	5	J	3	J	2.4	J	2.9	J	4.7	J	4.4	J	3.7	J	3.8	J	5.8	J	8.3		9.2		4.8	
Barium	300	67,000	72		92		120		130		110		74		64		53		72		71		110		100		93		120	
Cadmium	2.3	450	0.71	U	0.3	J	0.3	J	0.19	J	0.19	J	0.22	J	0.29	J	0.19	J	0.56	J	0.23	J	0.71	U	0.32	J	0.32	J	0.19	
Chromium	29	450	20		16		18		19		18		17		19		19		20		16		21		18		19		18	
Copper	29.6	41,000	22		NA		NA		21		26		32		NA		NA		NA		NA		NA		21		27		NA	
Lead	400	800	29		26		24		21		39		30		27		52		41		22		15		37		40		15	
Selenium	2	5,100	0.71	U	0.38	J	0.36	J	0.4	J	0.75	U	0.71	U	0.44	J	0.45	J	0.7	U	0.73	U	0.71	U	0.76	U	0.79	U	0.72	
Silver	0.763	5,100	0.35	J	2.2	U	2	U	2.2	U	2.1	U	0.89	J	1.9	U	1.8	U	2	U	2.1	U	2	U	2.1	U	0.52	J	2	
Zinc	108.9	100,000	79		NA		NA		70		73		81		NA		NA		NA		NA		NA		88		80		NA	
Mercury (mg/Kg - dry)																														
Mercury	0.13	310	0.048	J	0.076		0.11		0.071		0.096		0.081		0.067		0.037	J	0.045	J	0.074		0.048	J	0.068		0.078		0.068	

Appendix D Table 8a
SEAD 5 Final Excavation Confirmation Soil Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1] (mg/kg)	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil)		SEAD5-FX-SS-026FS		SEAD5-PX-SS-032FS		SEAD5-PX-SS-038-FS2		SEAD5-PX-SS-039-FS1		SEAD5-PX-SS-039-FS2		SEAD5-FX-SS-039-FS		SEAD5-FX-SS-040-FS		SEAD5-FX-SS-041-FS		SEAD5-FX-SS-042-FS		SEAD5-FX-SS-043-FS		SEAD5-FX-SS-044-FS		SEAD5-PX-SS-044-FS		SEAD5-FX-SS-045-FS		SEAD5-PX-SS-045-FS		SEAD5-FX-SS-047-FS		SEAD5-FX-SS-048-FS	
Sampling Depth				0- 6"		0- 6"		0" - 6"		6" -12"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0- 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"	
Sampling Date				8/15/2003		8/20/2003		10/3/2003		10/3/2003		10/3/2003		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005	
Matrix				Solid		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																																			
Naphthalene	13,000	190,000	U	290	U	250	U	280	U	300	U	270	U	97	J	170	J	91	J	66	J	76	J	380		370	U	270	U	180	J	70	J	82	
2-Methylnaphthalene	36400	NA	U	290	U	250	U	280	U	300	U	270	U	320	U	60	J	280	U	280	U	280	U	110	J	370	U	270	U	210	J	270	U	290	
Acenaphthylene	41,000	NA	U	290	U	250	U	280	U	300	U	270	U	320	U	190	J	110	J	280	U	280	U	110	J	370	U	270	U	380	U	270	U	290	
Acenaphthene	50,000	29,000,000	U	290	U	250	U	280	U	300	U	270	U	320	U	170	J	280	U	66	J	280	U	670		370	U	270	U	1300		270	U	290	
Fluorene	50,000	26,000,000	U	290	U	250	U	280	U	300	U	270	U	320	U	340		60	J	64	J	280	U	520		370	U	270	U	1900		270	U	290	
Phenanthrene	50,000	NA	U	290	U	100	J	500		200	J	85	J	510		5600		700		500		210	J	4900		75	J	270	U	27000		270	U	510	
Anthracene	50,000	100,000,000	U	290	U	250	U	110	J	100	J	270	U	120	J	1500		220	J	160	J	63	J	1100		370	U	270	U	7800		270	U	170	
Fluoranthene	50,000	22,000,000	U	290	U	120	J	970		400		160	J	950		7700		1300		750		400		5800		180	J	270	U	37000		270	U	1100	
Pyrene	50,000	29,000,000	U	290	U	100	J	790		380		150	J	960		7000		1300		730		380		5600		170	J	270	U	32000		270	U	1000	
Benz(a)anthracene	224	2,100	U	290	U	56	J	430		220	J	92	J	550		3700		850		470		230	J	3200		120	J	270	U	20000		270	U	600	
Chrysene	400	210,000	U	290	U	96	J	450		320		110	J	510		3000		680		370		230	J	2700		110	J	270	U	14000		270	U	610	
Benzo(b)fluoranthene	1,100	2,100	U	290	U	86	J	540		450		140	J	540		3800		810		450		310		3300		130	J	270	U	14000		270	U	730	
Benzo(k)fluoranthene	1,100	21,000	U	290	U	250	U	200	J	160	J	270	U	190	J	1000		290		170	J	92	J	1000		370	U	270	U	3300		270	U	220	
Benzo(a)pyrene	61	210	U	290	U	250	U	360		240	J	96	J	370		2700		610		340		210	J	2500		88	J	270	U	8700		270	U	520	
Dibenzo(a,h)anthracene	14	210	U	290	U	250	U	60	J	300	U	270	U	68	J	440		110	J	60	J	280	U	410		370	U	270	U	1200		270	U	290	
Indeo(1,2,3-cd)pyrene	3,200	2,100	U	290	U	250	U	260	J	180	J	60	J	250	J	2000		470		260	J	170	J	1800		370	U	270	U	3700		270	U	370	
Benzo(g,h,i)perylene	50,000	NA	U	290	U	250	U	210	J	190	J	55	J	230	J	1600		420		230	J	150	J	1500		370	U	270	U	3000		270	U	310	
[2]Benzo(a)pyrene TEQ	10,000	NA		672.8		542.66		549.5		629.8		399		579		4130		942.7		523.4		564.22		3777		524.8		626.4		13843		626.4		988.3	
ICP Metals (mg/Kg - dry)																																			
Arsenic	8.24	1.6	J	5.4	J	64	U	9.4		9		6.3	J	13.3		7.57		10.8		14.1		10.9		9.32		12.1		11.6		15.4		6.47	J	4.75	
Barium	300	67,000		110		45	J	69		56		24	J	72.3		35.3		70.5		83.7		65		64.2		101		77.3		89.5		58.9		36.4	
Cadmium	2.3	450	J	0.73	U	6.4	U	0.26	J	0.3	J	0.17	J	0.07	J	0.676	U	0.664	U	0.663	U	0.0713	J	0.195	J	0.285	J	0.686	U	0.197	J	0.0758	J	0.202	
Chromium	29	450		19		8.2	J	15		29		9.3		21.9		12.9		19.5		23		10.8		10.7		20		22.6		24.9		17.5		10.8	
Copper	29.6	41,000		NA		27	J	26		30		13		28.3		24.7		36.6		24.8		16.8		17.6		31		32.7		25.9		24		15.1	
Lead	400	800		11		24	J	23		96		27		58.3		37.5		52		22.3		15.5		78.4		61.6		30.9		76.6		24.8		17.6	
Selenium	2	5,100	U	0.73	U	0.64	U	0.69	U	0.73	U	0.63	U	17	J	13.4	J	13.8	J	15.9		8.53	J	16.4	U	18.7	J	21.4		16.8	J	16.7		15.6	
Silver	0.763	5,100	U	2	U	18	U	1.9	U	0.37	J	1.8	U	0.237	J	1.89	U	1.86	U	0.248	J	0.257	J	1.91	U	0.334	J	0.275	J	0.521	J	1.91	U	0.232	
Zinc	108.9	100,000		NA		99		71		84		34		66.2		47.8		109		81.1		35.7		42.8		82.3		81.5		91.8		50.3		47.4	
Mercury (mg/Kg - dry)																																			
Mercury	0.13	310		0.043	J	0.041	J	0.088		0.12		0.0079	J	0.036	J	0.0316	J	0.0409	J	0.058		0.0913		0.0576		0.0776		0.0307		0.0738		0.0783		0.0829	

Appendix D Table 8a
SEAD 5 Final Excavation Confirmation Soil Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1] (mg/kg)	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil)	SEAD5-FX-SS-049-FS		SEAD5-FX-SS-050-FS		SEAD5-PX-SS-050-FS		SEAD5-FX-SS-051-FS		SEAD5-PX-SS-051-FS		SEAD5-FX-SS-053-FS		SEAD5-PX-SS-053-FS		SEAD5-FX-SS-054-FS		SEAD5-FX-SS-054-DP		SEAD5-PX-SS-054-FS		SEAD5-PX-SS-055-FS		SEAD5-FX-SS-055-FS		SEAD5-FX-SS-056-FS		SEAD5-FX-SS-057-FS		SEAD5-PX-SS-057-FS		SEAD5-FX-SS-058-FS	
Sampling Depth			0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"	
Sampling Date			2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005	
Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																																		
Naphthalene	13,000	190,000	J	77	J	100	J	110	J	78	J	81	J	310	U	64 J		89	J	69	J	130	J	94	J	82	J	310	U	330	U	81	J	64	J
2-Methylnaphthalene	36400	NA	U	300	U	300	U	130	J	320	U	80	J	310	U	290	U	330	U	330	U	270	U	290	U	310	U	310	U	330	U	300	U	320	U
Acenaphthylene	41,000	NA	U	300	U	240	J	280	U	320	U	300	U	310	U	290	U	330	U	330	U	200	J	290	J	310	U	310	U	330	U	300	U	320	U
Acenaphthene	50,000	29,000,000	U	300	U	300	U	280	U	320	U	300	U	310	U	290	U	330	U	330	U	100	J	57	J	310	U	310	U	330	U	300	U	320	U
Fluorene	50,000	26,000,000	U	300	U	120	J	280	U	320	U	300	U	310	U	290	U	330	U	330	U	130	J	290	U	310	U	310	U	330	U	300	U	320	U
Phenanthrene	50,000	NA		180	J	2000		130	J	180	J	840		310	U	260	J	330	U	330	U	1600		1100		310	U	310	U	330	U	300	U	320	U
Anthracene	50,000	100,000,000	J	300	U	580		280	U	320	U	250	J	310	U	81	J	330	U	330	U	510		340		310	U	310	U	330	U	300	U	320	U
Fluoranthene	50,000	22,000,000		470		4100		170	J	290	J	2700		240	J	620		330	U	330	U	2500		3100		310	U	310	U	330	U	75	J	320	U
Pyrene	50,000	29,000,000		430		4000		210	J	250	J	2700		240	J	580		330	U	330	U	2600		3100		310	U	310	U	330	U	83	J	320	U
Benz(a)anthracene	224	2,100		180	J	2100		140	J	160	J	1600		200	J	330		330	U	330	U	1500		1700		310	U	310	U	330	U	300	U	320	U
Chrysene	400	210,000		260	J	2100		150	J	110	J	1300		160	J	320		330	U	330	U	1400		1700		310	U	310	U	330	U	300	U	320	U
Benzo(b)fluoranthene	1,100	2,100		310		2400		240	J	160	J	1600		210	J	400		330	U	330	U	1900		2300		310	U	310	U	330	U	70	J	320	U
Benzo(k)fluoranthene	1,100	21,000	J	130	J	820		280	U	320	U	400		74	J	160	J	330	U	330	U	450		630		310	U	310	U	330	U	300	U	320	U
Benzo(a)pyrene	61	210		210	J	1800		150	J	110	J	1100		160	J	290		330	U	330	U	1400		1600		310	U	310	U	330	U	300	U	320	U
Dibenzo(a,h)anthracene	14	210	U	300	U	89	J	280	U	320	U	150	J	310	U	290	U	330	U	330	U	250	J	270	J	310	U	310	U	330	U	300	U	320	U
Indeo(1,2,3-cd)pyrene	3,200	2,100		190	J	1300		120	J	82	J	660		130	J	230	J	330	U	330	U	1100		1300		310	U	310	U	330	U	300	U	320	U
Benzo(g,h,i)perylene	50,000	NA		160	J	1100		110	J	74	J	580		100	J	210	J	330	U	330	U	940		1100		310	U	310	U	330	U	300	U	320	U
[2]Benzo(a)pyrene TEQ	10,000	NA		581.9		2498.2		484.3		474.5		1653		526.34		680.8		765.6		766		2,119		2423.3		719		719.2		765.6		673		742.4	
ICP Metals (mg/Kg - dry)																																		
Arsenic	8.24	1.6	J	8.73		10.4		10.8		9.35		14.7		9.54		12.7		11.6		8.44		11.4		12.2		11.4		6.93	J	6.95	J	15.3		8.75	
Barium	300	67,000		54.7		49.6		24.5	J	147		129		156		91		113		124		75.5		81.2		125		76.7		71.2		105		126	
Cadmium	2.3	450	J	0.0747	J	0.139	J	0.161	J	0.229	J	0.774	U	0.224	J	0.0679	J	0.131	J	0.849	U	0.161	J	0.321	J	0.167	J	0.726	U	0.036	J	0.0605	J	0.81	U
Chromium	29	450		17.3		19.2		6.22		22.9		29.5		18.4		26.1		19.5		26.5		20		17.3		24.3		18.7		20.6		20.3		23.6	
Copper	29.6	41,000		16.8		22.9		20.4		21.3		31.4		22.2		25.1		15.6		12.5		23.3		29.4		14.4		14.2		24.1		27.5		15.2	
Lead	400	800		17.7		949		14		19.8		27.7		68.9		32.4		24.3		15.4		102		58.7		22.4		9.99		19.3		17.7		14.8	
Selenium	2	5,100	J	18.1	J	20.5		16.9	U	12.8	J	17.7	J	18.6		7.74	J	20.6		17.5	J	11.1	J	15.2	J	11		11.7	J	11.7	J	14.9	J	6.91	J
Silver	0.763	5,100	J	2.12	U	2.17	U	0.338	J	2.09	U	0.352	J	2.15	U	0.758	J	2.31	U	2.38	U	0.188	J	0.315	J	2.21	U	2.03	U	2.21	U	0.228	J	2.27	U
Zinc	108.9	100,000		64.5		65.3		34.5		104		101		85.6		97.4		102		98.3		76.5		88.5		95.5		91.9		73.5		85.6		101	
Mercury (mg/Kg - dry)																																		
Mercury	0.13	310		0.0875		0.0987		0.0618		0.069		0.111		0.0485	J	0.0683		0.0581	J	0.0581	J	0.031		0.0648		0.0581	J	0.026	J	0.0578	J	0.0389	J	0.0558	J

Appendix D Table 8a
SEAD 5 Final Excavation Confirmation Soil Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1] (mg/kg)	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil)	SEAD5-PX-SS-058-FS		SEAD5-FX-SS-059-FS		SEAD5-PX-SS-059-FS		SEAD5-FX-SS-060-FS		SEAD5-PX-SS-060-FS		SEAD5-FX-SS-61-FS		SEAD5-PX-SS-061-FS		SEAD5-FX-SS-62-FS		SEAD5-FX-SS-62-DUP		SEAD5-PX-SS-062-FS		SEAD5-FX-SS-63-FS		SEAD5-FX-SS-63-FS2		SEAD5-FX-SS-63-FS3		SEAD5-PX-SS-063-FS		SEAD5-FX-SS-64-FS		SEAD5-PX-SS-064-FS		SEAD5-FX-SS-65-FS	
Sampling Depth			0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		6" - 12"		12" - 18"		0" - 6"		0" - 6"		0" - 6"		0" - 6"	
Sampling Date			2/10/2005		2/10/2005		2/10/2005		2/10/2005		2/10/2005		5/18/2005		2/10/2005		5/18/2005		5/18/2005		2/10/2005		5/18/2005		7/21/2005		7/21/2005		2/10/2005		5/18/2005		2/10/2005		5/18/2005	
Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																																				
Naphthalene	13,000	190,000	80	J	170	J	92	J	84	J	82	J	280	U	69	J	330	U	290	U	110	J	360	U	280	U	280	U	81	J	280	U	80	J	7000	
2-Methylnaphthalene	36400	NA	290	U	490		310	U	350	U	340	U	280	U	300	U	330	U	290	U	480	U	360	U	280	U	280	U	360	U	280	U	320	U	5300	
Acenaphthylene	41,000	NA	290	U	320	U	61	J	350	U	340	U	280	U	300	U	220	J	94	J	480	U	360	U	280	U	280	U	120	J	280	U	140	J	960	
Acenaphthene	50,000	29,000,000	290	U	320	U	310	U	350	U	340	U	280	U	300	U	330	U	290	U	480	U	360	U	280	U	280	U	360	U	280	U	320	U	30000	
Fluorene	50,000	26,000,000	290	U	320	U	310	U	350	U	340	U	280	U	300	U	330	U	290	U	480	U	360	U	280	U	280	U	360	U	280	U	320	U	37000	
Phenanthrene	50,000	NA	88	J	200	J	170	J	350	U	110	J	280	U	570		330	U	290	U	480	U	480		280	U	280	U	380		280	U	340		250000	
Anthracene	50,000	100,000,000	290	U	320	U	96	J	350	U	340	U	280	U	140	J	330	U	290	U	480	U	110	J	280	U	280	U	150	J	280	U	160	J	82000	
Fluoranthene	50,000	22,000,000	190	J	140	J	370		350	U	230	J	280	U	1200		330	U	290	U	480	U	690		280	U	280	U	1000		280	U	870		300000	
Pyrene	50,000	29,000,000	200	J	140	J	390		350	U	230	J	280	U	1100		330	U	290	U	480	U	570		280	U	280	U	1000		280	U	850		220000	
Benz(a)anthracene	224	2,100	110	J	88	J	250	J	350	U	140	J	280	U	580		330	U	290	U	480	U	360		280	U	280	U	620		280	U	570		140000	
Chrysene	400	210,000	130	J	100	J	280	J	350	U	150	J	280	U	600		330	U	290	U	480	U	350	J	280	U	280	U	560		280	U	490		110000	
Benzo(b)fluoranthene	1,100	2,100	150	J	140	J	380		350	U	180	J	280	U	620		330	U	290	U	480	U	250	J	280	U	280	U	740		280	U	680		140000	
Benzo(k)fluoranthene	1,100	21,000	290	U	320	U	130	J	350	U	70	J	280	U	230	J	330	U	290	U	480	U	360	U	280	U	280	U	240	J	280	U	220	J	17000	
Benzo(a)pyrene	61	210	90	J	71	J	230	J	350	U	110	J	280	U	440		330	U	290	U	480	U	360	U	280	U	280	U	540		280	U	520		110000	
Dibenzo(a,h)anthracene	14	210	290	U	320	U	310	U	350	U	340	U	280	U	79	J	330	U	290	U	480	U	360	U	280	U	280	U	89	J	280	U	87	J	9900	
Indeo(1,2,3-cd)pyrene	3,200	2,100	81	J	78	J	230	J	350	U	100	J	280	U	310		330	U	290	U	480	U	250	J	280	U	280	U	420		280	U	420		55000	
Benzo(g,h,i)perylene	50,000	NA	69	J	66	J	210	J	350	U	95	J	280	U	280	J	69	J	290	U	480	U	290	J	280	U	280	U	370		280	U	400		53000	
[2]Benzo(a)pyrene TEQ	10,000	NA	418.3		425.8		630.1		812		494.2		649.6		678.3		765.6		672.8		1113.6		813.1		649.6		649.6		815		649.6		781.1		154670	
ICP Metals (mg/Kg - dry)																																				
Arsenic	8.24	1.6	12.1		9.52		10.5		10.7		10.2		5.8	J	10.9		7.37	J	7.52		11.8		9.77		8.33		7.75		10.9		8.33		15.2		7.49	
Barium	300	67,000	38.1		73.1		50.6		241		48.9		37.6		80.1		73.8		72.5		79.1		86.5		156		147		115		71.2		116		226	
Cadmium	2.3	450	0.121	J	0.761	U	0.132	J	0.0479	J	0.1	J	0.655	U	0.0784	J	0.785	U	0.731	U	1.14	U	0.999		0.242	J	0.117	J	0.2	J	0.718	U	0.826	U	0.631	U
Chromium	29	450	14.5		31.6		17		44.3		17.7		8.95		16.8		18.1		18.9		22.1		24.9		15.9		14		19		20.6		31.2		58.9	
Copper	29.6	41,000	23		17.5		27.9		25.7		23.9		17.4		31.9		16.5		17.5		16.8		117		20		11.9		24.4		27.3		22.3		32.3	
Lead	400	800	41.2		54.1		48.6		34		31.1		6.43		48.7		13.4		10.4		20.1		66.1		236		39.2		42.5		14.4		35.9		29.8	
Selenium	2	5,100	12.4	J	13.3	J	16.3	J	15.8	J	18.5	J	5.6	J	11.9	J	3.93	J	5.22	J	27.3	U	11.9	J	2.45	J	4.16	J	7.62	J	5.79	J	11.8	J	3.44	J
Silver	0.763	5,100	0.278	J	2.13	U	0.316	J	2.34	U	2.35	U	1.84	U	2.16	U	2.2	U	2.05		0.455	J	8.12		1.07	J	0.976	J	0.295	J	2.01	U	0.436	J	1.77	U
Zinc	108.9	100,000	56.7		75.6		62.8		118		74.7		54.9		62.5		62		77.4		72.9		241		116		63		83.7		72.2		100		84.7	
Mercury (mg/Kg - dry)																																				
Mercury	0.13	310	0.0226	J	0.0892		0.0716		0.117		0.0344	J	0.0134	J	0.0407	J	0.0306	J	0.0322	J	0.053	J	3.14	J	0.0715		0.0639		0.0985		0.0385		0.0843		0.146	

Appendix D Table 8a
SEAD 5 Final Excavation Confirmation Soil Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1] (mg/kg)	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil)	SEAD5-FX-SS-65-FS2		SEAD5-FX-SS-65-FS3		SEAD5-PX-SS-065-FS		SEAD5-FX-SS-66-FS		SEAD5-PX-SS-066-FS		SEAD5-FX-SS-67-FS		SEAD5-FX-SS-68-FS		SEAD5-FX-SS-69-FS		SEAD5-PX-SS-70-FS		SEAD5-PX-SS-71-FS		SEAD5-PX-SS-72-FS		SEAD5-PX-SS-73-FS		SEAD5-PX-SS-74-FS		SEAD5-PX-SS-75-FS		SEAD5-PX-SS-75-FS2		SEAD5-PX-SS-75-FS3		SEAD5-PX-SS-76-FS	
Sampling Depth			6" - 12"		12" - 18"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		0" - 6"		6" - 12"		12" - 18"		0" - 6"	
Sampling Date			7/21/2005		7/21/2005		2/10/2005		5/18/2005		2/10/2005		5/18/2005		5/18/2005		5/18/2005		5/18/2005		5/18/2005		5/18/2005		5/18/2005		5/18/2005		5/18/2005		7/22/2005		7/22/2005		5/18/2005	
Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																																				
Naphthalene	13,000	190,000	280	U	290	U	77	J	310	U	91	J	270	U	290	U	310	U	270	J	76	J	1700		300	U	290	U	74	J	80	J	100	J	450	
2-Methylnaphthalene	36400	NA	280	U	290	U	320	U	310	U	320	U	270	U	290	U	310	U	640		59	J	1100		300	U	290	U	320	U	60	J	86	J	440	
Acenaphthylene	41,000	NA	280	U	290	U	130	J	310	U	320	U	100	J	75	J	310	U	840		400		1400		300	U	290	U	280	J	520		580		1900	
Acenaphthene	50,000	29,000,000	280	U	290	U	320	U	76	J	75	J	270	U	290	U	310	U	280	J	190	J	3300		300	U	290	U	170	J	240		340		2700	
Fluorene	50,000	26,000,000	280	U	290	U	320	U	100	J	84	J	270	U	290	U	310	U	380		240	J	6000		300	U	290	U	220	J	440		710		7000	
Phenanthrene	50,000	NA	280	U	290	U	330		140	J	640		190	J	380		310	U	2500		2100		54000		90	J	81	J	1900		5700		7800		74000	
Anthracene	50,000	100,000,000	280	U	290	U	140	J	310	U	200	J	64	J	99	J	310	U	1000		660		14000		300	U	290	U	570		1500		2200		19000	
Fluoranthene	50,000	22,000,000	280	U	290	U	740		310	U	800		390		790		92	J	3700		3500		70000		230	J	190	J	3200		8600		11000		92000	
Pyrene	50,000	29,000,000	280	U	290	U	760		310	U	760		340		640		72	J	3600		2900		51000		200	J	160	J	2500		7500		9500		68000	
Benz(a)anthracene	224	2,100	280	U	290	U	480		310	U	430		220	J	390		310	U	2000		1700		31000		130	J	110	J	1600		4300		5600		40000	
Chrysene	400	210,000	280	U	290	U	550		310	U	380		220	J	390		310	U	1900		1600		25000		130	J	120	J	1400		4000		5000		32000	
Benzo(b)fluoranthene	1,100	2,100	280	U	290	U	720		310	U	460		91	J	350		310	U	2900		2100		33000		300	U	290	U	2000		5500		6500		42000	
Benzo(k)fluoranthene	1,100	21,000	280	U	290	U	200	J	310	U	170	J	270	U	290	U	310	U	700		440		7400		300	U	290	U	460		1900		2300		14000	
Benzo(a)pyrene	61	210	280	U	290	U	500		310	U	330		270	U	150	J	310	U	2300		1500		25000		300	U	290	U	1300		4100		5000		32000	
Dibenzo(a,h)anthracene	14	210	280	U	290	U	92	J	310	U	320	U	270	U	82	J	310	U	470		340		4800		300	U	290	U	290		280		350		5600	
Indeo(1,2,3-cd)pyrene	3,200	2,100	280	U	290	U	390		310	U	260	J	150	J	280	J	310	U	1600		1100		15000		98	J	94	J	990		2600		2900		19000	
Benzo(g,h,i)perylene	50,000	NA	280	U	290	U	350		310	U	240	J	180	J	290		310	U	1900		1200		15000		110	J	92	J	1000		3300		3700		19000	
[2]Benzo(a)pyrene TEQ	10,000	NA	649.6		672.8		758.5		719.2		770.5		591		340.8		719.2		3446		2350.4		38024		657.1		633.5		2067.6		5679		6923		48160	
ICP Metals (mg/Kg - dry)																																				
Arsenic	8.24	1.6	6.93	J	9.2		15.3		8.23		19.5		6.63		7.94		7.99		7.2		8.01		6.1	J	6.94	J	8.16		9.5		9.74		7.98		5.81	J
Barium	300	67,000	113		110		119		162		161		51		69.2		119		97.4		86.6		57.5		36.1		189		119		86.4		66.1		61.1	
Cadmium	2.3	450	0.0981	J	0.18	J	0.801	U	0.791	U	0.112	J	0.622	U	0.179	J	0.0273	J	0.679	U	0.0873	J	0.625		0.722	U	0.72	U	0.825	U	0.351	J	0.39	J	0.0337	J
Chromium	29	450	16.1		14.4		30		24.5		123		19		18.1		20.7		21.8		21.9		16.7		10.6		58.8		19.9		18		21.4		11.4	
Copper	29.6	41,000	13.7		16		19.3		18.9		71.3		25.8		26.3		22.7		26.8		45.9		18.1		19.2		40.2		30.9		29.5		25.7		17.9	
Lead	400	800	19.6		17.9		64.2		13.8		1470		25.4		31.9		20.8		43.1		30.5		469		17.2		25.9		70.4		93.3		74.3		37.8	
Selenium	2	5,100	5.2	J	4.95	J	6.41	J	5.36	J	15.7	J	3.13		7.33	J	6.01	J	6.47	J	8.97	J	15	U	9.47	J	5.39	J	7.83	J	16.1		16.9		5.41	J
Silver	0.763	5,100	1.06	J	1.2	J	0.335	J	2.22	U	1.24	J	1.74	U	1.97		2.07	U	1.9	U	1.99		1.75	U	2.02	U	2.02	U	2.31	U	2.15		2.03		0.211	J
Zinc	108.9	100,000	69.9		61.2		93.7		94.4		158		64.2		95.8		76.6		93.9		110		61.9		57.3		122		88.5		74.8		70.9		57.3	
Mercury (mg/Kg - dry)																																				
Mercury	0.13	310	0.0773	J	0.0784	J	0.0747		0.0686		0.0933		0.0368		0.12		0.111		0.203		0.471		0.0696		0.0512		0.0731		0.172		0.455		0.448		0.0829	

Appendix D Table 8b
SEAD 5 Final Delineation Soil Sample Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1]	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil) *	SEAD5-PX-SS-77-FS1		SEAD5-PX-SS-77-FS2		SEAD5-PX-SS-77-FS3		SEAD5-PX-SS-78-FS1		SEAD5-PX-SS-78-FS2		SEAD5-PX-SS-78-FS3		SEAD5-PX-SS-79-FS1		SEAD5-PX-SS-79-FS2		SEAD5-PX-SS-79-FS3		SEAD5-PX-SS-80-FS1		SEAD5-PX-SS-80-FS2		SEAD5-PX-SS-80-FS3		SEAD5-PX-SS-80-DUP	
Sampling Depth			0" - 6"		6" - 12"		12" - 18"		0" - 6"		6" - 12"		12" - 18"		0" - 6"		6" - 12"		12" - 18"		0" - 6"		6" - 12"		12" - 18"		0" - 6"	
Sampling Date			7/21/2005		7/22/2005		7/22/2005		7/21/2005		7/22/2005		7/22/2005		7/21/2005		7/22/2005		7/22/2005		7/21/2005		7/22/2005		7/22/2005		7/21/2005	
Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																												
Naphthalene	13,000	190,000	280	U	68	J	280	U	270	U	100	J	300		64	J	290	U	310	U	290	U	99	J	240	J	260	
2-Methylnaphthalene	36400	NA	280	U	60	J	280	U	270	U	120	J	230	J	290	U	290	U	310	U	290	U	100	J	300	J	210	
Acenaphthylene	41,000	NA	100	J	180	J	110	J	180	J	350		820		210	J	75	J	310	U	290	U	130	J	210	J	3600	
Acenaphthene	50,000	29,000,000	130	J	230	J	120	J	110	J	310		1200		150	J	290	U	310	U	290	U	180	J	280	J	990	
Flourene	50,000	26,000,000	170	J	400		190	J	140	J	530		2400		140	J	290	U	310	U	290	U	190	J	360		34000	
Phenanthrene	50,000	NA	2100		4200		2400		2100		7100		24000		1400		380		310	U	81	J	1800		4000		12000	
Anthracene	50,000	100,000,000	560		970		470		580		1700		6500		440		99	J	310	U	290	U	490		1300		50000	
Flouranthene	50,000	22,000,000	3500		5800		3500		3900		11000		29000		2500		790		92	J	190	J	3000		5800		41000	
Pyrene	50,000	29000000	3100		5100		3100		3400		9300		25000		2400		640		72	J	160	J	2600		5200		28000	
Benz(a)anthracene	224	2100	1700		2800		1600		2100		5000		14000		1400		390		310	U	110	J	1500		3400		23000	
Chrysene	400	210,000	1700		2600		1700		1900		4900		12000		1400		390		310	U	120	J	1500		2800		27000	
Benzo(b)fluoranthene	1,100	2,100	2200		3500		2000		2900		6000		14000		1800		350		310	U	290	U	2000		3700		10000	
Benzo(k)fluoranthene	1,100	21,000	900		1000		830		880		2600		4600		650		290	U	310	U	290	U	780		1100		22000	
Benzo(a)pyrene	61	210	1600		2500		1500		2100		4700		12000		1400		150	J	310	U	290	U	150		2800		4100	
Dibenzo(a,h)anthracene	14	210	340		480		320		150		980		2400		280		82	J	310	U	290	U	260		530		12000	
Indeo(1,2,3-cd)pyrene	3,200	2,100	1000		1500		920		1300		2800		6800		850		280	J	310	U	94	J	960		1500		14000	
Benzo(g,h,i)perylene	50,000	NA	1300		1900		1200		1700		3500		8300		1100		290		310	U	92	J	1200		1900		310	
[2]Bezo(a)pyrene TEQ	10,000	**NA**	2456		3796		2297.3		2907.8		7135		18046		2105.5		340.8		719.2		633.5		878.8		4229		21290	
ICP Metals (mg/Kg - dry)																												
Arsenic	8.24	1.6	9.34		9.44		9.83		8.14		9.36		9.91		9.09		9.6		11.7		8.16		7.72		7.77		7.35	
Barium	300	67,000	79.2		71.2		69.6		101		115		130		95.5		88.1		99.2		63.2		66.5		62.4		45.7	
Cadmium	2.3	450	0.198	J	0.11	J	0.072	J	0.107	J	0.201	J	0.112	J	0.213	J	0.165	J	0.079	J	0.157	J	0.104	J	0.0488	J	0.179	
Chromium	29	450	17		20.4		20.6		17		19.2		20.3		16		20.1		44.6		17.4		13.1		16.3		9.69	
Copper	29.6	41,000	29		32.4		34.3		23		23.5		27.8		35.1		31.5		28.3		25.9		22.1		20.3		19.4	
Lead	400	800	41		44.6		37		33.6		32.4		43.2		150		85.9		66.3		36.6		33.6		30.3		27.5	
Selenium	2	5,100	12	J	10.3	J	16.2	J	10.6	J	14.3	J	14.5	J	13.2	J	17	J	14.6	J	12.8	J	18.1		19.2	J	17.8	
Silver	0.763	5,100	1.08	J	0.738	J	0.644	J	1.21	J	1.08	J	1.02	U	1.17	J	1.41	J	1.26	J	1.44	J	1.18	J	1.12	U	0.815	
Zinc	108.9	100,000	81.8		63.4		63.6		84.4		80.7		79.4	J	82.3		78.4		75.3		100		86.2		69.6		60.9	
Mercury (mg/Kg - dry)																												
Mercury	0.13	310	0.231		0.0757		0.0829		0.0927		0.0794		0.0576		0.089		0.0963		0.094		0.176		0.0884		0.0607		0.147	

Appendix D Table 8b
SEAD 5 Final Delineation Soil Sample Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1]	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil) *		SEAD5-PX-SS-81-FS1		SEAD5-PX-SS-81-FS2		SEAD5-PX-SS-81-FS3		SEAD5-PX-SS-81-FS4		SEAD5-PX-SS-82-FS1		SEAD5-PX-SS-82-FS2		SEAD5-PX-SS-82-FS3		SEAD5-PX-SS-83-FS1		SEAD5-PX-SS-83-FS2		SEAD5-PX-SS-83-FS3		SEAD5-PX-SS-83-FS4		SEAD5-PX-SS-84-FS1	
Sampling Depth				0" - 6"		6" - 12"		12" - 18"		18" -24"		0" - 6"		6" - 12"		12" - 18"		0" - 6"		6" - 12"		12" - 18"		18" - 24"		0" - 6"	
Sampling Date				7/21/2005		7/22/2005		7/22/2005		10/13/2005		7/21/2005		7/22/2005		7/22/2005		7/21/2005		7/22/2005		7/22/2005		10/13/2005		10/11/2005	
Matrix				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																											
Naphthalene	13,000	190,000	U	300	U	260	U	140	J	260	U	110	J	120	J	750		200	J	270	U	110	J	250	J	340	U
2-Methylnaphthalene	36400	NA	U	300	U	260	U	62	J	260	U	120	J	110	J	730		150	J	270	U	120	J	250	J	340	U
Acenaphthylene	41,000	NA	U	120	J	170	J	210	J	61	J	1300		1300		1700		1100		620		880		320		200	J
Acenaphthene	50,000	29,000,000	U	300	U	130	J	280		260	U	180	J	220	J	640		280		270	U	110	J	180	J	110	J
Flourene	50,000	26,000,000	U	300	U	130	J	280		260	U	250	J	290		1100		360		65	J	81	J	260	J	120	J
Phenanthrene	50,000	NA	U	280	J	1400		2200		180	J	1700		2300		7400		2400		690		1200		1400		1200	
Anthracene	50,000	100,000,000	U	94	J	500		760		58	J	1400		1500		3200		1400		550		810		600		390	
Flouranthene	50,000	22,000,000	J	480		2500		3100		330		4000		5000		9500		3900		2000		2500		1900		2300	
Pyrene	50,000	29000000	J	450		2200		2700		300		4300		5200		10000		4100		2300		3000		1900		2000	
Benz(a)anthracene	224	2100	U	260	J	1500		1800		150	J	2700		3100		5600		2500		1500		1800		1100		1200	
Chrysene	400	210,000	U	250	J	1300		1600		250	J	2700		2900		5300		2400		1300		1600		1100		1300	
Benzo(b)fluoranthene	1,100	2,100	U	320		1900		2500		260	J	4400		4600		6900		3600		2200		2600		1500		2100	
Benzo(k)fluoranthene	1,100	21,000	U	130	J	610		920		98	J	1600		1600		2500		1200		630		890		450		550	
Benzo(a)pyrene	61	210	U	260	J	1400		1800		140	J	3700		3800		5800		3000		1800		2200		1200		1500	
Dibenzo(a,h)anthracene	14	210	U	64	J	250		340		260	U	600		590		790		480		130	J	160	J	220	J	290	
Indeo(1,2,3-cd)pyrene	3,200	2,100	U	190	J	800		980		140	J	2200		2200		2800		1700		1100		150		720		890	
Benzo(g,h,i)perylene	50,000	NA	U	310		1000		1300		140	J	2800		2900		3500		2300		1600		2100		770		970	
[2]Bezo(a)pyrene TEQ	10,000	**NA**		404.8		2089.1		2693.2		458.48		5273		5425		8198		4296		2429.3		2839.9		1767.5		2227.5	
ICP Metals (mg/Kg - dry)																											
Arsenic	8.24	1.6		8.23		7.11		8.73		9.34	J	8.28		8.24		10		8.56		8.31		8.43		10.5		7.41	
Barium	300	67,000		90.1		90.8		80.8		50.4		115		79.1		92.5		79		92.1		77.5		95.7		78.9	
Cadmium	2.3	450	J	0.237	J	0.237	J	0.155	J	0.648	U	0.319	J	0.246	J	2.3		0.161	J	0.0997	J	0.206	J	0.168	J	0.119	J
Chromium	29	450		16.2		13.2		11.4		25.4		18.1		23.7		26.2		23.4		19.5		20		18.7		17.2	
Copper	29.6	41,000		36.5		28.9		26.1		33.7		26.6		24		60.8		26.6		25.6		23.7		24.6		30.8	
Lead	400	800		32.5		31.6		26.5		25.6		52		41.1		997		79.3		36.1		31.5		41.4		46.4	
Selenium	2	5,100	J	8.5	J	15.3		16.4	J	10.6	J	14.5	J	15.1	J	10.7	J	12.5	J	12	J	14	J	13.9	J	29.1	
Silver	0.763	5,100		2.08		1.54	J	1.25	J	0.356	J	0.99	J	0.946		1.03	J	0.933	J	1.16	J	1.07	J	0.482	J	1.79	U
Zinc	108.9	100,000		107		72.8		63.6		64.7		107		86.1		119		125		111		97.7		99.1		100	
Mercury (mg/Kg - dry)																											
Mercury	0.13	310		0.59		0.543		0.361		0.0229		0.149		0.0966		0.0796		0.275		0.172		0.158		0.206		0.439	

Appendix D Table 8b
SEAD 5 Final Delineation Soil Sample Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1]	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil) *	SEAD5-PX-SS-84-FS2		SEAD5-PX-SS-84-FS3		SEAD5-PX-SS-85-FS1		SEAD5-PX-SS-85-DUP1		SEAD5-PX-SS-85-FS2		SEAD5-PX-SS-86-FS1		SEAD5-PX-SS-86-FS2		SEAD5-PX-SS-87-FS1		SEAD5-PX-SS-87-FS2		SEAD5-PX-SS-88-FS1		SEAD5-PX-SS-88-FS2		SEAD5-PX-SS-89-FS1		SEAD5-PX-SS-89-FS2	
Sampling Depth			6" - 12"		12" - 18"		0" - 6"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"	
Sampling Date			10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005	
Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																												
Naphthalene	13,000	190,000	310	U	110	J	310	U	310	U	87	J	300	U	320	U	330	U	290	U	290	U	280	U	290	U	810	
2-Methylnaphthalene	36400	NA	310	U	300	U	310	U	310	U	300	U	300	U	320	U	330	U	290	U	290	U	280	U	290	U	450	
Acenaphthylene	41,000	NA	120	J	81	J	110	J	82	J	110	J	300	U	320	U	330	U	290	U	290	U	280	U	250	J	960	
Acenaphthene	50,000	29,000,000	78	J	200	J	96	J	76	J	190	J	300	U	320	U	330	U	290	U	290	U	280	U	180	J	2100	
Flourene	50,000	26,000,000	100	J	180	J	100	J	73	J	210	J	300	U	320	U	330	U	290	U	290	U	280	U	310		3500	
Phenanthrene	50,000	NA	1100		1900		1100		680		1800		300	U	320	U	80	J	290	U	290	U	280	U	3700		34000	
Anthracene	50,000	100,000,000	280	J	420	J	380		210	J	500		300	U	320	U	330	U	290	U	290	U	280	U	1100		9300	
Flouranthene	50,000	22,000,000	1900		2900		2700		1200		2600		300	U	320	U	180	J	290	U	290	U	280	U	6700		46000	
Pyrene	50,000	29000000	1700		2500		2500		1200		2400		300	U	320	U	170	J	290	U	290	U	280	U	5600		33000	
Benz(a)anthracene	224	2100	990		1400		1800		740		1500		300	U	320	U	93	J	290	U	290	U	280	U	3400		20000	
Chrysene	400	210,000	990		1400		1800		660		1200		300	U	320	U	110	J	290	U	290	U	280	U	2900		17000	
Benzo(b)fluoranthene	1,100	2,100	1500		1700		3200		1000		1900		300	U	320	U	140	J	290	U	290	U	280	U	4200		23000	
Benzo(k)fluoranthene	1,100	21,000	430		530		870		290	J	580		300	U	320	U	65	J	290	U	290	U	280	U	1300		6300	
Benzo(a)pyrene	61	210	1100		1300		2400		700		1400		300	U	320	U	110	J	290	U	290	U	280	U	3100		17000	
Dibenzo(a,h)anthracene	14	210	180		280	J	480		140	J	250	J	300	U	320	U	330	U	290	U	290	U	280	U	540		3500	
Indeo(1,2,3-cd)pyrene	3,200	2,100	600		740		1300		430		770		300	U	320	U	69	J	290	U	290	U	280	U	1800		9800	
Benzo(g,h,i)perylene	50,000	NA	670		800		1500		450		820		300	U	320	U	78	J	290	U	290	U	280	U	1800		9500	
[2]Bezo(a)pyrene TEQ	10,000	**NA**	1603.2		1983.3		3536.7		1066.5		2084.8		696		742.4		471.95		672.8		672.8		649.6		4622		26013	
ICP Metals (mg/Kg - dry)																												
Arsenic	8.24	1.6	8.56		10		9.9		8.88		10		8.28		7.21	J	8.1	J	8.42		6.31	J	6.92	J	7.17		11.2	
Barium	300	67,000	89.8		84.9		111		95.1		92.4		97.2		133		91		85.7		82.3		115		64.4		75.3	
Cadmium	2.3	450	0.138	J	0.339	J	0.111	J	0.0929	J	0.764	U	0.75	U	0.752	U	0.836	U	0.759	U	0.698	U	0.73	U	0.0551	J	0.0151	J
Chromium	29	450	23.6		16.5		23.6		20.8		19.7		22.6		19.7		21.6		22.8		16.4		23.6		17.2		15.5	
Copper	29.6	41,000	26.8		32.7		34.8		31.7		25.6		20.3		18.6		25.6		21		20.4		14.2		19.4		30	
Lead	400	800	93		64.5		112		113		64.4		18.1		14.4		55.3		14		50.1		14.7		36		56.5	
Selenium	2	5,100	31		1.5	U	32.1		3.99	J	18.1	J	16.2	J	11.7	J	37.2		12	J	30.4		38.9		2.66	J	21.2	
Silver	0.763	5,100	2.14	U	0.783	J	2.18	U	2.03	U	2.14	U	0.244	J	0.194	J	2.34	U	0.215	J	1.95	U	2.04	U	0.405	J	1.93	U
Zinc	108.9	100,000	113		98.5		105		94.7		82.8		89.5		122		97.3		87.9		79		72.3		80.4		79.5	
Mercury (mg/Kg - dry)																												
Mercury	0.13	310	0.256		0.129		0.169		0.135		0.0961		0.0699		0.0673		0.138		0.0479	J	0.111		0.0623		0.0669		0.0567	

Appendix D Table 8b
SEAD 5 Final Delineation Soil Sample Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1]	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil) *	SEAD5-PX-SS-89-FS3		SEAD5-PX-SS-90-FS1		SEAD5-PX-SS-90-DUP1		SEAD5-PX-SS-90-FS2		SEAD5-PX-SS-91-FS1		SEAD5-PX-SS-91-FS2		SEAD5-PX-SS-91-FS3		SEAD5-PX-SS-92-FS1		SEAD5-PX-SS-92-FS2		SEAD5-PX-SS-93-FS1		SEAD5-PX-SS-93-FS2		SEAD5-PX-SS-94-FS1	
Sampling Depth			12" - 18"		0" - 6"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		12" - 18"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"	
Sampling Date			10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005	
Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																										
Naphthalene	13,000	190,000	540		290	U	1100		130	J	390	U	330	U	300	U	280	U	330	U	340	U	330	U	270	U
2-Methylnaphthalene	36400	NA	380		290	U	400		270	U	390	U	330	U	300	U	280	U	330	U	340	U	330	U	270	U
Acenaphthylene	41,000	NA	1400		290	U	83	J	72	J	390	U	330	U	64	J	280	U	330	U	340	U	330	U	180	J
Acenaphthene	50,000	29,000,000	1900		290	U	1000		220	J	390	U	330	U	300	U	280	U	330	U	340	U	330	U	110	J
Flourene	50,000	26,000,000	5600		290	U	1100		220	J	390	U	330	U	300	U	280	U	330	U	340	U	330	U	140	J
Phenanthrene	50,000	NA	54000		470		8100		2100		150	J	150	J	100	J	280	U	330	U	68	J	330	U	2100	
Anthracene	50,000	100,000,000	15000		140	J	2100		670		390	U	330	U	300	U	280	U	330	U	340	U	330	U	580	
Flouranthene	50,000	22,000,000	55000		850		9300		3300		340	J	290	J	200	J	62	J	330	U	130	J	330	U	3900	
Pyrene	50,000	29000000	45000		760		7800		2900		320	J	240	J	190	J	280	U	330	U	120	J	330	U	3400	
Benz(a)anthracene	224	2100	24000		490		4800		1800		190	J	160	J	120	J	280	U	330	U	81	J	330	U	2100	
Chrysene	400	210,000	18000		460		4000		1600		210	J	160	J	120	J	280	U	330	U	86	J	330	U	1900	
Benzo(b)fluoranthene	1,100	2,100	26000		560		4800		2000		270	J	180	J	140	J	58	J	330	U	100	J	330	U	2900	
Benzo(k)fluoranthene	1,100	21,000	8500		270	J	1900		800		110	J	88	J	70	J	280	U	330	U	340	U	330	U	880	
Benzo(a)pyrene	61	210	19000		470		3800		1600		200	J	150	J	130	J	280	U	330	U	340	U	330	U	2100	
Dibenzo(a,h)anthracene	14	210	3700	J	80	J	730		290		390	U	330	U	300	U	280	U	330	U	340	U	330	U	150	
Indeo(1,2,3-cd)pyrene	3,200	2,100	11000		280	J	2000		870		120	J	93	J	65	J	280	U	330	U	340	U	330	U	1300	
Benzo(g,h,i)perylene	50,000	NA	11000		290		2000		900		150	J	96	J	96	J	280	U	330	U	74	J	330	U	1700	
[2]Bezo(a)pyrene TEQ	10,000	**NA**	29065		690.3		5749		2381		651.2		525.78		464.4		627.4		765.6		736.36		765.6		2907.8	
ICP Metals (mg/Kg - dry)																										
Arsenic	8.24	1.6	11.5		8.55		7.93		8.3		7.35	J	6.09	J	9.29		7.37		7.76	J	9.89		7.45	J	8.2	
Barium	300	67,000	89.3		90.9		75.5		64.6		91.3		102		64.6		85.3		132		129		79.6		74.6	
Cadmium	2.3	450	0.31	J	0.0209	J	0.699	U	0.683	U	0.934	U	0.0445	J	0.247	J	0.708	U	0.815	U	0.162	J	0.817	U	0.0773	J
Chromium	29	450	20.2		17.2		22.3		15.7		16.3		19.3		15.2		22.8		27.8		25.4		20.7		20.2	
Copper	29.6	41,000	22.1		25.7		26.3		22.2		26.8		23.9		19.1		20.3		20		23.9		24.5		33.8	
Lead	400	800	37.7		33.8		43.3		28.9		78.3		57.8		42.9		21.6		13.4		61.1		14.7		37.2	
Selenium	2	5,100	1.5	U	28.7		28.4		15.3	J	35.7		31.9		1.5	U	23.9		44	J	40.4		40.7		38.9	
Silver	0.763	5,100	0.558	J	1.95	U	1.96	U	1.91	U	2.61	U	2.29	U	0.427	J	1.98	U	2.28	U	2.28	U	2.29	J	2.28	U
Zinc	108.9	100,000	113		80.4		83.8		63.5		82.2		81.9		68.4		75.2		79.7		116		75.6		124	
Mercury (mg/Kg - dry)																										
Mercury	0.13	310	0.0702		0.125		0.146		0.0821		0.164		0.136		0.0911		0.0848		0.0743		0.153		0.0306		0.49	

Appendix D Table 8b
SEAD 5 Final Delineation Soil Sample Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1]	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil) *	SEAD5-PX-SS-94-FS2		SEAD5-PX-SS-94-DUP2		SEAD5-PX-SS-95-FS1		SEAD5-PX-SS-95-FS2		SEAD5-PX-SS-96-FS1		SEAD5-PX-SS-96-FS2		SEAD5-PX-SS-97-FS1		SEAD5-PX-SS-97-FS2		SEAD5-PX-SS-98-FS1		SEAD5-PX-SS-98-FS2		SEAD5-PX-SS-99-FS1		SEAD5-PX-SS-99-FS2		SEAD5-PX-SS-100-FS1	
Sampling Depth			6" - 12"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"	
Sampling Date			10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/11/2005		10/12/2005		10/12/2005		10/12/2005	
Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																												
Naphthalene	13,000	190,000	160	J	87	J	82	J	290	U	290	U	300	U	370	U	280	U	290	U	290	U	130	J	100	J	230	
2-Methylnaphthalene	36400	NA	72	J	270	U	130	J	290	U	290	U	300	U	370	U	280	U	290	U	290	U	120	J	130	J	340	
Acenaphthylene	41,000	NA	160	J	260	J	98	J	110	J	72	J	300	U	86	J	280	U	290	U	290	U	440		860	U	980	
Acenaphthene	50,000	29,000,000	330		300		300	U	290	U	290	U	300	U	370	U	280	U	290	U	290	U	72	J	270	J	1500	
Flourene	50,000	26,000,000	390		390		300	U	290	U	62	J	300	U	370	U	280	U	290	U	290	U	89	J	320		2200	
Phenanthrene	50,000	NA	3200		3400		490		320		480		180	J	250	J	87	J	290	U	290	U	730		2400		24000	
Anthracene	50,000	100,000,000	940		1000		150	J	120	J	150	J	59	J	94	J	280	U	290	U	290	U	390		1100		6700	
Flouranthene	50,000	22,000,000	4100		4900		960		770		650		350		570		170	J	290	U	290	U	1500		4500		36000	
Pyrene	50,000	29000000	3600		4200		890		720		570		290	J	520		160	J	290	U	290	U	1600		4600		29000	
Benz(a)anthracene	224	2100	2100		2700		550		480		350		200	J	340		120	J	290	U	290	U	1000		2400		17000	
Chrysene	400	210,000	1900		2100		530		430		300		190	J	300	J	110	J	290	U	290	U	960		2400		13000	
Benzo(b)fluoranthene	1,100	2,100	2700		3100		730		700		450		280	J	430		150	J	290	U	290	U	1500		3800		17000	
Benzo(k)fluoranthene	1,100	21,000	740		1100		260	J	180	J	130	J	82	J	180	J	64	J	290	U	290	U	630		1000		5500	
Benzo(a)pyrene	61	210	1900		2300		550		470		320		190	J	340	J	110	J	290	U	290	U	1300		3000		13000	
Dibenzo(a,h)anthracene	14	210	370		480		110	J	97	J	88	J	300	U	370	U	280	U	290	U	290	U	210		460		2600	
Indeo(1,2,3-cd)pyrene	3,200	2,100	1100		1400		310		280	J	190	J	110	J	200	J	85	J	290	U	290	U	860		1900		6300	
Benzo(g,h,i)perylene	50,000	NA	1200		1500		330		290		210	J	120	J	220	J	85	J	290	U	290	U	1000		2100		6200	
[2]Bezo(a)pyrene TEQ	10,000	**NA**	2886.4		3532		826.9		719.1		511.3		551.72		811.8		427.24		672.8		672.8		1861.9		4304		19815	
ICP Metals (mg/Kg - dry)																												
Arsenic	8.24	1.6	8.88		8.41		8.31		4.72	J	5.53	J	8.72		8.46	J	8.35		6.41		8.17		7.97		7.36	J	8.33	
Barium	300	67,000	83		76.5		77.3		43.2		62		76.1		93.7		60		95.6		88		102		96.1		93.7	
Cadmium	2.3	450	0.0212	J	0.0682	J	0.723	U	0.696	U	0.749	U	0.749	U	0.905	U	0.679	U	0.702	U	0.706	U	0.0665	J	0.282	J	0.761	
Chromium	29	450	18		18.8		23.3		9.88		22.3		19.8		22.6		19.9		19.9		18.7		20.8		17.7		20.2	
Copper	29.6	41,000	20.4		20.4		24.9		6.7		25.7		23.2		29.9		17.4		13.7		20.4		28.6		32.5		19.4	
Lead	400	800	37.4		37		44.5		17.4		114		48.6		67.7		28.4		15.4		13.1		44.1		47.7		38.1	
Selenium	2	5,100	15.9	U	19.4		32.4		19.8	J	26.7		24.4		42.8		32		33.3		33		14.2	J	16.7	U	28.5	
Silver	0.763	5,100	1.85	U	1.81	U	2.02	U	1.95	U	2.1	U	2.1	U	2.53	U	1.9	U	1.97	U	1.98	U	2.04	U	0.326	J	2.13	
Zinc	108.9	100,000	72.8		77.8		87.7		33.7		105	J	82.9	J	123		105		60.7		68.4		122		101		93.4	
Mercury (mg/Kg - dry)																												
Mercury	0.13	310	0.0807		0.0581		0.103		0.056		0.0572		0.0585		0.0777		0.0594		0.0607		0.0266		0.241		0.0863		0.0925	

Appendix D Table 8b
SEAD 5 Final Delineation Soil Sample Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1]	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil) *		SEAD5-PX-SS-100-FS2		SEAD5-PX-SS-100-FS3		SEAD5-PX-SS-101-FS1		SEAD5-PX-SS-101-FS2		SEAD5-PX-SS-102-FS1		SEAD5-PX-SS-102-FS2		SEAD5-PX-SS-102-DUP2		SEAD5-PX-SS-103-FS1		SEAD5-PX-SS-103-FS2		SEAD5-PX-SS-104-FS1		SEAD5-PX-SS-104-FS2		SEAD5-PX-SS-104-FS3	
Sampling Depth				6" - 12"		12" - 18"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		12" - 18"	
Sampling Date				10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005	
Matrix				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Polyaromatic Hydrocarbons (ug/Kg - dry)																											
Naphthalene	13,000	190,000	J	2400		5800		320	U	70	J	92	J	280	U	280	U	310	U	58	J	120	J	65	J	270	U
2-Methylnaphthalene	36400	NA		780		1800		320	U	300	U	80	J	280	U	280	U	310	U	280	U	110	J	290	U	270	U
Acenaphthylene	41,000	NA		220	J	590		130	J	200	J	370		110	J	280	U	270	J	130	J	720	J	340		270	U
Acenaphthene	50,000	29,000,000		2800		5900		100	J	180	J	280	J	88	J	280	U	89	J	120	J	290	J	110	J	270	U
Flourene	50,000	26,000,000		3000		5100		110	J	200	J	390		90	J	280	U	180		140	J	360		130	J	270	U
Phenanthrene	50,000	NA		20000		44000		1300		2000		5700		700		130	J	1800		1300		3100		900		93	J
Anthracene	50,000	100,000,000		5800		9900		360		590		1400		220	J	280	U	480		310		1200		450		270	U
Flouranthene	50,000	22,000,000		22000		52000		2700		4100		8600		1200		260	J	3200		2400	J	4900		1800		130	J
Pyrene	50,000	29000000		19000		43000		2300		3700		7100		1000		230	J	2800		2100	J	5000		2100		120	J
Benz(a)anthracene	224	2100		11000		26000		1400		2500		4100		640		150	J	1600		1200		2700		1300		77	J
Chrysene	400	210,000		9400		21000		1300		2000		3600		580		140	J	1700		1300		2500		1100		67	J
Benzo(b)fluoranthene	1,100	2,100		13000		30000		1900		2800		4900		750		220	J	2200		1700		3800		1800		91	J
Benzo(k)fluoranthene	1,100	21,000		3600		12000		600		1100		1400		270	J	74	J	770		630	U	1100		500		270	U
Benzo(a)pyrene	61	210		9900		24000		1300		2200		3400		600		140	J	1600		1200		3000		1400		74	J
Dibenzo(a,h)anthracene	14	210		1700		4900		220	J	400		610		120	J	280	U	310		230	J	490		260	J	270	U
Indeo(1,2,3-cd)pyrene	3,200	2,100		5200		13000		750		1200		1900		360		98	J	910		720		1800		820		270	U
Benzo(g,h,i)perylene	50,000	NA		5400		14000		800		1200		1900		360		100	J	950		810		2100		940		270	U
[2]Bezo(a)pyrene TEQ	10,000	**NA**		14650		36130		1944		3281		5150		903.5		468.94		2405.7		1811.3		4356		2068		391.17	
ICP Metals (mg/Kg - dry)																											
Arsenic	8.24	1.6		8.87		13.1		9.31		10.2		9.26		8.6		9.76		8.25		8.44		7.02	J	8.33		12.1	
Barium	300	67,000		96.4		236		104		118		94.2		85.6		80		107		68		73.6		81.8		67.4	
Cadmium	2.3	450	U	0.0826	J	2.35	J	0.0393	J	0.0786	J	0.749	U	0.711	U	0.706	U	0.0505	J	0.7	U	0.729	J	0.715	U	0.181	J
Chromium	29	450		22.2		28.7		21.9		23.7		21.7		21.8		20.3		22.5		20.5		19.6		20.9		15.8	
Copper	29.6	41,000		22.3		20.4		23.9		22.5		24.5		20		20.6		25		22.2		23.7		26.9		20.6	
Lead	400	800		33.3		79.2		52.2		42.5		47.3		32.2		29.7		63.1		72.5		61.6		35.5		16.8	
Selenium	2	5,100		17.5	J	1.4	U	38.3		31.4		4.2	J	36.3	J	26.4		38		8.76	J	18.1	U	9.03	J	1.4	U
Silver	0.763	5,100	U	2.02	U	0.669	J	2.31	U	2.06	U	2.1	U	1.99	U	1.98	U	2.1		0.355	J	2.11	U	2	U	0.803	J
Zinc	108.9	100,000		82.9		140		105		101		93.1		102		84.8		111		102		96.3		90.3		68.3	
Mercury (mg/Kg - dry)																											
Mercury	0.13	310		0.0377		0.0579		0.0846		0.0527		0.0745		0.0346		0.0167		0.106		0.0802		0.0295		0.136		0.0593	

Appendix D Table 8b
SEAD 5 Final Delineation Soil Sample Sample Results

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Analyte	Recommended Soil Cleanup Objective (NY TAGM) [1]	EPA Region 9 Preliminary Remediation Goals (PRGs) (Industrial Soil) *	SEAD5-PX-SS-105-FS1		SEAD5-PX-SS-105-FS2		SEAD5-PX-SS-106-FS1		SEAD5-PX-SS-106-FS2		SEAD5-PX-SS-107-FS1		SEAD5-PX-SS-107-FS2		SEAD5-PX-SS-108-FS1		SEAD5-PX-SS-108-FS2		SEAD5-PX-SS-108-FS3		Avg Result	Max Result	No. Exceedances (vs. NY TAGM)	No. Exceedances (vs. Region 9 PRGs)
Sampling Depth			0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		0" - 6"		6" - 12"		12" - 18"					
Sampling Date			10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/12/2005		10/13/2005		10/13/2005		10/12/2005					
Matrix			Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil					
Polyaromatic Hydrocarbons (ug/Kg - dry)																								
Naphthalene	13,000	190,000	320	U	290	U	300	U	300	U	56000		950		300	U	290	U	99	J	1029.0595	56000	1	0
2-Methylnaphthalene	36400	NA	320	U	290	U	300	U	300	U	28000		380		300	U	290	U	75	J	625.22619	28000	0	0
Acenaphthylene	41,000	NA	320	U	290	U	300	U	300	U	9500		430		65	J	290	U	360		498.44048	9500	0	0
Acenaphthene	50,000	29,000,000	320	U	290	U	300	U	300	U	110000		1300		110	J	290	U	390		1747.4881	110000	1	0
Flourene	50,000	26,000,000	320	U	290	U	300	U	300	U	140000		1400		96	J	290	U	480		2596.8571	140000	1	0
Phenanthrene	50,000	NA	440		200	J	370		350		888000		12000		1200		290		5800		14571.774	888000	2	0
Anthracene	50,000	100,000,000	130	J	65		110	J	97	J	290000		3300		320		83	J	1300		5214.1548	290000	1	0
Flouranthene	50,000	22,000,000	820		460		760		530		890000		16000		2100		600		9200		16262.905	890000	3	0
Pyrene	50,000	29000000	730		420		680		470		740000		15000		1800		510		7800		13587.286	740000	1	0
Benz(a)anthracene	224	2100	450		250	J	430		290	J	400000		8800		1000		310		4200		7652.631	400000	73	24
Chrysene	400	210,000	460		240	J	410		250	J	350000		7300		950		300		4100		6748.0119	350000	55	1
Benzo(b)fluoranthene	1,100	2,100	660		380		510		370		400000		11000		1400		420		5400		8005.2262	400000	48	33
Benzo(k)fluoranthene	1,100	21,000	200	J	110	J	260	J	97		130000		2800		470		150		2300		2884.5	130000	18	2
Benzo(a)pyrene	61	210	460		250	J	400		250	J	310000		7700		970		320		4100		6129.0952	310000	84	73
Dibenzo(a,h)anthracene	14	210	71	J	290	U	75	J	300	U	66000		1100		190	J	62	J	840		1448.6786	66000	84	66
Indeo(1,2,3-cd)pyrene	3,200	2,100	270	J	160	J	240	J	150	J	140000		4200		580		200		2500		3200.2857	140000	9	14
Benzo(g,h,i)perylene	50,000	NA	310	J	160	J	270	J	160	J	130000		4200		620		190		2600		3075.131	130000	1	0
[2]Bezo(a)pyrene TEQ	10,000	**NA**	675.6		622.5		599.7		634.47		474800		11301		1472.2		479.5		6214		9559.9132	474800	9	0
ICP Metals (mg/Kg - dry)																								
Arsenic	8.24	1.6	7.91		7.28		8.23		8.92		9.58		6.9		10.3		8.6		11.1		8.6054762	13.1	52	84
Barium	300	67,000	90.2		86.2		73.5		81.1		63.9		71.5		68		65.7		97.9		87.636905	236	0	0
Cadmium	2.3	450	0.116	J	0.708	U	0.732	U	0.728	U	0.661	U	0.114	J	0.107	J	0.0324	J	0.321	J	0.4276024	2.35	1	0
Chromium	29	450	17.9		21		17.2		19.1		20.3		17.9		19.1		21.3		17		19.924643	44.6	1	0
Copper	29.6	41,000	25.2		22.1		22.4		22.2		25.3		27.2		26.5		28.9		26.4		25.145238	60.8	15	0
Lead	400	800	46.7		37.7		43.7		39.7		39.6		28.3		60		47.5		94		57.57381	997	1	1
Selenium	2	5,100	31.6		20.1		34.6		17.5	U	5.64	J	16.1	U	14		11.9	J	1.5	U	19.927143	44	78	0
Silver	0.763	5,100	2.19	U	1.98	U	2.05	U	2.04	U	1.85	U	0.318	J	1.1		0.847	J	0.659	J	1.5171071	2.61	69	0
Zinc	108.9	100,000	93.8		86.8		76.4		75.9		75.7		79.7		74.8		71.6		75.7		88.394048	140	12	0
Mercury (mg/Kg - dry)																								
Mercury	0.13	310	0.0822		0.0501		0.0632		0.104		0.0214		0.0198		0.224		0.224		0.0879		0.1216548	0.59	25	0

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A1-SS-001-FS	SEAD24-FX-A1-SS-002-FS2	SEAD24-FX-A1-SS-003-FS	SEAD24-FX-A1-SS-003-FS2	SEAD24-FX-A1-SS-004-FS	SEAD24-FX-A1-SS-004-FS2	SEAD24-FX-A1-SS-005-FS	SEAD24-FX-A1-SS-005-FS2	SEAD24-FX-A1-SS-006-FS	SEAD24-FX-A1-SS-007-FS	SEAD24-FX-A1-SS-007-FS2	SEAD24-FX-A1-SS-008-FS	SEAD24-FX-A1-SS-009-FS	SEAD24-FX-A1-SS-010-FS	SEAD24-FX-A1-SS-010-FS2
Depth BOG(inches)		6-12	12-18	6-12	12-18	6-12	12-18	6-12	12-18	6-12	6-12	12-18	6-12	6-12	6-12	12-18
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200							13900							17700	
Antimony	5.9							1.4 J							11.2 U	
Arsenic	8.24	7.6	4.5 j		6.3		5.3		9.9	8		5	7.5	5.2		4.3 j
Barium	300							102							102	
Beryllium	1.1							0.8 J							0.95 J	
Cadmium	2.3							2.8 U							2.9 U	
Calcium	120,500							5460							6070	
Chromium	29							22.4							27.5	
Cobalt	30							11.9							14.8	
Copper	29.6							22							28.3	
Iron	35,550							27300							33300	
[2]Lead	400	14.1	10.7	17.1			13	31.6		14.5	18.2		16.3	15	16.4	
Magnesium	21,500							5190							6170	
Manganese	1,056							518							675	
Mercury	0.1							0.049 J							0.037 J	
Nickel	48.9							32.8							42.1	
Potassium	2,343							1690							1880	
Selenium	2							14.7 U							15.3 U	
Silver	0.763							0.5 J							0.48 J	
Sodium	170.3							81.3 J							92.4	
Thallium	0.67							20.2 U							21 U	
Vanadium	150							23.7							26	
Zinc	108.9	84.3	123		122	84.9		107		116	92.2		94	79.3	103	
[3]PAHs		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	
2-Methylnaphthalene	36,400							31 U							31 U	
Acenaphthene	50,000							17 U							17 U	
Acenaphthylene	41,000							12 U							12 U	
Anthracene	50,000							13 U							13 U	
Benzo(ghi)perylene	50,000							19 U							19 U	
Fluoranthene	50,000							24 U							25 U	
Fluorene	50,000							22 U							22 U	
Naphthalene	13,000							36 U							36 U	
Phenanthrene	50,000							27 U							27 U	
Pyrene	50,000							21 U							21 U	
Benzo(a)pyrene	61							18 U							18 U	
Dibenzo(a,h)anthracene	14							20 U							20 U	
Benzo(a)anthracene	224							17 U							17 U	
Benzo(b)fluoranthene	1,100							42 U							43 U	
Indeno(1,2,3-cd)pyrene	3,200							20 U							20 U	
Benzo(k)fluoranthene	1,100							43 U							44 U	
Chrysene	400							19 U							19 U	
[4]Benzo(a)pyrene TEQ	10,000							47							47	

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A1-SS-011-FS	SEAD24-FX-A1-SS-011-FS2	SEAD24-FX-A1-SS-012-FS	SEAD24-FX-A1-SS-012-FS2	SEAD24-FX-A1-SS-013-FS	SEAD24-FX-A1-SS-014-FS	SEAD24-FX-A1-SS-015-FS	SEAD24-FX-A1-SS-016-FS	SEAD24-FX-A1-SS-017-FS	SEAD24-FX-A1-SS-017-FS2	SEAD24-FX-A1-SS-018-FS	SEAD24-FX-A1-SS-018-FS2	SEAD24-FX-A1-SS-019-FS	SEAD24-FX-A1-SS-020-FS
Depth BOG(inches)		6-12	12-18	6-12	12-18	6-12	6-12	6-12	6-12	6-12	12-18	6-12	12-18	6-12	6-12
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200							18300							17100
Antimony	5.9							11.3 U							11.8 U
Arsenic	8.24		6.4		10.5	6	5.1	6.6 J	7.1		10.3		8.2	6.1	6.8 J
Barium	300							114							99.7
Beryllium	1.1							0.96 J							1 J
Cadmium	2.3							2.9 U							3 U
Calcium	120,500							4870							2920
Chromium	29							29.7							24.8
Cobalt	30							17							15.9
Copper	29.6							33.2							28.1
Iron	35,550							35400							30400
[2]Lead	400	11.4		12.1		11.6	13.8	15.6	14.6	15.3			15.9	12.4	14
Magnesium	21,500							6330							5110
Manganese	1,056							766							805
Mercury	0.1							0.041 J							0.075 U
Nickel	48.9							52.7							35.3
Potassium	2,343							1700							1820
Selenium	2							1.6 J							16.1 U
Silver	0.763							0.48 J							0.45 J
Sodium	170.3							85 J							83 J
Thallium	0.67							21.2 U							22.1 U
Vanadium	150							26.6							27
Zinc	108.9	75.5		76.9		57.9	78.1	103	83.9	63.9		101		69.1	73.9
[3]PAHs		(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)
2-Methylnaphthalene	36,400							33 U							34 U
Acenaphthene	50,000							18 U							18 U
Acenaphthylene	41,000							13 U							13 U
Anthracene	50,000							14 U							15 U
Benzo(ghi)perylene	50,000							20 U							21 U
Fluoranthene	50,000							26 U							27 U
Fluorene	50,000							23 U							24 U
Naphthalene	13,000							38 U							39 U
Phenanthrene	50,000							28 U							29 U
Pyrene	50,000							22 U							23 U
Benzo(a)pyrene	61							19 U							19 U
Dibenzo(a,h)anthracene	14							21 U							22 U
Benzo(a)anthracene	224							18 U							18 U
Benzo(b)fluoranthene	1,100							45 U							46 U
Indeno(1,2,3-cd)pyrene	3,200							21 U							22 U
Benzo(k)fluoranthene	1,100							46 U							47 U
Chrysene	400							20 U							21 U
[4]Benzo(a)pyrene TEQ	10,000							49							50

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A1-SS-021-FS	SEAD24-FX-A1-SS-021-FS2	SEAD24-FX-A1-SS-022-FS	SEAD24-FX-A1-SS-022-FS4	SEAD24-FX-A1-SS-023-FS	SEAD24-FX-A1-SS-023-FS2	SEAD24-FX-A1-SS-024-FS	SEAD24-FX-A1-SS-025-FS	SEAD24-FX-A1-SS-025-FS2	SEAD24-FX-A1-SS-026-FS	SEAD24-FX-A1-SS-027-FS	SEAD24-FX-A1-SS-028-FS	SEAD24-FX-A1-SS-028-FS2	SEAD24-FX-A1-SS-029-FS	SEAD24-FX-A1-SS-029-FS2
Depth BOG(inches)		6-12	12-18	6-12	24-30	6-12	12-18	6-12	6-12	12-18	6-12	6-12	6-12	12-18	6-12	12-18
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200								16200							
Antimony	5.9								10.5 U							
Arsenic	8.24		4.4 j		4.4 j		7.3	5.1		8.8	6.7	6.4		4.9		13.7
Barium	300								102							
Beryllium	1.1								0.87 J							
Cadmium	2.3								2.7 U							
Calcium	120,500								3070							
Chromium	29								23.4							
Cobalt	30								13.2							
Copper	29.6								20							
Iron	35,550								27500							
[2]Lead	400	26.3		65.7		21.2		13.6	20.5		25.4	14.6	107		66	
Magnesium	21,500								4360							
Manganese	1,056								598							
Mercury	0.1								0.046 J							
Nickel	48.9								28.4							
Potassium	2,343								1600							
Selenium	2								14.4 U							
Silver	0.763								2.7 U							
Sodium	170.3								73.4 J							
Thallium	0.67								19.8 U							
Vanadium	150								25.2							
Zinc	108.9	96.4			81.6	104		84.6	92.3		102	93.1		72.7		81.7
[3]PAHs		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)	
2-Methylnaphthalene	36,400								33 U							
Acenaphthene	50,000								18 U							
Acenaphthylene	41,000								13 U							
Anthracene	50,000								14 U							
Benzo(ghi)perylene	50,000								20 U							
Fluoranthene	50,000								26 U							
Fluorene	50,000								24 U							
Naphthalene	13,000								38 U							
Phenanthrene	50,000								29 U							
Pyrene	50,000								23 U							
Benzo(a)pyrene	61								19 U							
Dibenzo(a,h)anthracene	14								21 U							
Benzo(a)anthracene	224								18 U							
Benzo(b)fluoranthene	1,100								45 U							
Indeno(1,2,3-cd)pyrene	3,200								21 U							
Benzo(k)fluoranthene	1,100								46 U							
Chrysene	400								20 U							
[4]Benzo(a)pyrene TEQ	10,000								49							

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A1-SS-030-FS	SEAD24-FX-A1-SS-031-FS	SEAD24-FX-A1-SS-032-FS	SEAD24-FX-A1-SS-033-FS	SEAD24-FX-A1-SS-034-FS	SEAD24-FX-A1-SS-035-FS	SEAD24-FX-A1-SS-036-FS	SEAD24-FX-A1-SS-037-FS	SEAD24-FX-A1-SS-038-FS	SEAD24-FX-A1-SS-038-FS3	SEAD24-FX-A1-SS-039-FS	SEAD24-FX-A1-SS-040-FS	SEAD24-FX-A1-SS-041-FS	SEAD24-FX-A1-SS-041-FS2
Depth BOG(inches)		6-12	6-12	6-12	6-12	6-12	6-12	6-12	6-12	6-12	18-24	6-12	6-12	6-12	12-18
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200	17700					11400						13100		
Antimony	5.9	11.1 U					10.6 U						11.1 U		
Arsenic	8.24	6.4 J	5.4	5.4	6.1	6.3	3.8 J	5.7	6.3		17.5	5.5	3.6 J		6.3
Barium	300	116					71.5						62.7		
Beryllium	1.1	1 J					0.52 J						0.53 J		
Cadmium	2.3	2.9 U					2.7 U						2.8 U		
Calcium	120,500	2880					1720						1810		
Chromium	29	26.6					16						17		
Cobalt	30	16.4					6.6						6		
Copper	29.6	25.8					12.7						11.1		
Iron	35,550	31200					17900						19100		
[2]Lead	400	16.8	17	14.2	13.9	12.8	12.1	41.8	11.4	8		9.5	10.2	16.9	
Magnesium	21,500	5380					2510						2580		
Manganese	1,056	685					306						259		
Mercury	0.1	0.06 J					0.04 J						0.047 J		
Nickel	48.9	40.3					16.7						15.5		
Potassium	2,343	1690					1160						1050		
Selenium	2	15.2 U					14.5 U						15.1 U		
Silver	0.763	2.9 U					0.57 J						0.53 J		
Sodium	170.3	69.2 J					69.8 J						68.3 J		
Thallium	0.67	20.9 U					20 U						20.8 U		
Vanadium	150	25.6					19.3						23		
Zinc	108.9	78.8	76.1	61.7	59.4	85.7	54	99	69.9		104	53.6	48.9	91.9	
[3]PAHs		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	
2-Methylnaphthalene	36,400	35 U					29 U						39 U		
Acenaphthene	50,000	19 U					15 U						21 U		
Acenaphthylene	41,000	14 U					11 U						15 U		
Anthracene	50,000	15 U					12 U						17 U		
Benzo(ghi)perylene	50,000	21 U					18 U						24 U		
Fluoranthene	50,000	27 U					23 U						31 U		
Fluorene	50,000	25 U					21 U						28 U		
Naphthalene	13,000	40 U					33 U						45 U		
Phenanthrene	50,000	30 U					25 U						34 U		
Pyrene	50,000	24 U					20 U						27 U		
Benzo(a)pyrene	61	20 U					16 U						22 U		
Dibenzo(a,h)anthracene	14	22 U					19 U						25 U		
Benzo(a)anthracene	224	19 U					15 U						21 U		
Benzo(b)fluoranthene	1,100	47 U					39 U						53 U		
Indeno(1,2,3-cd)pyrene	3,200	22 U					19 U						25 U		
Benzo(k)fluoranthene	1,100	49 U					40 U						55 U		
Chrysene	400	21 U					18 U						24 U		
[4]Benzo(a)pyrene TEQ	10,000	52					43						58		

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A1-SS-042-FS	SEAD24-FX-A1-SS-042-FS2	SEAD24-FX-A1-SS-043-FS	SEAD24-FX-A1-SS-044-FS2	SEAD24-FX-A1-SS-045-FS	SEAD24-FX-A1-SS-045-FS2	SEAD24-FX-A1-SS-046-FS	SEAD24-FX-A1-SS-047-FS	SEAD24-FX-A1-SS-047-FS2	SEAD24-FX-A1-SS-048-FS	SEAD24-FX-A1-SS-048-FS3	SEAD24-FX-A1-SS-049-FS2	SEAD24-FX-A1-SS-050-FS	SEAD24-FX-A1-SS-050-FS2
Depth BOG(inches)		6-12	12-18	6-12	12-18	6-12	12-18	6-12	6-12	12-18	6-12	18-24	12-18	6-12	12-18
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200					16200								13300	
Antimony	5.9					10.1 U								2.8 J	
Arsenic	8.24		3.9	5.4	11.2		8.8	5.7		5.8		4.2 J	7.6		6.8
Barium	300					97.4								114	
Beryllium	1.1					0.8 J								0.55 J	
Cadmium	2.3					2.6 U								2.5 U	
Calcium	120,500					6670								9230	
Chromium	29					21.4								16.5	
Cobalt	30					12.5								8.3	
Copper	29.6					20.6								16.2	
Iron	35,550					25600								20200	
[2]Lead	400	9.4		16	48.9	37.1		12.6	18.7		23		17.8		16.1
Magnesium	21,500						16.2							3770	
Manganese	1,056					530								433	
Mercury	0.1					0.051 J								0.035 J	
Nickel	48.9					24.1								17.7	
Potassium	2,343					1610								1170	
Selenium	2					13.8 U								13.3 U	
Silver	0.763					2.6 U								2.5 U	
Sodium	170.3					63.3 J								73 J	
Thallium	0.67					18.9 U								18.3 U	
Vanadium	150					27.2								23	
Zinc	108.9	53.9		71.9	131		81.9	64.7	67.3		74.1		93.9		94.3
[3]PAHs		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)	
2-Methylnaphthalene	36,400					32 U								32 U	
Acenaphthene	50,000					17 U								17 U	
Acenaphthylene	41,000					13 U								13 U	
Anthracene	50,000					14 U								14 U	
Benzo(ghi)perylene	50,000					45 J								32 J	
Fluoranthene	50,000					69 J								59 J	
Fluorene	50,000					23 U								23 U	
Naphthalene	13,000					37 U								37 U	
Phenanthrene	50,000					27 U								28 U	
Pyrene	50,000					96 J								56 J	
Benzo(a)pyrene	61					64 J								45 J	
Dibenzo(a,h)anthracene	14					21 U								21 U	
Benzo(a)anthracene	224					65 J								40 J	
Benzo(b)fluoranthene	1,100					45 J								47 J	
Indeno(1,2,3-cd)pyrene	3,200					36 J								29 J	
Benzo(k)fluoranthene	1,100					63 J								45 U	
Chrysene	400					89 J								59 J	
[4]Benzo(a)pyrene TEQ	10,000					101								79	

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A1-SS-051-FS	SEAD24-FX-A1-SS-051-FS3	SEAD24-FX-A1-SS-052-FS	SEAD24-FX-A1-SS-052-FS2	SEAD24-FX-A1-SS-053-FS2	SEAD24-FX-A1-SS-054-FS	SEAD24-FX-A1-SS-054-FS2	SEAD24-FX-A1-SS-055-FS	SEAD24-FX-A1-SS-055-FS2	SEAD24-FX-A1-SS-056-FS	SEAD24-FX-A1-SS-057-FS	SEAD24-FX-A1-SS-057-FS2	SEAD24-FX-A1-SS-058-FS	SEAD24-FX-A1-SS-058-FS2
Depth BOG(inches)		6-12	18-24	6-12	12-18	12-18	6-12	6-12	6-12	12-18	6-12	6-12	12-18	6-12	12-18
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200								13800						
Antimony	5.9								11.4 U						
Arsenic	8.24		1.7 j		2.4 j	9.7		4.8		5.4	5.2		8.4		17.4
Barium	300								74.9						
Beryllium	1.1								0.57 J						
Cadmium	2.3								2.9 U						
Calcium	120,500								13700						
Chromium	29								17.8						
Cobalt	30								9.1						
Copper	29.6								15.6						
Iron	35,550								22400						
[2]Lead	400		14.7	16.1		13.8	15.2		21.7		14.7	21		23	
Magnesium	21,500								4220						
Manganese	1,056								362						
Mercury	0.1								0.071 U						
Nickel	48.9								20.3						
Potassium	2,343								1200						
Selenium	2								15.5 U						
Silver	0.763								2.9 U						
Sodium	170.3								93.8						
Thallium	0.67								21.4 U						
Vanadium	150								25.4						
Zinc	108.9	67.1		74.7		57.1	64		80.3		65.6	74.9		79.3	
[3]PAHs		(µg/kg)		(µg/kg)			(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)	
2-Methylnaphthalene	36,400								31 U						
Acenaphthene	50,000								17 U						
Acenaphthylene	41,000								12 U						
Anthracene	50,000								13 U						
Benzo(ghi)perylene	50,000								19 JM						
Fluoranthene	50,000								47 J						
Fluorene	50,000								22 U						
Naphthalene	13,000								35 U						
Phenanthrene	50,000								27 U						
Pyrene	50,000								48 J						
Benzo(a)pyrene	61								28 J						
Dibenzo(a,h)anthracene	14								20 U						
Benzo(a)anthracene	224								27 J						
Benzo(b)fluoranthene	1,100								42 U						
Indeno(1,2,3-cd)pyrene	3,200								20 UM						
Benzo(k)fluoranthene	1,100								43 U						
Chrysene	400								41 J						
[4]Benzo(a)pyrene TEQ	10,000								58						

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A1-SS-059-FS	SEAD24-FX-A1-SS-059-FS2	SEAD24-FX-A1-SS-060-FS	SEAD24-FX-A1-SS-060-FS2	SEAD-24-FX-A1-SS-061-FS	SEAD-24-FX-A1-SS-062-FS	SEAD24-FX-A1-SS-062-FS2	SEAD-24-FX-A1-SS-063-FS	SEAD24-FX-A1-SS-063-FS3	SEAD24-FX-A1-SS-064-FS2	SEAD24-FX-A1-SS-064-FS3	SEAD24-FX-A1-SS-065-FS2	SEAD-24-FX-A1-SS-066-FS	SEAD24-FX-A1-SS-066-FS2
Depth BOG(inches)		6-12	12-18	6-12	12-18	6-12	6-12	12-18	6-12	18-24	12-18	18-24	12-18	6-12	12-18
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200														
Antimony	5.9														
Arsenic	8.24		17.5		6.7	12.4		5.2		5.1		5.1	7.8		5.4
Barium	300														
Beryllium	1.1														
Cadmium	2.3														
Calcium	120,500														
Chromium	29														
Cobalt	30														
Copper	29.6														
Iron	35,550														
[2]Lead	400		20.9	21		23.8	19.3		12.6		18.1		16.6		14
Magnesium	21,500														
Manganese	1,056														
Mercury	0.1														
Nickel	48.9														
Potassium	2,343														
Selenium	2														
Silver	0.763														
Sodium	170.3														
Thallium	0.67														
Vanadium	150														
Zinc	108.9	99.5		109	46.5	90	96.6			267		80.6	91.4	97.7	
[3]PAHs		(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)		(µg/kg)			(µg/kg)	
2-Methylnaphthalene	36,400														
Acenaphthene	50,000														
Acenaphthylene	41,000														
Anthracene	50,000														
Benzo(ghi)perylene	50,000														
Fluoranthene	50,000														
Fluorene	50,000														
Naphthalene	13,000														
Phenanthrene	50,000														
Pyrene	50,000														
Benzo(a)pyrene	61														
Dibenzo(a,h)anthracene	14														
Benzo(a)anthracene	224														
Benzo(b)fluoranthene	1,100														
Indeno(1,2,3-cd)pyrene	3,200														
Benzo(k)fluoranthene	1,100														
Chrysene	400														
[4]Benzo(a)pyrene TEQ	10,000														

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD-24-FX-A1-SS-067-FS	SEAD24-FX-A1-SS-067-FS2	SEAD-24-FX-A1-SS-068-FS	SEAD-24-FX-A1-SS-069-FS	SEAD-24-FX-A1-SS-070-FS	SEAD24-FX-A1-SS-070-FS2	SEAD-24-FX-A1-SS-071-FS	SEAD-24-FX-A1-SS-072-FS	SEAD-24-FX-A1-SS-073-FS	SEAD-24-FX-A1-SS-074-FS	SEAD24-FX-A1-SS-074-FS2	SEAD-24-FX-A1-SS-075-FS	SEAD24-FX-A1-SS-075-FS3	SEAD-24-FX-A1-SS-076-FS	SEAD24-FX-A1-SS-076-FS2	SEAD-24-FX-A1-SS-077-FS
Depth BOG(inches)		6-12	12-18	6-12	6-12	6-12	12-18	6-12	6-12	6-12	6-12	12-18	6-12	18-24	6-12	12-18	6-12
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200			18300						17500 U							
Antimony	5.9			1.5 U						1.3 B							
Arsenic	8.24		5.7	5.1 B	6.8		7.1	3.9 J	7.7	8.2		7.3		5.2		4.9	6.6
Barium	300			69.2						81.8 B							
Beryllium	1.1			0.78 B						0.73 U							
Cadmium	2.3			1.3 U						1							
Calcium	120,500			1680						3560							
Chromium	29			25.3						24							
Cobalt	30			12.9						11.8							
Copper	29.6			19.4						20.9							
Iron	35,550			29000						25700							
[2]Lead	400	13.9		16.6	27.6	16.3		17.9	16.2	22.2	17.7		97.4		17.4		19.8
Magnesium	21,500			4280						4350							
Manganese	1,056			531						463 B							
Mercury	0.1			0.048 U						0.048							
Nickel	48.9			28.4						28							
Potassium	2,343			2200						2200 U							
Selenium	2			2 U						1.7 U							
Silver	0.763			0.38 U						0.31 B							
Sodium	170.3			68 B						72.9 U							
Thallium	0.67			3.8 U						3.1							
Vanadium	150			30.5						28.6							
Zinc	108.9	80		72.8	111		97.7	71.5	89.6	95.8	90.3		166		103		112
[3]PAHs		(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)
2-Methylnaphthalene	36,400			35 U						37 U							
Acenaphthene	50,000			19 U						20 U							
Acenaphthylene	41,000			14 U						66 J							
Anthracene	50,000			15 U						60 J							
Benzo(ghi)perylene	50,000			21 U						170 J							
Fluoranthene	50,000			28 UM						340 J							
Fluorene	50,000			25 U						27 U							
Naphthalene	13,000			40 U						42 UM							
Phenanthrene	50,000			30 UM						230 J							
Pyrene	50,000			24 UM						400 J							
Benzo(a)pyrene	61			20 U						260 J							
Dibenzo(a,h)anthracene	14			23 U						24 U							
Benzo(a)anthracene	224			19 U						200 J							
Benzo(b)fluoranthene	1,100			48 U						170 JH							
Indeno(1,2,3-cd)pyrene	3,200			23 U						140 J							
Benzo(k)fluoranthene	1,100			49 U						180 J							
Chrysene	400			21 U						250 J							
[4]Benzo(a)pyrene TEQ	10,000			53						339							

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD-24-FX-A1-SS-078-FS	SEAD24-FX-A1-SS-078-FS3	SEAD24-FX-A1-SS-078-FS4	SEAD-24-FX-A1-SS-079-FS	SEAD24-FX-A1-SS-079-FS3	SEAD-24-FX-A1-SS-080-FS	SEAD24-FX-A1-SS-080-FS2	SEAD-24-FX-A1-SS-081-FS	SEAD24-FX-A1-SS-081-FS2	SEAD-24-FX-A1-SS-082-FS	SEAD-24-FX-A1-SS-083-FS	SEAD24-FX-A1-SS-084-FS2	SEAD-24-FX-A1-SS-085-FS
Depth BOG(inches)		6-12	18-24	24-30	6-12	18-24	6-12	12-18	6-12	12-18	6-12	6-12	12-18	6-12
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200	22600										17300		
Antimony	5.9	1.1 U										1.4 U		
Arsenic	8.24			6.3		5.9		18.2		7.5	5.5	5.1 B	11.8	5.8
Barium	300	89.7										87.8		
Beryllium	1.1	1.2 B										0.76 B		
Cadmium	2.3	0.94 U										1.2 U		
Calcium	120,500	2200										5790		
Chromium	29	33.8										23.1		
Cobalt	30	17.7										11.7		
Copper	29.6	37.1										17.2		
Iron	35,550	43000										24400		
[2]Lead	400			20.6	13.9			20.7	20.2		16.6	18	16.1	80.5
Magnesium	21,500	6390										4100		
Manganese	1,056	737										442		
Mercury	0.1	0.043 B										0.048 B		
Nickel	48.9	47.6										26.8		
Potassium	2,343	2430										2170		
Selenium	2	1.6 B										1.9 U		
Silver	0.763	0.28 U										0.36 U		
Sodium	170.3	73.6 B										77.2 B		
Thallium	0.67	2.8 U										3.6 U		
Vanadium	150	32.3										27.9		
Zinc	108.9		67			91.9	84.3		108		87	81.9	62.9	148
[3]PAHs		(µg/kg)			(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)
2-Methylnaphthalene	36,400	34 U										35 U		
Acenaphthene	50,000	18 U										19 U		
Acenaphthylene	41,000	13 U										34 J		
Anthracene	50,000	15 U										41 J		
Benzo(ghi)perylene	50,000	21 U										170 J		
Fluoranthene	50,000	27 U										480		
Fluorene	50,000	24 U										25 UM		
Naphthalene	13,000	39 U										40 UM		
Phenanthrene	50,000	29 U										200 J		
Pyrene	50,000	23 U										500		
Benzo(a)pyrene	61	20 U										250 J		
Dibenzo(a,h)anthracene	14	22 U										81 J		
Benzo(a)anthracene	224	18 U										270 J		
Benzo(b)fluoranthene	1,100	46 U										220 JH		
Indeno(1,2,3-cd)pyrene	3,200	22 U										160 J		
Benzo(k)fluoranthene	1,100	48 U										230 J		
Chrysene	400	21 U										310 J		
[4]Benzo(a)pyrene TEQ	10,000	51										401		

Appendix D Table 9a
SEAD 24 Confirmatory Soil Sample Results - Area 1 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A1-SS-086-FS	SEAD24-FX-A1-SS-086-FS2	SEAD24-FX-A1-SS-087-FS	SEAD24-PX-A1-SS-087-FS2	SEAD24-FX-A1-SS-088-FS	SEAD24-PX-A1-SS-088-FS2	SEAD-24-FX-A1-SS-089-FS	SEAD-24-FX-A1-SS-090-FS	SEAD-24-FX-A1-SS-091-FS	SEAD-24-FX-A1-SS-092-FS
Depth BOG(inches)		6-12	12-18	6-12	12-18	6-12	12-18	12-18	24-30	24-30	12-18
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200										
Antimony	5.9										
Arsenic	8.24	4.3		7.1		5.9		18.5	4.9	69.2	10.5
Barium	300										
Beryllium	1.1										
Cadmium	2.3										
Calcium	120,500										
Chromium	29										
Cobalt	30										
Copper	29.6										
Iron	35,550										
[2]**Lead**	400	9.3			16.5		19.1	18.7	8.9	10.7	28.8
Magnesium	21,500										
Manganese	1,056										
Mercury	0.1										
Nickel	48.9										
Potassium	2,343										
Selenium	2										
Silver	0.763										
Sodium	170.3										
Thallium	0.67										
Vanadium	150										
Zinc	108.9		71.9		52.4		122.0	85	48.6	60.7	122
[3]PAHs								(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
2-Methylnaphthalene	36,400							62 U			
Acenaphthene	50,000							64 U			
Acenaphthylene	41,000							48 U			
Anthracene	50,000							64 U			
Benzo(ghi)perylene	50,000							43 U			
Fluoranthene	50,000							49 U			
Fluorene	50,000							50 U			
Naphthalene	13,000							66 U			
Phenanthrene	50,000							45 U			
Pyrene	50,000							53 U			
Benzo(a)pyrene	61							48 U			
Dibenzo(a,h)anthracene	14							43 U			
Benzo(a)anthracene	224							52 U			
Benzo(b)fluoranthene	1,100							110 U			
Indeno(1,2,3-cd)pyrene	3,200							39 U			
Benzo(k)fluoranthene	1,100							43 U			
Chrysene	400							49 U			
[4]Benzo(a)pyrene TEQ	10,000										

Appendix D Table 9b
SEAD 24 Confirmatory Soil Sample Results - Area 1 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A1-SS-001-FS	SEAD24-PX-A1-SS-001-FS4	SEAD24-PX-A1-SS-001-FS5	SEAD24-PX-A1-SS-002-FS3	SEAD24-PX-A1-SS-002-FS4	SEAD24-PX-A1-SS-003-FS	SEAD24-PX-A1-SS-003-FS2	SEAD24-PX-A1-SS-004-FS	SEAD24-PX-A1-SS-005-FS	SEAD24-PX-A1-SS-005-FS2	SEAD24-PX-A1-SS-006-FS	SEAD24-PX-A1-SS-007-FS	SEAD24-PX-A1-SS-008-FS
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 6	2-6 / 8	2-6 / 5	2-6 / 6	2-6 / 1	2-6 / 4	2-6 / 1	2-6 / 1	2-6 / 4	2-6 / 1	2-6 / 1	2-6 / 1
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200	12400										16100		
Antimony	5.9	5.1 J										13.3 U		
Arsenic	8.24			26.7		18.5		11.2	7.5		6 j	6.8 J	7.2	7.3
Barium	300	98.4										132		
Beryllium	1.1	0.71 J										0.95 J		
Cadmium	2.3	2.7 U										3.4 U		
Calcium	120,500	10900										5470		
Chromium	29	21.2										23.8		
Cobalt	30	13.2										11.7		
Copper	29.6	25.8										22		
Iron	35,550	26300										27800		
[2]Lead	400		89.4			36.1	23.4		21.9	29.8		19.2	22.1	17.7
Magnesium	21,500	4600										4580		
Manganese	1,056	893										682		
Mercury	0.1	0.051 J										0.06 J		
Nickel	48.9	36.4										32.3		
Potassium	2,343	1520										2100		
Selenium	2	14.6 U										2.1 J		
Silver	0.763	2.7 U										3.4 U		
Sodium	170.3	78.7 J										94.7 J		
Thallium	0.67	20 U										25 U		
Vanadium	150	19.3										25.1		
Zinc	108.9			188	132			126	119		129	115	108	91.1
[3]PAHs		(ug/kg)			(ug/kg)		(ug/kg)		(ug/kg)	(ug/kg)		(ug/kg)	(ug/kg)	(ug/kg)
2-Methylnaphthalene	36,400	33 U										39 U		
Acenaphthene	50,000	18 U										21 U		
Acenaphthylene	41,000	13 U										15 U		
Anthracene	50,000	14 U										17 U		
Benzo(ghi)perylene	50,000	20 U										24 U		
Fluoranthene	50,000	26 U										31 U		
Fluorene	50,000	23 U										28 U		
Naphthalene	13,000	38 U										45 U		
Phenanthrene	50,000	28 U										33 U		
Pyrene	50,000	22 U										26 U		
Benzo(a)pyrene	61	19 J										22 U		
Dibenzo(a,h)anthracene	14	21 U										25 U		
Benzo(a)anthracene	224	18 U										21 U		
Benzo(b)fluoranthene	1,100	45 UM										53 U		
Indeno(1,2,3-cd)pyrene	3,200	21 U										25 U		
Benzo(k)fluoranthene	1,100	46 UM										54 U		
Chrysene	400	20 U										24 U		
[4]Benzo(a)pyrene TEQ	10,000	49										58		

Appendix D Table 9b
SEAD 24 Confirmatory Soil Sample Results - Area 1 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A1-SS-009-FS	SEAD24-PX-A1-SS-010-FS	SEAD24-PX-A1-SS-011-FS	SEAD24-PX-A1-SS-012-FS	SEAD24-PX-A1-SS-013-FS	SEAD24-PX-A1-SS-014-FS	SEAD24-PX-A1-SS-015-FS	SEAD24-PX-A1-SS-015-FS2	SEAD24-PX-A1-SS-016-FS	SEAD24-PX-A1-SS-017-FS	SEAD24-PX-A1-SS-018-FS	SEAD24-PX-A1-SS-019-FS	SEAD24-PX-A1-SS-020-FS
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 4	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200			17200						13500				
Antimony	5.9			13 U						14 U				
Arsenic	8.24	7	4.4	7.9 J	6.4	5.7	6.6		4.7	5.8 J	4.4	4.9	6.8	7.8
Barium	300			90.1						98.9				
Beryllium	1.1			0.93 J						0.65 J				
Cadmium	2.3			3.3 U						3.6 U				
Calcium	120,500			2660						5890				
Chromium	29			24.8						18.2				
Cobalt	30			10.8						8.5				
Copper	29.6			21.6						41.8				
Iron	35,550			32300						20700				
[2]Lead	400	19.7	14.4	27.9	12.5	15.6	21.4	22.7		19.4	11	18.7	19.2	22.3
Magnesium	21,500			4390						3770				
Manganese	1,056			417						456				
Mercury	0.1			0.049 J						0.05 J				
Nickel	48.9			31.1						21				
Potassium	2,343			1410						1580				
Selenium	2			17.8 U						19.2 U				
Silver	0.763			3.3 U						3.6 U				
Sodium	170.3			78.9 J						80.1 J				
Thallium	0.67			24.5 U						26.3 U				
Vanadium	150			27.9						22.8				
Zinc	108.9	104	68.7	97	91.1	69.4	93.7	93.7		69.9	53.7	69	84.7	59.4
[3]PAHs		(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
2-Methylnaphthalene	36,400			35 U						39 U				
Acenaphthene	50,000			19 U						21 U				
Acenaphthylene	41,000			14 U						15 U				
Anthracene	50,000			15 U						21 J				
Benzo(ghi)perylene	50,000			21 U						24 U				
Fluoranthene	50,000			27 U						74 J				
Fluorene	50,000			25 U						28 U				
Naphthalene	13,000			40 U						45 U				
Phenanthrene	50,000			30 U						55 J				
Pyrene	50,000			24 U						96 J				
Benzo(a)pyrene	61			20 U						54 J				
Dibenzo(a,h)anthracene	14			22 U						25 U				
Benzo(a)anthracene	224			19 U						56 J				
Benzo(b)fluoranthene	1,100			47 U						54 U				
Indeno(1,2,3-cd)pyrene	3,200			22 U						33 J				
Benzo(k)fluoranthene	1,100			48 U						55 U				
Chrysene	400			21 U						62 J				
[4]Benzo(a)pyrene TEQ	10,000			51						94				

Appendix D Table 9b
SEAD 24 Confirmatory Soil Sample Results - Area 1 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A1-SS-021-FS	SEAD24-PX-A1-SS-022-FS	SEAD24-PX-A1-SS-022-FS2	SEAD24-PX-A1-SS-023-FS	SEAD24-PX-A1-SS-024-FS	SEAD24-PX-A1-SS-025-FS	SEAD24-PX-A1-SS-025-FS4	SEAD24-PX-A1-SS-026-FS	SEAD24-PX-A1-SS-026-FS3	SEAD24-PX-A1-SS-027-FS	SEAD24-PX-A1-SS-027-FS3	SEAD24-PX-A1-SS-028-FS	SEAD24-PX-A1-SS-028-FS2
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 1	2-6 / 4	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 6	2-6 / 1	2-6 / 26	2-6 / 1	2-6 / 26	2-6 / 1	2-6 / 26
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200	16400											13800	
Antimony	5.9	10.4 U											12.8 U	
Arsenic	8.24	8		11.6	4.5	7.5		17.6		3.9 J		5.2		17.8
Barium	300	103											95.1	
Beryllium	1.1	0.75 J											0.61 J	
Cadmium	2.3	2.7 U											3.3 U	
Calcium	120,500	4380											4720	
Chromium	29	19.9											17.6	
Cobalt	30	10.2											8.8	
Copper	29.6	22.1											20.5	
Iron	35,550	23300											20400	
[2]Lead	400	16		21.4	11.8	19.7	33.5		95.3		60.2			28.3
Magnesium	21,500	4850											3290	
Manganese	1,056	581											502	
Mercury	0.1	0.045 J											0.05 J	
Nickel	48.9	22.5											20.5	
Potassium	2,343	1910											1720	
Selenium	2	14.2 U											17.5 U	
Silver	0.763	2.7 U											3.3 U	
Sodium	170.3	72.9 J											76.2 J	
Thallium	0.67	19.5 U											24 U	
Vanadium	150	26.5											22.8	
Zinc	108.9	67.2	64.1		47	77.3		138	256		134			98.6
[3]PAHs		(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	
2-Methylnaphthalene	36,400	33 U											39 U	
Acenaphthene	50,000	18 U											21 U	
Acenaphthylene	41,000	13 U											15 U	
Anthracene	50,000	14 U											22 J	
Benzo(ghi)perylene	50,000	20 U											65 J	
Fluoranthene	50,000	26 U											130 J	
Fluorene	50,000	24 U											28 U	
Naphthalene	13,000	38 U											45 U	
Phenanthrene	50,000	28 U											56 J	
Pyrene	50,000	29 JM											140 J	
Benzo(a)pyrene	61	19 U											84 J	
Dibenzo(a,h)anthracene	14	21 U											25 U	
Benzo(a)anthracene	224	18 U											78 J	
Benzo(b)fluoranthene	1,100	45 U											70 J	
Indeno(1,2,3-cd)pyrene	3,200	21 U											56 J	
Benzo(k)fluoranthene	1,100	46 U											84 J	
Chrysene	400	20 U											97 J	
[4]Benzo(a)pyrene TEQ	10,000	49											131	

Appendix D Table 9b
SEAD 24 Confirmatory Soil Sample Results - Area 1 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A1-SS-029-FS	SEAD24-PX-A1-SS-029-FS2	SEAD-24-PX-A1-SS-030-FS	SEAD24-PX-A1-SS-030-FS2	SEAD-24-PX-A1-SS-031-FS	SEAD24-PX-A1-SS-031-FS2	SEAD24-PX-A1-SS-032-FS	SEAD24-PX-A1-SS-032-FS2	SEAD24-PX-A1-SS-032-FS3	SEAD-24-PX-A1-SS-033-FS	SEAD-24-PX-A1-SS-034-FS	SEAD24-PX-A1-SS-035-FS2	SEAD24-PX-A1-SS-035-FS3
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 26	2-6 / 1	2-6 / 26	2-6 / 4	2-6 / 26	2-6 / 1	2-6 / 4	2-6 / 26	2-6 / 1	2-6 / 1	2-6 / 4	2-6 / 7
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200							16200						
Antimony	5.9							1.4 U						
Arsenic	8.24		7.2		8.9		10.7		6.4		6.9	5.9		7.7
Barium	300							81.3						
Beryllium	1.1							0.72 J						
Cadmium	2.3							1.2 U						
Calcium	120,500							4420						
Chromium	29							22.6						
Cobalt	30							10.8						
Copper	29.6							24.5						
Iron	35,550							25000						
[2]Lead	400	21.6		23.6			33.2	41.8			19.1	26.7	123	
Magnesium	21,500							4510						
Manganese	1,056							544						
Mercury	0.1							0.051 J						
Nickel	48.9							28.9						
Potassium	2,343							2480						
Selenium	2							1.9 U						
Silver	0.763							0.35 U						
Sodium	170.3							78.2 J						
Thallium	0.67							3.5 U						
Vanadium	150							26						
Zinc	108.9	69.4		86.6		100		120			90.9	72		67.4
[3]PAHs		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)		
2-Methylnaphthalene	36,400							40 U						
Acenaphthene	50,000							27 J						
Acenaphthylene	41,000							50 J						
Anthracene	50,000							120 J						
Benzo(ghi)perylene	50,000							53 J						
Fluoranthene	50,000							790						
Fluorene	50,000							40 JH						
Naphthalene	13,000							46 UM						
Phenanthrene	50,000							550						
Pyrene	50,000							760						
Benzo(a)pyrene	61									10 U				
Dibenzo(a,h)anthracene	14									10 U				
Benzo(a)anthracene	224							380 J						
Benzo(b)fluoranthene	1,100							280 JH						
Indeno(1,2,3-cd)pyrene	3,200							68 J						
Benzo(k)fluoranthene	1,100							430 J						
Chrysene	400							420 J						
[4]Benzo(a)pyrene TEQ	10,000							468						

Appendix D Table 9b
SEAD 24 Confirmatory Soil Sample Results - Area 1 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A1-SS-036-FS2	SEAD-24-PX-A1-SS-037-FS	SEAD24-PX-A1-SS-038-FS3	SEAD-24-PX-A1-SS-039-FS	SEAD-24-PX-A1-SS-040-FS	SEAD24-PX-A1-SS-040-FS3	SEAD-24-PX-A1-SS-041-FS	SEAD-24-PX-A1-SS-041-FS2	SEAD-24-PX-A1-SS-042a-FS	SEAD-24-PX-A1-SS-042-FS	SEAD-24-PX-A1-SS-042-FS2	SEAD-24-PX-A1-SS-043-FS	SEAD-24-PX-A1-SS-044-FS
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 5	2-6 / 1	2-6 / 5	2-6 / 1	2-6 / 1	2-6 / 6	2-6 / 1	2-6 / 5	2-6 / 1	2-6 / 1	2-6 / 4	2-6 / 1	2-6 / 1
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200		14500											
Antimony	5.9		1.1 U											
Arsenic	8.24	11.9	6.5 B	5.9	11.8		8.1	10.6		6.6		5.0	4.4	4.9
Barium	300		67.3											
Beryllium	1.1		0.69 B											
Cadmium	2.3		0.94 U											
Calcium	120,500		20400											
Chromium	29		28.9											
Cobalt	30		13.4											
Copper	29.6		48.6											
Iron	35,550		29800											
[2]Lead	400	107	82.2	86.2	177		9.7		21	24.8		43.5	19.5	22.2
Magnesium	21,500		6840											
Manganese	1,056		418											
Mercury	0.1		0.051 U											
Nickel	48.9		50.7											
Potassium	2,343		2590											
Selenium	2		1.5 U											
Silver	0.763		0.28 U											
Sodium	170.3		123											
Thallium	0.67		2.8 U											
Vanadium	150		22											
Zinc	108.9	145	105	106	276	397			71.9	115		78.7	70.6	77.2
[3]PAHs			(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)
2-Methylnaphthalene	36,400		33 U								34 U			
Acenaphthene	50,000		18 UM								18 U			
Acenaphthylene	41,000		13 UM								13 U			
Anthracene	50,000		14 UH								15 U			
Benzo(ghi)perylene	50,000		20 U								21 U			
Fluoranthene	50,000		55 J								27 U			
Fluorene	50,000		23 UM								25 U			
Naphthalene	13,000		37 UM								39 U			
Phenanthrene	50,000		42 J								29 UM			
Pyrene	50,000		60 J								23 U			
Benzo(a)pyrene	61		29 J								20 UM			
Dibenzo(a,h)anthracene	14		21 U								22 U			
Benzo(a)anthracene	224		30 J								18 U			
Benzo(b)fluoranthene	1,100		44 UM								47 UM			
Indeno(1,2,3-cd)pyrene	3,200		21 U								22 U			
Benzo(k)fluoranthene	1,100		46 U								48 UM			
Chrysene	400		42 J								21 U			
[4]Benzo(a)pyrene TEQ	10,000		60								51			

Appendix D Table 9b
SEAD 24 Confirmatory Soil Sample Results - Area 1 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD-24-PX-A1-SS-045-FS	SEAD24-PX-A1-SS-046-FS	SEAD24-PX-A1-SS-046-FS3	SEAD24-PX-A1-SS-047-FS2	SEAD24-PX-A1-SS-047-FS3	SEAD24-PX-A1-SS-048-FS3	SEAD24-PX-A1-SS-048-FS4	SEAD24-PX-A1-SS-049-FS	SEAD24-PX-A1-SS-048-FS5	SEAD-24-PX-A1-SS-050-FS	SEAD24-PX-A1-SS-051-FS	SEAD24-PX-A1-SS-051-FS3	SEAD-24-PX-A1-SS-052-FS
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 1	2-6 / 7	2-6 / 4	2-6 / 7	2-6 / 7	2-6 / 10	No Sidewall	2-6 / 15	2-6 / 1	2-6 / 1	2-6 / 7	2-6 / 1
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200		8160									14600		
Antimony	5.9		13.6 U									5.3 J		
Arsenic	8.24	6		13.1		10.4				32.5	10.6		8.9	16.1
Barium	300		48.1									77.7		
Beryllium	1.1		2.3 U									0.72 J		
Cadmium	2.3		3.5 U									3 U		
Calcium	120,500		92900									15700		
Chromium	29		9.6									26.4		
Cobalt	30		4.7									13		
Copper	29.6		10.3									37.8		
Iron	35,550		11300									30300		
[2]Lead	400	94.1	9.2 J		12.7			75			234	323		343
Magnesium	21,500		61900									6760		
Manganese	1,056		374									431		
Mercury	0.1		0.073 U									0.066 U		
Nickel	48.9		10.2									46.7		
Potassium	2,343		1270									2190		
Selenium	2		18.6 U									15.8 U		
Silver	0.763		3.5 U									3 U		
Sodium	170.3		238									116		
Thallium	0.67		25.6 U									21.7 U		
Vanadium	150		13.5									19.9		
Zinc	108.9	73.8		48.5		63	49.3				245		92.8	508
[3]PAHs		(µg/kg)	(µg/kg)		(µg/kg)						(µg/kg)	(µg/kg)		(µg/kg)
2-Methylnaphthalene	36,400		32 U									31 U		
Acenaphthene	50,000		17 U									17 U		
Acenaphthylene	41,000		13 U									12 U		
Anthracene	50,000		14 U									13 U		
Benzo(ghi)perylene	50,000		19 U									19 U		
Fluoranthene	50,000		31 J									28 J		
Fluorene	50,000		23 U									22 U		
Naphthalene	13,000		36 U									36 U		
Phenanthrene	50,000		27 U									27 U		
Pyrene	50,000		33 J									28 J		
Benzo(a)pyrene	61		18 U									18 U		
Dibenzo(a,h)anthracene	14		20 U									20 U		
Benzo(a)anthracene	224		17 U									17 U		
Benzo(b)fluoranthene	1,100		43 UM									43 UM		
Indeno(1,2,3-cd)pyrene	3,200		20 U									20 U		
Benzo(k)fluoranthene	1,100		44 UM									44 UM		
Chrysene	400		19 J									23 J		
[4]Benzo(a)pyrene TEQ	10,000		47									47		

Appendix D Table 9b
SEAD 24 Confirmatory Soil Sample Results - Area 1 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD-24-PX-A1-SS-053-FS	SEAD-24-PX-A1-SS-054-FS	SEAD-24-PX-A1-SS-055-FS	SEAD24-PX-A1-SS-056-FS	SEAD-24-PX-A1-SS-057-FS	SEAD24-PX-A1-SS-057-FS2	SEAD-24-PX-A1-SS-058-FS	SEAD24-PX-A1-SS-058-FS2	SEAD-24-PX-A1-SS-059-FS	SEAD24-PX-A1-SS-059-FS3	SEAD24-PX-A1-SS-060-FS3	SEAD24-PX-A1-SS-060-FS4	SEAD24-PX-A1-SS-061-FS	SEAD24-FX-A1-SS-061-FS2
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 4	2-6 / 1	2-6 / 4	2-6 / 1	2-6 / 5	2-6 / 5	2-6 / 6	2-6 / 1	2-6 / 4
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200				13800									16300	
Antimony	5.9				2.9 J									18.9	
Arsenic	8.24	6.6	16.2	7.7	9.1		8		15.7		4.3		12.2		6.1
Barium	300				38									148	
Beryllium	1.1				0.63 J									0.87 J	
Cadmium	2.3				0.93 J									1.1 J	
Calcium	120,500				26500									5370	
Chromium	29				25.1									23.8	
Cobalt	30				14.5									11.8	
Copper	29.6				37.1									32.7	
Iron	35,550				27400									26300	
[2]Lead	400	130	382	28.3	106		27		115	54.1			45.7	315	
Magnesium	21,500				6770									4210	
Manganese	1,056				401									566	
Mercury	0.1				0.073 U									0.064 J	
Nickel	48.9				49.8									32.1	
Potassium	2,343				2180									2220	
Selenium	2				14.1 U									13.8 U	
Silver	0.763				2.6 U									2.6 U	
Sodium	170.3				146									81.7	
Thallium	0.67				19.4 U									19 U	
Vanadium	150				17.6									26.7	
Zinc	108.9	176	552	86.6	210	96		86.6		117		315		570	
[3]PAHs		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)	
2-Methylnaphthalene	36,400				33 U									140 U	
Acenaphthene	50,000				18 U									75 U	
Acenaphthylene	41,000				13 U									55 U	
Anthracene	50,000				14 U									60 U	
Benzo(ghi)perylene	50,000				20 U									85 U	
Fluoranthene	50,000				26 U									110 U	
Fluorene	50,000				24 U									100 U	
Naphthalene	13,000				38 U									160 U	
Phenanthrene	50,000				28 U									120 U	
Pyrene	50,000				22 UM									95 U	
Benzo(a)pyrene	61				19 U									80 U	
Dibenzo(a,h)anthracene	14				21 U									90 U	
Benzo(a)anthracene	224				18 U									75 U	
Benzo(b)fluoranthene	1,100				45 U									190 U	
Indeno(1,2,3-cd)pyrene	3,200				21 U									90 U	
Benzo(k)fluoranthene	1,100				46 U									190 U	
Chrysene	400				20 U									85 U	
[4]Benzo(a)pyrene TEQ	10,000				49									208	

Appendix D Table 9c
SEAD 24 Confirmatory Soil Sample Results - Area 2 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A2-SS-001-FS	SEAD24-FX-A2-SS-001-FS2	SEAD24-FX-A2-SS-002-FS	SEAD24-FX-A2-SS-003-FS	SEAD24-FX-A2-SS-004-FS	SEAD24-FX-A2-SS-005-FS	SEAD24-FX-A2-SS-005-FS2	SEAD24-FX-A2-SS-006-FS	SEAD24-FX-A2-SS-006-FS2	SEAD24-FX-A2-SS-007-FS	SEAD24-FX-A2-SS-008-FS	SEAD24-FX-A2-SS-008-FS2	SEAD24-FX-A2-SS-009-FS	SEAD24-FX-A2-SS-010-FS	SEAD24-FX-A2-SS-011-FS	SEAD24-FX-A2-SS-012-FS	SEAD24-FX-A2-SS-013-FS	SEAD24-FX-A2-SS-014-FS	SEAD24-FX-A2-SS-015-FS
Depth BOG(inches)		6-12	12-18	6-12	6-12	6-12	6-12	12-18	6-12	12-18	6-12	6-12	12-18	6-12	6-12	6-12	6-12	6-12	6-12	6-12
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200						13600								21700					17600
Antimony	5.9						12.3 U								12.1 U					14 U
Arsenic	8.24		4.7	6.5	6.3	6.1		7.9		8.3	4.4		4.9	6.5	6.4 J	5.7	6.3	7.7	4	6.1 J
Barium	300						114								86.9					86
Beryllium	1.1						0.65 J								1.1 J					0.86 J
Cadmium	2.3						3.2 U								3.1 U					3.6 U
Calcium	120,500						71700								2570					6400
Chromium	29						20.1								33.5					25
Cobalt	30						12.3								18.5					15
Copper	29.6						24								24.8					23.2
Iron	35,550						25100								39200					29200
[2]Lead	400	22.5		23.3	25.1	15.9	20.5			17.8	9.2	12.6		17.4	9.8	13.2	12.1	13.6	13.3	18.8
Magnesium	21,500						4870								7110					5200
Manganese	1,056						606								635					677
Mercury	0.1						0.047 J								0.04 J					0.058 J
Nickel	48.9						33								52.5					32.7
Potassium	2,343						2070								1910					2270
Selenium	2						16.8 U								16.5 U					19.1 U
Silver	0.763						3.2 U								3.1 U					3.6 U
Sodium	170.3						128								70.4 J					84.5 J
Thallium	0.67						23.1 U								22.7 U					26.3 U
Vanadium	150						20.3								27.6					26.5
Zinc	108.9		49.1	124	134	84.7		154	92.4		65	71.4		89.7	81.1	75.8	78	72.6	55.7	84.1
[3]PAHs		(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)		(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
2-Methylnaphthalene	36,400						34 U								34 U					34 U
Acenaphthene	50,000						18 U								18 U					18 U
Acenaphthylene	41,000						13 U								13 U					13 U
Anthracene	50,000						15 U								14 U					15 U
Benzo(ghi)perylene	50,000						21 U								21 U					21 U
Fluoranthene	50,000						27 U								27 U					27 U
Fluorene	50,000						24 U								24 U					24 U
Naphthalene	13,000						39 U								39 U					39 U
Phenanthrene	50,000						29 U								29 U					29 U
Pyrene	50,000						23 U								23 U					23 U
Benzo(a)pyrene	61						19 U								19 U					19 U
Dibenzo(a,h)anthracene	14						22 U								22 U					22 U
Benzo(a)anthracene	224						18 U								18 U					18 U
Benzo(b)fluoranthene	1,100						46 U								46 UM					46 U
Indeno(1,2,3-cd)pyrene	3,200						22 U								22 U					22 U
Benzo(k)fluoranthene	1,100						47 U								47 UM					48 U
Chrysene	400						21 U								21 U					21 U
[4]Benzo(a)pyrene TEQ	10,000						50								50					

Appendix D Table 9d
SEAD 24 Confirmatory Soil Sample Results - Area 2 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A2-SS-001-FS	SEAD24-PX-A2-SS-002-FS	SEAD24-PX-A2-SS-003-FS	SEAD24-PX-A2-SS-004-FS	SEAD24-PX-A2-SS-005-FS	SEAD24-PX-A2-SS-006-FS	SEAD24-PX-A2-SS-007-FS	SEAD24-PX-A2-SS-008-FS	SEAD24-PX-A2-SS-009-FS	SEAD24-PX-A2-SS-010-FS	SEAD24-PX-A2-SS-011-FS	SEAD24-PX-A2-SS-012-FS3	SEAD24-PX-A2-SS-012-FS4
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 5	2-6 / 6
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200					11900					15500			
Antimony	5.9					12.4 U					13.9 U			
Arsenic	8.24	7.9	3	4.5	6.3	7.1 J	5.6	5.8	6.8	4.4	6.9 J	6.7		18.3
Barium	300					36.3					67.4			
Beryllium	1.1					0.58 J					0.68 J			
Cadmium	2.3					3.2 U					3.6 U			
Calcium	120,500					10800					1680			
Chromium	29					23.2					22.2			
Cobalt	30					13.7					10.5			
Copper	29.6					46.4					20.3			
Iron	35,550					29800					25400			
[2]Lead	400	23.6	17.4	24	26.5	33	17.4	18.7	16.2	14.9	16.6	13.4	16.4	
Magnesium	21,500					6020					4120			
Manganese	1,056					281					417			
Mercury	0.1					0.065 U					0.048 J			
Nickel	48.9					52.5					27			
Potassium	2,343					1670					1920			
Selenium	2					1.8 J					19 U			
Silver	0.763					3.2 U					3.6 U			
Sodium	170.3					96.4 J					65.1 J			
Thallium	0.67					23.3 U					26.1 U			
Vanadium	150					16.4					25.3			
Zinc	108.9	172	123	104	241	107	77.7	73.8	71.2	72.2	1215.985	69.9		83
[3]PAHs		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	
2-Methylnaphthalene	36,400					29 U					34 U			
Acenaphthene	50,000					16 U					18 U			
Acenaphthylene	41,000					11 U					13 U			
Anthracene	50,000					12 U					14 U			
Benzo(ghi)perylene	50,000					18 U					21 U			
Fluoranthene	50,000					23 U					27 U			
Fluorene	50,000					21 U					24 U			
Naphthalene	13,000					33 U					39 U			
Phenanthrene	50,000					25 U					29 U			
Pyrene	50,000					20 U					23 U			
Benzo(a)pyrene	61					17 U					19 U			
Dibenzo(a,h)anthracene	14					19 U					22 U			
Benzo(a)anthracene	224					16 U					18 U			
Benzo(b)fluoranthene	1,100					39 U					46 U			
Indeno(1,2,3-cd)pyrene	3,200					19 U					22 U			
Benzo(k)fluoranthene	1,100					40 U					47 U			
Chrysene	400					18 U					21 U			
[4]Benzo(a)pyrene TEQ	10,000					44					50			

Appendix D Table 9d
SEAD 24 Confirmatory Soil Sample Results - Area 2 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A2-SS-013-FS	SEAD24-PX-A2-SS-013-FS2	SEAD24-PX-A2-SS-014-FS	SEAD24-PX-A2-SS-014-FS2	SEAD24-PX-A2-SS-015-FS	SEAD24-PX-A2-SS-015-FS2	SEAD24-PX-A2-SS-016-FS3	SEAD24-PX-A2-SS-016-FS4	SEAD24-PX-A2-SS-016-FS5
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 4	2-6 / 1	2-6 / 4	2-6 / 1	2-6 / 4	2-6 / 5	2-6 / 6	2-6 / 10
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200					19000				
Antimony	5.9					13.7 U				
Arsenic	8.24		19		10.6		15.7			23.8
Barium	300					119				
Beryllium	1.1					0.95 J				
Cadmium	2.3					3.5 U				
Calcium	120,500					5300				
Chromium	29					25				
Cobalt	30					12.8				
Copper	29.6					25.9				
Iron	35,550					30500				
[2]**Lead**	400		35.2	9.4		20			49.8	
Magnesium	21,500					6410				
Manganese	1,056					624				
Mercury	0.1					0.1				
Nickel	48.9					32.9				
Potassium	2,343					2550				
Selenium	2					18.7 U				
Silver	0.763					3.5 U				
Sodium	170.3					91.5 J				
Thallium	0.67					25.7 U				
Vanadium	150					30				
Zinc	108.9	86.9		63.1		86.3		82.1		
[3]**PAHs**		(µg/kg)		(µg/kg)		(µg/kg)		(µg/kg)		
2-Methylnaphthalene	36,400					36 U				
Acenaphthene	50,000					19 U				
Acenaphthylene	41,000					14 U				
Anthracene	50,000					15 U				
Benzo(ghi)perylene	50,000					22 U				
Fluoranthene	50,000					28 U				
Fluorene	50,000					25 U				
Naphthalene	13,000					41 U				
Phenanthrene	50,000					31 U				
Pyrene	50,000					24 U				
Benzo(a)pyrene	61					20 U				
Dibenzo(a,h)anthracene	14					23 U				
Benzo(a)anthracene	224					19 U				
Benzo(b)fluoranthene	1,100					48 U				
Indeno(1,2,3-cd)pyrene	3,200					23 U				
Benzo(k)fluoranthene	1,100					50 U				
Chrysene	400					22 U				
[4]Benzo(a)pyrene TEQ	10,000					53				

Appendix D Table 9e
SEAD 24 Confirmatory Soil Sample Results - Area 3 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A3-SS-001-FS	SEAD24-FX-A3-SS-002-FS	SEAD24-FX-A3-SS-003-FS2	SEAD24-FX-A3-SS-003-FS3	SEAD24-FX-A3-SS-004-FS	SEAD24-FX-A3-SS-005-FS	SEAD24-FX-A3-SS-006-FS	SEAD24-FX-A3-SS-007-FS	SEAD24-FX-A3-SS-008-FS	SEAD24-FX-A3-SS-009-FS2	SEAD24-FX-A3-SS-010-FS	SEAD24-FX-A3-SS-010-FS2	SEAD24-FX-A3-SS-011-FS	SEAD24-FX-A3-SS-012-FS2	SEAD24-FX-A3-SS-012-FS3	SEAD24-FX-A3-SS-013-FS
Depth BOG (inches)		6-12	6-12	12-18	18-24	6-12	6-12	6-12	6-12	6-12	12-18	6-12	12-18	6-12	12-18	18-24	6-12
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200						19100					18600					
Antimony	5.9						12.7 U					3.9 J					
Arsenic	8.24	5.8	6.2		5.1	4.1	5 J	4.3	5.3	4.7	5.3		7.3	11.9		7	5.6
Barium	300						125					138					
Beryllium	1.1						0.91 J					0.93 J					
Cadmium	2.3						3.3 U					3.1 U					
Calcium	120,500						2820					3600					
Chromium	29						26.8					22.5					
Cobalt	30						7.8					8.4					
Copper	29.6						23.4					28.6					
Iron	35,550						27600					25200					
[2]Lead	400	63	25.8	10.5		18.3	13.4	43.7	61.2	19.4	28		23.7	98.3		25.9	17.1
Magnesium	21,500						5010					3860					
Manganese	1,056						242					332					
Mercury	0.1						0.047 J					0.042 J					
Nickel	48.9						34					24.6					
Potassium	2,343						1940					1680					
Selenium	2						17.4 U					16.5 U					
Silver	0.763						3.3 U					3.1 U					
Sodium	170.3						89.2 J					94.3 J					
Thallium	0.67						23.9 U					22.7 U					
Vanadium	150						27					29.6					
Zinc	108.9	137	108		86.2	120	127	197	164	146	112		98.1	177	83.8		62
[3]PAHs		(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)		(µg/kg)					
2-Methylnaphthalene	36,400						36 U					35 U					
Acenaphthene	50,000						19 U					19 U					
Acenaphthylene	41,000						14 U					14 U					
Anthracene	50,000						15 U					15 U					
Benzo(ghi)perylene	50,000						22 U					21 U					
Fluoranthene	50,000						28 U					27 U					
Fluorene	50,000						25 U					25 U					
Naphthalene	13,000						41 U					40 U					
Phenanthrene	50,000						30 U					30 U					
Pyrene	50,000						24 U					24 U					
Benzo(a)pyrene	61						20 U					20 U					
Dibenzo(a,h)anthracene	14						23 U					22 U					
Benzo(a)anthracene	224						19 U					19 U					
Benzo(b)fluoranthene	1,100						48 U					47 U					
Indeno(1,2,3-cd)pyrene	3,200						23 U					22 U					
Benzo(k)fluoranthene	1,100						50 U					49 U					
Chrysene	400						22 U					21 U					
[4]Benzo(a)pyrene TEQ	10,000						53					52					

Appendix D Table 9e
SEAD 24 Confirmatory Soil Sample Results - Area 3 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A3-SS-014-FS	SEAD24-FX-A3-SS-015-FS	SEAD24-FX-A3-SS-016-FS	SEAD24-FX-A3-SS-017-FS	SEAD24-FX-A3-SS-018-FS	SEAD24-FX-A3-SS-019-FS	SEAD24-FX-A3-SS-020-FS	SEAD24-FX-A3-SS-020-FS2	SEAD24-FX-A3-SS-021-FS	SEAD24-FX-A3-SS-022-FS	SEAD24-FX-A3-SS-023-FS	SEAD24-FX-A3-SS-024-FS	SEAD24-FX-A3-SS-025-FS	SEAD24-FX-A3-SS-026-FS	SEAD24-FX-A3-SS-027-FS	SEAD24-FX-A3-SS-028-FS2
Depth BOG (inches)		6-12	6-12	6-12	6-12	6-12	12-18	6-12	12-18	6-12	6-12	6-12	6-12	6-12	6-12	6-12	24-30
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200																
Antimony	5.9																
Arsenic	8.24	5.4	14.7	14	4.5	8.6	5.3		6.4	5.8	6.8	5.7	7.4	7.3	7.4	5.8	7.4
Barium	300																
Beryllium	1.1																
Cadmium	2.3																
Calcium	120,500																
Chromium	29																
Cobalt	30																
Copper	29.6																
Iron	35,550																
[2]Lead	400	16	20.6	17.6	16.6	17.7	16.9	15.5		18.3	19.8	17	32	20.7	16.8	18.1	11.7
Magnesium	21,500																
Manganese	1,056																
Mercury	0.1																
Nickel	48.9																
Potassium	2,343																
Selenium	2																
Silver	0.763																
Sodium	170.3																
Thallium	0.67																
Vanadium	150																
Zinc	108.9	59.1	68.8	65.8	57.9	62.7	60.5		50.7	57.9	79.8	73.2	102	67.1	48.8	51.1	54.2
[3]PAHs																	
2-Methylnaphthalene	36,400																
Acenaphthene	50,000																
Acenaphthylene	41,000																
Anthracene	50,000																
Benzo(ghi)perylene	50,000																
Fluoranthene	50,000																
Fluorene	50,000																
Naphthalene	13,000																
Phenanthrene	50,000																
Pyrene	50,000																
Benzo(a)pyrene	61																
Dibenzo(a,h)anthracene	14																
Benzo(a)anthracene	224																
Benzo(b)fluoranthene	1,100																
Indeno(1,2,3-cd)pyrene	3,200																
Benzo(k)fluoranthene	1,100																
Chrysene	400																
[4]Benzo(a)pyrene TEQ	10,000																

Appendix D Table 9e
SEAD 24 Confirmatory Soil Sample Results - Area 3 Floor

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-FX-A3-SS-029-FS2	SEAD24-FX-A3-SS-029-FS3	SEAD24-FX-A3-SS-030-FS	SEAD24-FX-A3-SS-031-FS2	SEAD24-FX-A3-SS-032-FS	SEAD24-FX-A3-SS-032-FS2	SEAD24-FX-A3-SS-033-FS	SEAD24-FX-A3-SS-034-FS	SEAD24-FX-A3-SS-035-FS	SEAD24-FX-A3-SS-036-FS
Depth BOG (inches)		12-18	18-24	6-12	12-18	6-12	12-18	6-12	6-12	6-12	6-12
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200										
Antimony	5.9										
Arsenic	8.24		6.9	4.7	3.4		3.8	4.3	4.7	6.9	6.5
Barium	300										
Beryllium	1.1										
Cadmium	2.3										
Calcium	120,500										
Chromium	29										
Cobalt	30										
Copper	29.6										
Iron	35,550										
[2]Lead	400		20.6	13.1	12	12.3		15.6	64.9	40.2	23.6
Magnesium	21,500										
Manganese	1,056										
Mercury	0.1										
Nickel	48.9										
Potassium	2,343										
Selenium	2										
Silver	0.763										
Sodium	170.3										
Thallium	0.67										
Vanadium	150										
Zinc	108.9	584		56.8	47		44.1	62.6	121	138	105
[3]PAHs											
2-Methylnaphthalene	36,400										
Acenaphthene	50,000										
Acenaphthylene	41,000										
Anthracene	50,000										
Benzo(ghi)perylene	50,000										
Fluoranthene	50,000										
Fluorene	50,000										
Naphthalene	13,000										
Phenanthrene	50,000										
Pyrene	50,000										
Benzo(a)pyrene	61										
Dibenzo(a,h)anthracene	14										
Benzo(a)anthracene	224										
Benzo(b)fluoranthene	1,100										
Indeno(1,2,3-cd)pyrene	3,200										
Benzo(k)fluoranthene	1,100										
Chrysene	400										
[4]Benzo(a)pyrene TEQ	10,000										

Appendix D Table 9f
SEAD 24 Confirmatory Soil Sample Results - Area 3 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A3-SS-001-FS4	SEAD24-PX-A3-SS-002-FS	SEAD24-PX-A3-SS-002-FS3	SEAD24-PX-A3-SS-003-FS	SEAD24-PX-A3-SS-003-FS4	SEAD24-PX-A3-SS-004-FS	SEAD24-PX-A3-SS-004-FS4	SEAD24-PX-A3-SS-005-FS	SEAD24-PX-A3-SS-006-FS	SEAD24-PX-A3-SS-007-FS	SEAD24-PX-A3-SS-008-FS	SEAD24-PX-A3-SS-009-FS	SEAD24-PX-A3-SS-010-FS	SEAD24-PX-A3-SS-011-FS	SEAD24-PX-A3-SS-012-FS
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 18	2-6 / 1	2-6 / 5	2-6 / 1	2-6 / 6	2-6 / 1	2-6 / 6	2-6 / 1	2-6 / 1	No Sidewall	No Sidewall	No Sidewall	2-6 / 1	2-6 / 1	2-6 / 1
Metals			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200								12700					12200		
Antimony	5.9								6.2 J					11.6 U		
Arsenic	8.24	6.4	7.5		10.6		6.1		11.7	17.2				4.3 J	6.5	2.6
Barium	300								101					68		
Beryllium	1.1								0.62 J					0.58 J		
Cadmium	2.3								3.3 U					3 U		
Calcium	120,500								3560					1760		
Chromium	29								18.1					16.4		
Cobalt	30								11.5					10.4		
Copper	29.6								28.4					12.5		
Iron	35,550								22400					22100		
[2]Lead	400	14.5		338		13.3		17.2	362	394				30.4	147	72.3
Magnesium	21,500								3270					3000		
Manganese	1,056								597					648		
Mercury	0.1								0.045 J					0.077 U		
Nickel	48.9								21.9					18.4		
Potassium	2,343								1600					1030		
Selenium	2								17.3 U					15.9 U		
Silver	0.763								3.3 U					3 U		
Sodium	170.3								75.4 J					58.8 J		
Thallium	0.67								23.8 U					21.8 U		
Vanadium	150								21.7					20.6		
Zinc	108.9	69	728.0		728		494		378	534				66.6	245	237
[3]PAHs			(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
2-Methylnaphthalene	36,400								35 U					33 U		
Acenaphthene	50,000								19 U					18 U		
Acenaphthylene	41,000								14 U					13 U		
Anthracene	50,000								15 U					14 U		
Benzo(ghi)perylene	50,000								21 U					20 U		
Fluoranthene	50,000								28 U					26 U		
Fluorene	50,000								25 U					23 U		
Naphthalene	13,000								40 U					38 U		
Phenanthrene	50,000								30 U					28 U		
Pyrene	50,000								28 J					22 U		
Benzo(a)pyrene	61								20 U					19 U		
Dibenzo(a,h)anthracene	14								23 U					21 U		
Benzo(a)anthracene	224								19 U					18 U		
Benzo(b)fluoranthene	1,100								48 U					45 U		
Indeno(1,2,3-cd)pyrene	3,200								23 U					21 U		
Benzo(k)fluoranthene	1,100								49 U					46 U		
Chrysene	400								23 J					20 U		
[4]Benzo(a)pyrene TEQ	10,000								53					49		

Appendix D Table 9f
SEAD 24 Confirmatory Soil Sample Results - Area 3 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A3-SS-013-FS	SEAD24-PX-A3-SS-014-FS	SEAD24-FX-A3-SS-014-FS2	SEAD24-PX-A3-SS-015-FS2	SEAD24-PX-A3-SS-015-FS3	SEAD24-PX-A3-SS-016-FS	SEAD24-PX-A3-SS-017-FS	SEAD24-PX-A3-SS-018-FS	SEAD24-PX-A3-SS-019-FS2	SEAD24-PX-A3-SS-019-FS3	SEAD24-PX-A3-SS-020-FS	SEAD24-PX-A3-SS-021-FS2	SEAD24-PX-A3-SS-021-FS3	SEAD24-PX-A3-SS-022-FS	SEAD24-PX-A3-SS-023-FS
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 1	2-6 / 5	2-6 / 5	2-6 / 4	2-6 / 1	2-6 / 1	2-6 / 1	2-6 / 4	2-6 / 12	2-6 / 1	2-6 / 4	2-6 / 12	2-6 / 1	2-6 / 1
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200															
Antimony	5.9															
Arsenic	8.24	4.5		6		5.0	9.3	7.4	19.7		7.3	17.0		6.5	5.9	5.9
Barium	300															
Beryllium	1.1															
Cadmium	2.3															
Calcium	120,500															
Chromium	29															
Cobalt	30															
Copper	29.6															
Iron	35,550															
[2]Lead	400	28.7	134			20	53.5	26.7	39.1		183	62.1		35.6	34.4	79.8
Magnesium	21,500															
Manganese	1,056															
Mercury	0.1															
Nickel	48.9															
Potassium	2,343															
Selenium	2															
Silver	0.763															
Sodium	170.3															
Thallium	0.67															
Vanadium	150															
Zinc	108.9	234		110	112		92.8	43.4	88.5	611		122	104		68.4	92.7
[3]PAHs		(µg/kg)	(µg/kg)													
2-Methylnaphthalene	36,400															
Acenaphthene	50,000															
Acenaphthylene	41,000															
Anthracene	50,000															
Benzo(ghi)perylene	50,000															
Fluoranthene	50,000															
Fluorene	50,000															
Naphthalene	13,000															
Phenanthrene	50,000															
Pyrene	50,000															
Benzo(a)pyrene	61															
Dibenzo(a,h)anthracene	14															
Benzo(a)anthracene	224															
Benzo(b)fluoranthene	1,100															
Indeno(1,2,3-cd)pyrene	3,200															
Benzo(k)fluoranthene	1,100															
Chrysene	400															
[4]Benzo(a)pyrene TEQ	10,000															

Appendix D Table 9f
SEAD 24 Confirmatory Soil Sample Results - Area 3 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A3-SS-024-FS	SEAD24-PX-A3-SS-025-FS	SEAD24-PX-A3-SS-025-FS2	SEAD24-PX-A3-SS-026-FS	SEAD24-PX-A3-SS-027-FS2	SEAD24-PX-A3-SS-027-FS3	SEAD24-PX-A3-SS-028-FS	SEAD24-PX-A3-SS-029-FS3	SEAD24-PX-A3-SS-029-FS4	SEAD24-PX-A3-SS-030-FS	SEAD24-PX-A3-SS-031-FS2	SEAD24-PX-A3-SS-031-FS3	SEAD24-PX-A3-SS-032-FS	SEAD24-PX-A3-SS-033-FS	SEAD24-PX-A3-SS-033-FS2
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 1	2-6 / 7	2-6 / 1	2-6 / 4	2-6 / 12	2-6 / 1	2-6 / 4	2-6 / 12	2-6 / 1	2-6 / 4	2-6 / 18	2-6 / 1	2-6 / 1	2-6 / 12
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200															
Antimony	5.9															
Arsenic	8.24	8.9	9.3		5.5		8.6	7.7	10		6.6		5.3	6.4	12.2	
Barium	300															
Beryllium	1.1															
Cadmium	2.3															
Calcium	120,500															
Chromium	29															
Cobalt	30															
Copper	29.6															
Iron	35,550															
[2]Lead	400	29.6		281	24.5		106	28.6		43.4	33.1		45	26.2		104
Magnesium	21,500															
Manganese	1,056															
Mercury	0.1															
Nickel	48.9															
Potassium	2,343															
Selenium	2															
Silver	0.763															
Sodium	170.3															
Thallium	0.67															
Vanadium	150															
Zinc	108.9	77.7		163	67.4	355		62.8		116	86.9	455		56.1		294
[3]PAHs																
2-Methylnaphthalene	36,400															
Acenaphthene	50,000															
Acenaphthylene	41,000															
Anthracene	50,000															
Benzo(ghi)perylene	50,000															
Fluoranthene	50,000															
Fluorene	50,000															
Naphthalene	13,000															
Phenanthrene	50,000															
Pyrene	50,000															
Benzo(a)pyrene	61															
Dibenzo(a,h)anthracene	14															
Benzo(a)anthracene	224															
Benzo(b)fluoranthene	1,100															
Indeno(1,2,3-cd)pyrene	3,200															
Benzo(k)fluoranthene	1,100															
Chrysene	400															
[4]Benzo(a)pyrene TEQ	10,000															

Appendix D Table 9f
SEAD 24 Confirmatory Soil Sample Results - Area 3 Perimeter

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

Compound	[1]CleanUp Goal	SEAD24-PX-A3-SS-034-FS	SEAD24-PX-A3-SS-034-FS2	SEAD24-PX-A3-SS-035-FS	SEAD24-PX-A3-SS-035-FS2	SEAD24-PX-A3-SS-036-FS	SEAD24-PX-A3-SS-036-FS2	SEAD24-PX-A3-SS-037-FS	SEAD24-PX-A3-SS-038-FS	SEAD24-PX-A3-SS-039-FS2	SEAD24-PX-A3-SS-039-FS3	SEAD24-PX-A3-SS-040-FS	SEAD24-PX-A3-SS-040-FS2	SEAD24-PX-A3-SS-041-FS	SEAD24-PX-A3-SS-042-FS	SEAD24-PX-A3-SS-042-FS2
Sample Depth BOG (inches) / Offset Distance(feet)		2-6 / 1	2-6 / 6	2-6 / 1	2-6 / 6	2-6 / 1	2-6 / 7	2-6 / 1	2-6 / 1	2-6 / 4	2-6 / 5	2-6 / 1	2-6 / 7	2-6 / 1	2-6 / 1	2-6 / 7
Metals		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	19,200															
Antimony	5.9															
Arsenic	8.24	10.7		14.6		11.1		12.2	18.9		4 j	11.4		8.8		6.8
Barium	300															
Beryllium	1.1															
Cadmium	2.3															
Calcium	120,500															
Chromium	29															
Cobalt	30															
Copper	29.6															
Iron	35,550															
[2]Lead	400	26.9		95.4		57.7		131	100		54.7		237	16.2		87
Magnesium	21,500															
Manganese	1,056															
Mercury	0.1															
Nickel	48.9															
Potassium	2,343															
Selenium	2															
Silver	0.763								.							
Sodium	170.3															
Thallium	0.67															
Vanadium	150															
Zinc	108.9		121		138		105	149	148	55.8			117	59.5	739	
[3]PAHs																
2-Methylnaphthalene	36,400															
Acenaphthene	50,000															
Acenaphthylene	41,000															
Anthracene	50,000															
Benzo(ghi)perylene	50,000															
Fluoranthene	50,000															
Fluorene	50,000															
Naphthalene	13,000															
Phenanthrene	50,000															
Pyrene	50,000															
Benzo(a)pyrene	61															
Dibenzo(a,h)anthracene	14															
Benzo(a)anthracene	224															
Benzo(b)fluoranthene	1,100															
Indeno(1,2,3-cd)pyrene	3,200															
Benzo(k)fluoranthene	1,100															
Chrysene	400															
[4]Benzo(a)pyrene TEQ	10,000															

APPENDIX E

RISK ASSESSMENT BACKUP DATA

APPENDIX E TABLE 1
SEAD-1 SITE SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48

Seneca Army Depot Activity, Romulus, NY

Scenario Time frame:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-1

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)	Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Source	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]
VOC															
75-35-4	1,1-Dichloroethene	0.00055	J	0.0011		SS307-03	2 / 12	0.0008 - 0.0014	0.0011		12	TAGM 4046	0.4	NO	BSL
67-64-1	Acetone	0.0042	J	0.0061		SS307-03	4 / 12	0.0041 - 0.006	0.0061		1,400	TAGM 4046	0.2	NO	BSL
100-42-5	Styrene	0.00043	J	0.00043	J	SS307-02	1 / 12	0.0008 - 0.0014	0.00043		1,700			NO	BSL
108-88-3	Toluene	0.0004	J	0.0004	J	SS307-02	1 / 12	0.0008 - 0.0014	0.0004		520	TAGM 4046	1.5	NO	BSL
SVOC															
91-57-6	2-Methylnaphthalene	0.0191	J	0.0191	J	SS307-02	1 / 12	0.0348 - 0.145	0.0191		31	TAGM 4046	36.4	NO	BSL
83-32-9	Acenaphthene	0.0104	J	0.0503	J	SS307-11	12 / 12		0.0503		370	TAGM 4046	50	NO	BSL
120-12-7	Anthracene	0.0191	J	0.0705		SS307-01	10 / 12	0.14 - 0.145	0.0705		2,200	TAGM 4046	50	NO	BSL
56-55-3	Benzo(a)anthracene	0.166		0.514		SS307-02	7 / 12	0.0349 - 0.145	0.514		0.62	TAGM 4046	0.224	YES	CSG
50-32-8	Benzo(a)pyrene	0.105		0.561		SS307-02	11 / 12	0.14 - 0.14	0.561		0.062	TAGM 4046	0.061	YES	ASL
205-99-2	Benzo(b)fluoranthene	0.237		1.14		SS307-02	12 / 12		1.14		0.62	TAGM 4046	1.1	YES	ASL
191-24-2	Benzo(ghi)perylene	0.198		0.44		SS307-02	7 / 12	0.0349 - 0.145	0.44			TAGM 4046	50	YES	NSV
117-81-7	Bis(2-Ethylhexyl)phthalate	0.0332	NJ	0.938	J	SS307-00	12 / 12		0.938		35	NYSDEC TAGM	50	NO	BSL
86-74-8	Carbazole	0.0243	J	0.0516	J	SS307-01	3 / 12	0.348 - 1.45	0.0516		2.4			NO	BSL
218-01-9	Chrysene	0.118		0.591		SS307-02	12 / 12		0.591		62	TAGM 4046	0.4	YES	CSG
132-64-9	Dibenzofuran	0.0256	J	0.0256	J	SS307-02	1 / 12	0.348 - 1.45	0.0256		15	TAGM 4046	6.2	NO	BSL
84-74-2	Di-n-butylphthalate	0.0359	J	0.124	J	SS307-00	3 / 12	0.348 - 1.45	0.124		610	TAGM 4046	8.1	NO	BSL
206-44-0	Fluoranthene	0.241		1.1		SS307-02	12 / 12		1.1		230	TAGM 4046	50	NO	BSL
86-73-7	Fluorene	0.009	J	0.0436		SS307-02	12 / 12		0.0436		270	TAGM 4046	50	NO	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	0.214	J	0.408		SS307-02	7 / 12	0.0349 - 0.145	0.408		0.62	TAGM 4046	3.2	YES	CSG
85-01-8	Phenanthrene	0.141		0.692		SS307-02	12 / 12		0.692			TAGM 4046	50	YES	NSV
129-00-0	Pyrene	0.208		1.08		SS307-02	12 / 12		1.08		230	TAGM 4046	50	NO	BSL
PCB															
53469-21-9	Aroclor-1242	0.0234	J	0.209	J	SS307-02	3 / 12	0.0348 - 0.0423	0.209		0.22	TAGM 4046	10	NO	BSL
11097-69-1	Aroclor-1254	0.0096	J	0.194	J	SS307-02	8 / 12	0.0378 - 0.0423	0.194		0.22	TAGM 4046	10	NO	BSL
11096-82-5	Aroclor-1260	0.0181	J	0.0288	J	SS307-01	5 / 12	0.0348 - 0.0423	0.0288		0.22	TAGM 4046	10	NO	BSL

APPENDIX E TABLE 1
SEAD-1 SITE SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48

Seneca Army Depot Activity, Romulus, NY

Scenario Time frame:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-1

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)	Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Source	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]
Inorganics															
7429-90-5	Aluminum	2210		16700		SS307-	13 / 13		16,700	20,500	7,600	TAGM 4046	19,300	YES	ASL
7440-36-0	Antimony	0.713	J	1.26	J	SS307-05	8 / 13	0.681 - 0.865	1.26	6.55	3.1	TAGM 4046	5.9	NO	BSL
7440-38-2	Arsenic	3.9		7.44		SS307-04	13 / 13		7.44	21.5	0.39	TAGM 4046	8.2	YES	ASL
7440-39-3	Barium	15.4		254		SS307-02	13 / 13		254	159	540	TAGM 4046	300	NO	BSL
7440-41-7	Beryllium	0.234		0.782		SS307-06	13 / 13		0.782	1.4	15	TAGM 4046	1.1	NO	BSL
7440-42-8	Boron	6.1		13.1		SS307-10	13 / 13		13.1		1600			NO	BSL
7440-43-9	Cadmium	0.259	J	1.13		SS307-00	13 / 13		1.13	2.9	3.7	TAGM 4046	2.3	NO	BSL
7440-70-2	Calcium	4090		306000		SS307-09	13 / 13		306,000	293,000	2,500,000	TAGM 4046	121,000	NO	NUT
7440-47-3	Chromium	7.55		24.9		SS307-	13 / 13		24.9	32.7	21	TAGM 4046	29.6	YES	ASL
7440-48-4	Cobalt	3.77		16.6		SS307-06	13 / 13		16.6	29.1	90	TAGM 4046	30	NO	BSL
7440-50-8	Copper	11.8		34.3		SS307-07	13 / 13		34.3	62.8	310	TAGM 4046	33	NO	BSL
7439-89-6	Iron	4470	J	22500	J	SS307-06	13 / 13		22,500	38,600	2,300	TAGM 4046	36,500	YES	ASL
7439-92-1	Lead	29.5		116		SS307-01	13 / 13		116	266	400	TAGM 4046	24.8	NO	BSL
7439-95-4	Magnesium	3390		15900		SS307-01	13 / 13		15,900	29,100	400,000	TAGM 4046	21,500	NO	NUT
7439-96-5	Manganese	163	J	815	J	SS307-06	13 / 13		815	2380	180	TAGM 4046	1,060	YES	ASL
7439-97-6	Mercury	0.0139		0.37		SS307-	13 / 13		0.37	0.13	2.3	TAGM 4046	0.1	NO	BSL
7439-98-7	Molybdenum	0.365	J	1.28		SS307-10	13 / 13		1.28		39			NO	BSL
7440-02-0	Nickel	14.2		30.2		SS307-10	13 / 13		30.2	62.3	160	TAGM 4046	49	NO	BSL
7723-14-0	Phosphorous	265		844		SS307-10	13 / 13		844		0.16			YES	ASL
7440-09-7	Potassium	642		2350		SS307-	13 / 13		2,350	3,160	5,000,000	TAGM 4046	2,380	NO	NUT
7782-49-2	Selenium	0.451	J	1.21		SS307-07	11 / 13	0.421 - 0.504	1.21	1.7	39	TAGM 4046	2	NO	BSL
7631-86-9	Silica	1250		2000		SS307-	13 / 13		2000					YES	NSV
7440-21-3	Silicon	583		933		SS307-	13 / 13		933					YES	NSV
7440-22-4	Silver	0.261	J	0.345	J	SS307-05	2 / 13	0.249 - 0.317	0.345	0.87	39	TAGM 4046	0.75	NO	BSL
7440-23-5	Sodium	46.2		348		SS307-02	12 / 13	85.2 - 85.2	348	269	1,125,000	TAGM 4046	172	NO	NUT
7440-24-6	Strontium	15		230		SS307-09	13 / 13		230		4,700			NO	BSL
63705-05-5	Sulfur	323	J	3210		SS307-10	13 / 13		3,210					YES	NSV
7440-31-5	Tin	0.657	J	3.24		SS307-07	13 / 13		3.24		4,700			NO	BSL
7440-32-6	Titanium	23.6		105		SS307-08	13 / 13		105		100,000			NO	BSL
7440-61-1	Uranium	0.499		0.499		SS307-09	1 / 13	0.49 - 0.633	0.499		1.6			NO	BSL
7440-62-2	Vanadium	15.8		33.2		SS307-04	13 / 13		33.2	32.7	7.8	TAGM 4046	150	YES	ASL
7440-66-6	Zinc	157		16200		SS307-02	13 / 13		16,200	126	2,300	TAGM 4046	110	YES	ASL

APPENDIX E TABLE 1
SEAD-1 SITE SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48

Seneca Army Depot Activity, Romulus, NY

Scenario Time frame:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-1

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)	Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Source	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]

Notes:
1. No field duplicate was available for any SEAD-1 soil samples. A laboratory duplicate was available for the sample collected from SS307-05. The laboratory duplicate (SS307-05duplicate) was treated as a discrete sample.
   Range of reporting limits were presented for nondetects only.
2. The maximum detected concentration was used for screening.
3. Background value is the maximum Seneca background concentrations.
4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at
   http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.
   The Region 9 PRGs were based on a target cancer risk of 1E-6 or a target hazard quotient of 1, whichever is lower. Direct contact exposure (ingestion and dermal contact) is evaluated to derive the PRGs.
   The Region 9 PRGs, if based on noncancer risk, were adjusted by multiplying 0.1 to represent a target hazard quotient of 0.1.
   EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene
   as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,
   was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.
   PRG for Aroclor 1254 was used as screening value for Aroclor 1242 and 1260.
   Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion
   and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and
   minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium)
   from Marilyn Wright (2001) Dietary Reference Intakes.
   PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.
   PRG for nickel (soluble salts) was used as screening value for nickel.
5. Potential ARAR/TBC values are from NYSDEC Technical and Adminstrative Guidance Memorandum #4046
   (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)
6. Rationale codes
   Selection Reason:
   - Above Screening Levels (ASL)
   - Chemicals in the Same Group were retained as COPC (CSG)
   - No Screening Value or Toxicity Value (NSV)

   Deletion Reason:
   - Essential Nutrient (NUT)
   - Below Screening Level (BSL)

Definitions:
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- Q = Qualifier
- J = Estimated Value
- NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

APPENDIX E TABLE 2
SEAD 1 SOIL EXPOSURE POINT CONCENTRATION SUMMARY - MAXIMUM VALUES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-1

CAS Number	Chemical	Medium Exposure Point Concentration [1] (mg/kg)
SVOC		
56-55-3	Benzo(a)anthracene	0.514
50-32-8	Benzo(a)pyrene	0.561
205-99-2	Benzo(b)fluoranthene	1.14
191-24-2	Benzo(ghi)perylene	0.44
218-01-9	Chrysene	0.591
193-39-5	Indeno(1,2,3-cd)pyrene	0.408
85-01-8	Phenanthrene	0.692
Inorganics		
7429-90-5	Aluminum	16700
7440-38-2	Arsenic	7.44
7440-47-3	Chromium	24.9
7439-89-6	Iron	22500
7439-96-5	Manganese	815
7723-14-0	Phosphorus	844
7631-86-9	Silica	2000
7440-21-3	Silicon	933
63705-05-5	Sulfur	3210
7440-62-2	Vanadium	33.2
7440-66-6	Zinc	16200

Note:
1. The maximum detected concentration was used as the exposure point concentration.

APPENDIX E TABLE 3
SEAD-1 SURFACE SOIL - AMBIENT AIR EXPOSURE POINT CONCENTRATIONS - INDUSTRIAL WORKERS AND TRESPASSERS

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-1

Equation for Air EPC from Surface Soil (mg/m^3) = CSsurf x PM10 x CF

Variables:
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)
PM10 = Average Measured PM10 Concentration = 17 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m^3)
SVOC		
Benzo(a)anthracene	0.514	8.7E-09
Benzo(a)pyrene	0.561	9.5E-09
Benzo(b)fluoranthene	1.14	1.9E-08
Benzo(ghi)perylene	0.44	7.5E-09
Chrysene	0.591	1.0E-08
Indeno(1,2,3-cd)pyrene	0.408	6.9E-09
Phenanthrene	0.692	1.2E-08
Inorganics		
Aluminum	16700	2.8E-04
Arsenic	7.44	1.3E-07
Chromium	24.9	4.2E-07
Iron	22500	3.8E-04
Manganese	815	1.4E-05
Phosphorus	844	1.4E-05
Silica	2000	3.4E-05
Silicon	933	1.6E-05
Sulfur	3210	5.5E-05
Vanadium	33.2	5.6E-07
Zinc	16200	2.8E-04

APPENDIX E TABLE 4
SEAD-1 - AMBIENT AIR EXPOSURE POINT CONCENTRATIONS CAUSED BY CONSTRUCTION ACTIVITIES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-1

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

Variables:
CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)
PM10 = PM10 Concentration Calculated for Construction Worker= 54.5 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m^3)
SVOC		
Benzo(a)anthracene	0.514	2.8E-08
Benzo(a)pyrene	0.561	3.1E-08
Benzo(b)fluoranthene	1.14	6.2E-08
Benzo(ghi)perylene	0.44	2.4E-08
Chrysene	0.591	3.2E-08
Indeno(1,2,3-cd)pyrene	0.408	2.2E-08
Phenanthrene	0.692	3.8E-08
Inorganics		
Aluminum	16700	9.1E-04
Arsenic	7.44	4.1E-07
Chromium	24.9	1.4E-06
Iron	22500	1.2E-03
Manganese	815	4.4E-05
Phosphorus	844	4.6E-05
Silica	2000	1.1E-04
Silicon	933	5.1E-05
Sulfur	3210	1.8E-04
Vanadium	33.2	1.8E-06
Zinc	16200	8.8E-04

APPENDIX E TABLE 5
CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR - RME - SEAD-1 SOIL

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24 and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m3
IR = Inhalation Rate
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Inhalation RfD	Carc. Slope Inhalation	Air EPC from Surface Soil	Air EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Trespasser			
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/m3)	(mg/m3)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
SVOC																
Benzo(a)anthracene	N/A	N/A	8.7E-09	2.8E-08												
Benzo(a)pyrene	N/A	3.10E+00	9.5E-09	3.1E-08		6.67E-10		2E-09		8.55E-11		3E-10		2.99E-12		9E-12
Benzo(b)fluoranthene	N/A	N/A	1.9E-08	6.2E-08												
Benzo(ghi)perylene	N/A	N/A	7.5E-09	2.4E-08												
Chrysene	N/A	N/A	1.0E-08	3.2E-08												
Indeno(1,2,3-cd)pyrene	N/A	N/A	6.9E-09	2.2E-08												
Phenanthrene	N/A	N/A	1.2E-08	3.8E-08												
Inorganics																
Aluminum	1.43E-03	N/A	2.8E-04	9.1E-04	5.56E-05		4E-02		1.78E-04		1E-01		1.24E-06		9E-04	
Arsenic	N/A	1.51E+01	1.3E-07	4.1E-07		8.84E-09		1E-07		1.13E-09		2E-08		3.96E-11		6E-10
Chromium	N/A	N/A	4.2E-07	1.4E-06												
Iron	N/A	N/A	3.8E-04	1.2E-03												
Manganese	1.43E-05	N/A	1.4E-05	4.4E-05	2.71E-06		2E-01		8.70E-06		6E-01		6.07E-08		4E-03	
Phosphorus	N/A	N/A	1.4E-05	4.6E-05												
Silica	N/A	N/A	3.4E-05	1.1E-04												
Silicon	N/A	N/A	1.6E-05	5.1E-05												
Sulfur	N/A	N/A	5.5E-05	1.8E-04												
Vanadium	N/A	N/A	5.6E-07	1.8E-06												
Zinc	N/A	N/A	2.8E-04	8.8E-04												
Total Hazard Quotient and Cancer Risk:							**2E-01**	**1E-07**			**7E-01**	**2E-08**			**5E-03**	**6E-10**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Child Tresspasser	
CA =	EPC Surface Only	CA =	EPC Surface and Sub-Surface	CA =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
IR =	20 m3/day	IR =	20 m3/day	IR =	1.6 m3/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 year	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 6
CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL - RME - SEAD-1

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/kg
IR = Ingestion Rate
CF = Conversion Factor
FI = Fraction Ingested
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Oral RfD	Carc. Slope Oral	EPC Surface Soil	Industrial Worker				Construction Worker				Adolescent Trespasser			
				Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Semivolatile Organic Compounds															
Benzo(a)anthracene	N/A	7.3E-01	5.14E-01		1.80E-07		1E-07		2.37E-08		2E-08		1.01E-08		7E-09
Benzo(a)pyrene	N/A	7.3E+00	5.61E-01		1.96E-07		1E-06		2.59E-08		2E-07		1.10E-08		8E-08
Benzo(b)fluoranthene	N/A	7.3E-01	1.14E+00		3.98E-07		3E-07		5.26E-08		4E-08		2.23E-08		2E-08
Benzo(ghi)perylene	N/A	N/A	4.4E-01												
Chrysene	N/A	7.3E-03	5.91E-01		2.07E-07		2E-09		2.73E-08		2E-10		1.16E-08		8E-11
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	4.08E-01		1.43E-07		1E-07		1.88E-08		1E-08		7.98E-09		6E-09
Phenanthrene	N/A	N/A	6.92E-01												
Inorganics															
Aluminum	1E+00	N/A	1.67E+04	1.63E-02		2E-02		5.39E-02		5E-02		4.58E-03		5E-03	
Arsenic	3E-04	1.5E+00	7.44E+00	7.28E-06	2.60E-06	2E-02	4E-06	2.40E-05	3.43E-07	8E-02	5E-07	2.04E-06	1.46E-07	7E-03	2E-07
Chromium	3E-03	N/A	2.49E+01	2.44E-05		8E-03		8.04E-05		3E-02		6.82E-06		2E-03	
Iron	3E-01	N/A	2.25E+04	2.20E-02		7E-02		7.27E-02		2E-01		6.16E-03		2E-02	
Manganese	2E-02	N/A	8.15E+02	7.97E-04		3E-02		2.63E-03		1E-01		2.23E-04		1E-02	
Phosphorus	N/A	N/A	8.44E+02												
Silica	N/A	N/A	2.0E+03												
Silicon	N/A	N/A	9.33E+02												
Sulfur	N/A	N/A	3.21E+03												
Vanadium	1E-03	N/A	3.32E+01	3.25E-05		3E-02		1.07E-04		1E-01		9.10E-06		9E-03	
Zinc	3E-01	N/A	1.62E+04	1.59E-02		5E-02		5.23E-02		2E-01		4.44E-03		1E-02	
Total Hazard Quotient and Cancer Risk:						**2E-01**	**6E-06**			**8E-01**	**8E-07**			**7E-02**	**3E-07**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC=	EPC Surface Only	EPC=	EPC Surface and Subsurface	EPC=	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
IR =	100 mg/day	IR =	330 mg/day	IR =	100 mg/day
FI =	1 unitless	FI =	1 unitless	FI =	1 unitless
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 7
CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL - RME - SEAD-1

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

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

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

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

Analyte	Dermal RfD	Carc. Slope Dermal	Absorption Factor*	EPC Surface Soil	Industrial Worker				Construction Worker				Adolescent Trespasser			
					Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(unitless)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Semivolatile Organic Compounds																
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	5.14E-01		1.54E-07		1E-07		9.25E-09		7E-09		5.37E-09		4E-09
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	5.61E-01		1.68E-07		1E-06		1.01E-08		7E-08		5.86E-09		4E-08
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	1.14E+00		3.42E-07		2E-07		2.05E-08		1E-08		1.19E-08		9E-09
Benzo(ghi)perylene	N/A	N/A	1.3E-01	4.4E-01												
Chrysene	N/A	7.3E-03	1.3E-01	5.91E-01		1.77E-07		1E-09		1.06E-08		8E-11		6.17E-09		5E-11
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	4.08E-01		1.22E-07		9E-08		7.34E-09		5E-09		4.26E-09		3E-09
Phenanthrene	N/A	N/A	1.3E-01	6.92E-01												
Inorganics																
Aluminum	1E+00	N/A	1.0E-03	1.67E+04	1.08E-04		1E-04		1.62E-04		2E-04		1.88E-05		2E-05	
Arsenic	3E-04	1.5E+00	3.0E-02	7.44E+00	1.44E-06	5.15E-07	5E-03	8E-07	2.16E-06	3.09E-08	7E-03	5E-08	2.51E-07	1.79E-08	8E-04	3E-08
Chromium	8E-05	N/A	1.0E-03	2.49E+01	1.61E-07		2E-03		2.41E-07		3E-03		2.80E-08		4E-04	
Iron	3E-01	N/A	1.0E-03	2.25E+04	1.45E-04		5E-04		2.18E-04		7E-04		2.53E-05		8E-05	
Manganese	9E-04	N/A	1.0E-03	8.15E+02	5.26E-06		6E-03		7.89E-06		8E-03		9.17E-07		1E-03	
Phosphorus	N/A	N/A	1.0E-03	8.44E+02												
Silica	N/A	N/A	1.0E-03	2.0E+03												
Silicon	N/A	N/A	1.0E-03	9.33E+02												
Sulfur	N/A	N/A	1.0E-03	3.21E+03												
Vanadium	3E-05	N/A	1.0E-03	3.32E+01	2.14E-07		8E-03		3.22E-07		1E-02		3.74E-08		1E-03	
Zinc	3E-01	N/A	1.0E-03	1.62E+04	1.05E-04		3E-04		1.57E-04		5E-04		1.82E-05		6E-05	
Total Hazard Quotient and Cancer Risk:							**2E-02**	**2E-06**			**3E-02**	**1E-07**			**4E-03**	**9E-08**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC =	EPC Surface Only	EPC =	EPC Surface and Subsurface	EPC =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
SA =	3,300 cm^2	SA =	3,300 cm^2	SA =	5,867 cm^2
AF =	0.2 mg/cm^2-event	AF =	0.3 mg/cm^2-event	AF =	0.07 mg/cm^2-event
EV =	1 event/day	EV =	1 event/day	EV =	1 event/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.
N/A= Information not available.
* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).
Absorption factors for inorganics without recommended dermal absorption fraction from soil were assumed to be 0.001 in accordance with the USEPA Region 4 (2000).
Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

APPENDIX E TABLE 8
SEAD-1 SOIL - EXPOSURE POINT CONCENTRATION SUMMARY - UCL VALUES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-1

CAS Number	Chemical	Medium Exposure Point Concentration [1] (mg/kg)
SVOC		
56-55-3	Benzo(a)anthracene	0.514
50-32-8	Benzo(a)pyrene	0.561
205-99-2	Benzo(b)fluoranthene	1.14
191-24-2	Benzo(ghi)perylene	0.44
218-01-9	Chrysene	0.591
193-39-5	Indeno(1,2,3-cd)pyrene	0.408
85-01-8	Phenanthrene	0.692
Inorganics		
7429-90-5	Aluminum	12064
7440-38-2	Arsenic	7.4
7440-47-3	Chromium	24.9
7439-89-6	Iron	16725
7439-96-5	Manganese	519
7723-14-0	Phosphorus	844
7631-86-9	Silica	2000
7440-21-3	Silicon	933
63705-05-5	Sulfur	3210
7440-62-2	Vanadium	28.2
7440-66-6	Zinc	8114

Note:
1. The maximum detected concentration was used as the exposure point concentration for semivolatile organic compounds and the recommended UCL value was used for metals.

APPENDIX E TABLE 9
SEAD-1 SOIL AMBIENT AIR EXPOSURE POINT CONCENTRATIONS - UCL VALUES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-1

Equation for Air EPC from Surface Soil (mg/m^3) = CSsurf x PM10 x CF

Variables:
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)
PM10 = Average Measured PM10 Concentration = 17 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m^3)
SVOC		
Benzo(a)anthracene	0.514	8.7E-09
Benzo(a)pyrene	0.561	9.5E-09
Benzo(b)fluoranthene	1.14	1.9E-08
Benzo(ghi)perylene	0.44	7.5E-09
Chrysene	0.591	1.0E-08
Indeno(1,2,3-cd)pyrene	0.408	6.9E-09
Phenanthrene	0.692	1.2E-08
Inorganics		
Aluminum	12064.24	2.1E-04
Arsenic	7.44	1.3E-07
Chromium	24.9	4.2E-07
Iron	16724.9	2.8E-04
Manganese	519.0724	8.8E-06
Phosphorus	844	1.4E-05
Silica	2000	3.4E-05
Silicon	933	1.6E-05
Sulfur	3210	5.5E-05
Vanadium	28.154	4.8E-07
Zinc	8114.2	1.4E-04

APPENDIX E TABLE 10

SEAD-1 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS CAUSED BY CONSTRUCTION ACTIVITIES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-1

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

Variables:
CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)
PM10 = PM10 Concentration Calculated for Construction Worker= 54.5 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m^3)
SVOC		
Benzo(a)anthracene	0.514	2.8E-08
Benzo(a)pyrene	0.561	3.1E-08
Benzo(b)fluoranthene	1.14	6.2E-08
Benzo(ghi)perylene	0.44	2.4E-08
Chrysene	0.591	3.2E-08
Indeno(1,2,3-cd)pyrene	0.408	2.2E-08
Phenanthrene	0.692	3.8E-08
Inorganics		0.0E+00
Aluminum	12064.24	6.6E-04
Arsenic	7.44	4.1E-07
Chromium	24.9	1.4E-06
Iron	16724.9	9.1E-04
Manganese	519.0724	2.8E-05
Phosphorus	844	4.6E-05
Silica	2000	1.1E-04
Silicon	933	5.1E-05
Sulfur	3210	1.8E-04
Vanadium	28.154	1.5E-06
Zinc	8114.2	4.4E-04

APPENDIX E TABLE 11
SEAD-1 SOIL - CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR - RME - UCL VALUES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m3
IR = Inhalation Rate
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Inhalation RfD	Carc. Slope Inhalation	Air EPC from Surface Soil	Air EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Trespasser			
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/m3)	(mg/m3)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
SVOC																
Benzo(a)anthracene	N/A	N/A	8.7E-09	2.8E-08												
Benzo(a)pyrene	N/A	3.10E+00	9.5E-09	3.1E-08		6.67E-10		2E-09		8.55E-11		3E-10		2.99E-12		9E-12
Benzo(b)fluoranthene	N/A	N/A	1.9E-08	6.2E-08												
Benzo(ghi)perylene	N/A	N/A	7.5E-09	2.4E-08												
Chrysene	N/A	N/A	1.0E-08	3.2E-08												
Indeno(1,2,3-cd)pyrene	N/A	N/A	6.9E-09	2.2E-08												
Phenanthrene	N/A	N/A	1.2E-08	3.8E-08												
Inorganics																
Aluminum	1.43E-03	N/A	2.1E-04	6.6E-04	4.01E-05		3E-02		1.29E-04		9E-02		8.99E-07		6E-04	
Arsenic	N/A	1.51E+01	1.3E-07	4.1E-07		8.84E-09		1E-07		1.13E-09		2E-08		3.96E-11		6E-10
Chromium	N/A	N/A	4.2E-07	1.4E-06												
Iron	N/A	N/A	2.8E-04	9.1E-04												
Manganese	1.43E-05	N/A	8.8E-06	2.8E-05	1.73E-06		1E-01		5.54E-06		4E-01		3.87E-08		3E-03	
Phosphorus	N/A	N/A	1.4E-05	4.6E-05												
Silica	N/A	N/A	3.4E-05	1.1E-04												
Silicon	N/A	N/A	1.6E-05	5.1E-05												
Sulfur	N/A	N/A	5.5E-05	1.8E-04												
Vanadium	N/A	N/A	4.8E-07	1.5E-06												
Zinc	N/A	N/A	1.4E-04	4.4E-04												
Total Hazard Quotient and Cancer Risk:							**1E-01**	**1E-07**			**5E-01**	**2E-08**			**3E-03**	**6E-10**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Child Tresspasser	
CA =	EPC Surface Only	CA =	EPC Surface and Sub-Surface	CA =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
IR =	20 m3/day	IR =	20 m3/day	IR =	1.6 m3/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 year	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 12
SEAD-1 SOIL CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL - RME - UCL VALUES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/kg
IR = Ingestion Rate
CF = Conversion Factor
FI = Fraction Ingested
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Oral RfD	Carc. Slope Oral	EPC Surface Soil	Industrial Worker				Construction Worker				Adolescent Trespasser			
				Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Semivolatile Organic Compounds															
Benzo(a)anthracene	N/A	7.3E-01	5.14E-01		1.80E-07		1E-07		2.37E-08		2E-08		1.01E-08		7E-09
Benzo(a)pyrene	N/A	7.3E+00	5.61E-01		1.96E-07		1E-06		2.59E-08		2E-07		1.10E-08		8E-08
Benzo(b)fluoranthene	N/A	7.3E-01	1.14E+00		3.98E-07		3E-07		5.26E-08		4E-08		2.23E-08		2E-08
Benzo(ghi)perylene	N/A	N/A	4.4E-01												
Chrysene	N/A	7.3E-03	5.91E-01		2.07E-07		2E-09		2.73E-08		2E-10		1.16E-08		8E-11
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	4.08E-01		1.43E-07		1E-07		1.88E-08		1E-08		7.98E-09		6E-09
Phenanthrene	N/A	N/A	6.92E-01												
Inorganics															
Aluminum	1E+00	N/A	1.21E+04	1.18E-02		1E-02		3.90E-02		4E-02		3.31E-03		3E-03	
Arsenic	3E-04	1.5E+00	7.44E+00	7.28E-06	2.60E-06	2E-02	4E-06	2.40E-05	3.43E-07	8E-02	5E-07	2.04E-06	1.46E-07	7E-03	2E-07
Chromium	3E-03	N/A	2.49E+01	2.44E-05		8E-03		8.04E-05		3E-02		6.82E-06		2E-03	
Iron	3E-01	N/A	1.67E+04	1.64E-02		5E-02		5.40E-02		2E-01		4.58E-03		2E-02	
Manganese	2E-02	N/A	5.19E+02	5.08E-04		2E-02		1.68E-03		7E-02		1.42E-04		6E-03	
Phosphorus	N/A	N/A	8.44E+02												
Silica	N/A	N/A	2.0E+03												
Silicon	N/A	N/A	9.33E+02												
Sulfur	N/A	N/A	3.21E+03												
Vanadium	1E-03	N/A	2.82E+01	2.75E-05		3E-02		9.09E-05		9E-02		7.71E-06		8E-03	
Zinc	3E-01	N/A	8.11E+03	7.94E-03		3E-02		2.62E-02		9E-02		2.22E-03		7E-03	
Total Hazard Quotient and Cancer Risk:						**2E-01**	**6E-06**			**6E-01**	**8E-07**			**5E-02**	**3E-07**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC=	EPC Surface Only	EPC=	EPC Surface and Subsurface	EPC=	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
IR =	100 mg/day	IR =	330 mg/day	IR =	100 mg/day
FI =	1 unitless	FI =	1 unitless	FI =	1 unitless
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 13
CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL - RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

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

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

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

Analyte	Dermal RfD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Absorption Factor* (unitless)	EPC Surface Soil (mg/kg)	Industrial Worker Absorbed Dose (mg/kg-day) (Nc)	Industrial Worker Absorbed Dose (mg/kg-day) (Car)	Industrial Worker Hazard Quotient	Industrial Worker Cancer Risk	Construction Worker Absorbed Dose (mg/kg-day) (Nc)	Construction Worker Absorbed Dose (mg/kg-day) (Car)	Construction Worker Hazard Quotient	Construction Worker Cancer Risk	Adolescent Trespasser Absorbed Dose (mg/kg-day) (Nc)	Adolescent Trespasser Absorbed Dose (mg/kg-day) (Car)	Adolescent Trespasser Hazard Quotient	Adolescent Trespasser Cancer Risk
Semivolatile Organic Compounds																
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	5.14E-01		1.54E-07		1E-07		9.25E-09		7E-09		5.37E-09		4E-09
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	5.61E-01		1.68E-07		1E-06		1.01E-08		7E-08		5.86E-09		4E-08
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	1.14E+00		3.42E-07		2E-07		2.05E-08		1E-08		1.19E-08		9E-09
Benzo(ghi)perylene	N/A	N/A	1.3E-01	4.4E-01												
Chrysene	N/A	7.3E-03	1.3E-01	5.91E-01		1.77E-07		1E-09		1.06E-08		8E-11		6.17E-09		5E-11
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	4.08E-01		1.22E-07		9E-08		7.34E-09		5E-09		4.26E-09		3E-09
Phenanthrene	N/A	N/A	1.3E-01	6.92E-01												
Inorganics																
Aluminum	1E+00	N/A	1.0E-03	1.21E+04	7.79E-05		8E-05		1.17E-04		1E-04		1.36E-05		1E-05	
Arsenic	3E-04	1.5E+00	3.0E-02	7.44E+00	1.44E-06	5.15E-07	5E-03	8E-07	2.16E-06	3.09E-08	7E-03	5E-08	2.51E-07	1.79E-08	8E-04	3E-08
Chromium	8E-05	N/A	1.0E-03	2.49E+01	1.61E-07		2E-03		2.41E-07		3E-03		2.80E-08		4E-04	
Iron	3E-01	N/A	1.0E-03	1.67E+04	1.08E-04		4E-04		1.62E-04		5E-04		1.88E-05		6E-05	
Manganese	9E-04	N/A	1.0E-03	5.19E+02	3.35E-06		4E-03		5.03E-06		5E-03		5.84E-07		6E-04	
Phosphorus	N/A	N/A	1.0E-03	8.44E+02												
Silica	N/A	N/A	1.0E-03	2.0E+03												
Silicon	N/A	N/A	1.0E-03	9.33E+02												
Sulfur	N/A	N/A	1.0E-03	3.21E+03												
Vanadium	3E-05	N/A	1.0E-03	2.82E+01	1.82E-07		7E-03		2.73E-07		1E-02		3.17E-08		1E-03	
Zinc	3E-01	N/A	1.0E-03	8.11E+03	5.24E-05		2E-04		7.86E-05		3E-04		9.13E-06		3E-05	
Total Hazard Quotient and Cancer Risk:							**2E-02**	**2E-06**			**3E-02**	**1E-07**			**3E-03**	**9E-08**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC =	EPC Surface Only	EPC =	EPC Surface and Subsurface	EPC =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
SA =	3,300 cm^2	SA =	3,300 cm^2	SA =	5,867 cm^2
AF =	0.2 mg/cm^2-event	AF =	0.3 mg/cm^2-event	AF =	0.07 mg/cm^2-event
EV =	1 event/day	EV =	1 event/day	EV =	1 event/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.
N/A= Information not available.
* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).
Absorption factors for inorganics without recommended dermal absorption fraction from soil were assumed to be 0.001 in accordance with the USEPA Region 4 (2000).
Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

APPENDIX E TABLE 14
SEAD-2 SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Time frame:	Cuurent/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-2

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)			Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Source	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]
VOC																	
75-35-4	1,1-Dichloroethene	0.0017		0.0076		SS301-21	5 / 12	0.00084	-	0.0015	0.0076		12	NYSDEC TAGM 4046	0.4	NO	BSL
67-64-1	Acetone	0.0065	J	0.0209	J	SS301-07	4 / 12	0.004	-	0.0074	0.0209		1,400	NYSDEC TAGM 4046	0.2	NO	BSL
78-93-3	Methyl ethyl ketone	0.017		0.017		SS301-06	1 / 12	0.004	-	0.0074	0.017		2,200	NYSDEC TAGM 4046	0.3	NO	BSL
108-88-3	Toluene	0.00035	J	0.00076	J	SS301-21	6 / 12	0.00088	-	0.0015	0.00076		520	NYSDEC TAGM 4046	1.5	NO	BSL
SVOC																	
92-52-4	1,1'-Biphenyl	0.04	J	2.9	J	SS301-07	6 / 12	0.0501	-	3.46	2.9		300			NO	BSL
121-14-2	2,4-Dinitrotoluene	3.79	J	35.7	J	SS301-07	4 / 12	0.344	-	13.8	35.7		12			YES	ASL
606-20-2	2,6-Dinitrotoluene	0.951	J	0.951	J	SS301-08	1 / 12	0.344	-	40.8	0.951		6.1	NYSDEC TAGM 4046	1.0	NO	BSL
91-57-6	2-Methylnaphthalene	0.0444		15.2	J	SS301-07	11 / 12	1.38	-	1.38	15.2		31	NYSDEC TAGM 4046	36.4	NO	BSL
1319-77-3	3 or 4-Methylphenol	0.464	J	0.464	J	SS301-21	1 / 12	0.344	-	40.8	0.464		31	NYSDEC TAGM 4046	0.9	NO	BSL
83-32-9	Acenaphthene	0.0441		18.2	J	SS301-07	12 / 12				18.2		370	NYSDEC TAGM 4046	50	NO	BSL
208-96-8	Acenaphthylene	0.284	J	2.41	J	SS301-03	10 / 12	0.0414	-	4.08	2.41			NYSDEC TAGM 4046	41	YES	NSV
120-12-7	Anthracene	0.164		33.9	J	SS301-07	12 / 12				33.9		2,200	NYSDEC TAGM 4046	50	NO	BSL
56-55-3	Benzo(a)anthracene	1.33		66.6	J	SS301-07	12 / 12				66.6		0.62	NYSDEC TAGM 4046	0.224	YES	ASL
50-32-8	Benzo(a)pyrene	1.08		56.9	J	SS301-07	12 / 12				56.9		0.062	NYSDEC TAGM 4046	0.061	YES	ASL
205-99-2	Benzo(b)fluoranthene	1.67		102	J	SS301-07	12 / 12				102		0.62	NYSDEC TAGM 4046	1.1	YES	ASL
191-24-2	Benzo(ghi)perylene	0.551		25.1	J	SS301-07	12 / 12				25.1			NYSDEC TAGM 4046	50	YES	NSV
207-08-9	Benzo(k)fluoranthene	1.54	J	11.7	J	SS301-03	7 / 12	0.0344	-	4.08	11.7		6.2	NYSDEC TAGM 4046	1.1	YES	ASL
86-74-8	Carbazole	0.281		28.2	J	SS301-07	10 / 12	0.344	-	0.355	28.2		2.4			YES	ASL
218-01-9	Chrysene	1.15		67.7	J	SS301-07	12 / 12				67.7		62	NYSDEC TAGM 4046	0.4	YES	ASL
53-70-3	Dibenz(a,h)anthracene	0.281	J	19.9	J	SS301-00	3 / 12	0.0355	-	4.08	19.9		0.062	NYSDEC TAGM 4046	0.014	YES	ASL
132-64-9	Dibenzofuran	0.0409	J	22.1	J	SS301-07	12 / 12				22.1		15	NYSDEC TAGM 4046	6.2	YES	ASL
84-74-2	Di-n-butylphthalate	0.329	J	1.78	J	SS301-08	3 / 12	0.344	-	40.8	1.78		610	NYSDEC TAGM 4046	8.1	NO	BSL
122-39-4	Diphenylamine	0.119	J	3.15	J	SS301-08	3 / 12	0.344	-	40.8	3.15		150			NO	BSL
206-44-0	Fluoranthene	1.5		151	J	SS301-07	12 / 12				151		230	NYSDEC TAGM 4046	50	NO	BSL
86-73-7	Fluorene	0.0899		19.2	J	SS301-07	12 / 12				19.2		270	NYSDEC TAGM 4046	50	NO	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	0.572		24.9	J	SS301-07	12 / 12				24.9		0.62	NYSDEC TAGM 4046	3.2	YES	ASL
91-20-3	Naphthalene	0.0627		33.9	J	SS301-07	8 / 12	0.346	-	1.38	33.9		5.6	NYSDEC TAGM 4046	13	YES	ASL
85-01-8	Phenanthrene	0.669		159	J	SS301-07	12 / 12				159			NYSDEC TAGM 4046	50	YES	NSV
108-95-2	Phenol	0.178	J	1.68	J	SS301-07	3 / 12	0.344	-	13.8	1.68		1,800	NYSDEC TAGM 4046	0.03	NO	BSL
129-00-0	Pyrene	2.15		148	J	SS301-07	12 / 12				148		230	NYSDEC TAGM 4046	50	NO	BSL

APPENDIX E TABLE 14
SEAD-2 SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Time frame:	Cuurent/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-2

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)			Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Source	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]
PCB																	
11097-69-1	Aroclor-1254	0.0532		0.12		SS301-07	2 / 12	0.0343	-	0.0414	0.12		0.22	NYSDEC TAGM 4046	10	NO	BSL
Inorganics																	
7429-90-5	Aluminum	2460		16800		SS301-04duplicate	13 / 13				16,800	20,500	7,600	NYSDEC TAGM 4046	19,300	YES	ASL
7440-36-0	Antimony	0.678	J	4.94	J	SS301-08	10 / 13	0.645	-	0.682	4.94	6.55	3.1	NYSDEC TAGM 4046	5.9	YES	ASL
7440-38-2	Arsenic	2.27		17.6		SS301-04	13 / 13				17.6	21.5	0.39	NYSDEC TAGM 4046	8.2	YES	ASL
7440-39-3	Barium	29.2	J	162	J	SS301-00	13 / 13				162	159	540	NYSDEC TAGM 4046	300	NO	BSL
7440-41-7	Beryllium	0.183		0.845		SS301-04duplicate	13 / 13				0.845	1.4	15	NYSDEC TAGM 4046	1.1	NO	BSL
7440-42-8	Boron	8.15	J	13.8	J	SS301-04duplicate	13 / 13				13.8		1,600			NO	BSL
7440-43-9	Cadmium	0.0974	J	4.2		SS301-08 SS301-20	12 / 13	0.0788	-	0.0788	4.2	2.9	3.7	NYSDEC TAGM 4046	2.3	YES	ASL
7440-70-2	Calcium	7200		221000		SS301-00	13 / 13				221,000	293,000	2,500,000	NYSDEC TAGM 4046	121,000	NO	NUT
7440-47-3	Chromium	5.23		52.8		SS301-04duplicate	13 / 13				52.8	32.7	21	NYSDEC TAGM 4046	29.6	YES	ASL
7440-48-4	Cobalt	2.36		10.5		SS301-04duplicate	13 / 13				10.5	29.1	90	NYSDEC TAGM 4046	30	NO	BSL
7440-50-8	Copper	6.23		86.4		SS301-07	13 / 13				86.4	62.8	310	NYSDEC TAGM 4046	33	NO	BSL
7439-89-6	Iron	4620	J	26300	J	SS301-07	13 / 13				26,300	38,600	2,300	NYSDEC TAGM 4046	36,500	YES	ASL
7439-92-1	Lead	9.51		1570		SS301-07	13 / 13				1570	266	400	NYSDEC TAGM 4046	24.8	YES	ASL
7439-95-4	Magnesium	5230		56100		SS301-05	13 / 13				56,100	29,100	400,000	NYSDEC TAGM 4046	21,500	NO	NUT
7439-96-5	Manganese	222	J	522	J	SS301-04duplicate	13 / 13				522	2380	180	NYSDEC TAGM 4046	1,060	YES	ASL
7439-97-6	Mercury	0.0106		0.0874		SS301-07	13 / 13				0.0874	0.13	2.3	NYSDEC TAGM 4046	0.1	NO	BSL
7439-98-7	Molybdenum	0.189	J	3.86		SS301-07	8 / 13	0.158	-	0.17	3.86		39			NO	BSL
7440-02-0	Nickel	9.18		55.2		SS301-07	13 / 13				55.2	62.3	160	NYSDEC TAGM 4046	49	NO	BSL
7723-14-0	Phosphorous	250		1380		SS301-20	13 / 13				1380		0.16			YES	ASL
7440-09-7	Potassium	1100	J	2490	J	SS307-04duplicate	13 / 13				2,490	3,160	5,000,000	NYSDEC TAGM 4046	2,380	NO	NUT
7782-49-2	Selenium	0.414	J	1.4		SS301-07	8 / 13	0.39	-	0.421	1.4	1.7	39	NYSDEC TAGM 4046	2	NO	BSL
7631-86-9	Silica	832	J	1650	J	SS301-04	13 / 13				1650					YES	NSV
7440-21-3	Silicon	389	J	771	J	SS301-04	13 / 13				771					YES	NSV
7440-22-4	Silver	0.465	J	0.465	J	SS301-08	1 / 13	0.232	-	0.307	0.465	0.87	39	NYSDEC TAGM 4046	0.75	NO	BSL
7440-23-5	Sodium	42.4		162		SS301-00	13 / 13				162	269	1,125,000	NYSDEC TAGM 4046	172	NO	NUT
7440-24-6	Strontium	18.4		250		SS301-00	13 / 13				250		4,700			NO	BSL
63705-05-5	Sulfur	322	J	1680	J	SS301-00	13 / 13				1,680					YES	NSV
7440-31-5	Tin	0.376	J	19.1		SS301-07	12 / 13	0.375	-	0.375	19.1		4,700			NO	BSL
7440-32-6	Titanium	19.3	J	381	J	SS301-06	13 / 13				381		100,000			NO	BSL
7440-61-1	Uranium	0.573		0.573	J	SS301-04duplicate	1 / 13	0.462	-	0.613	0.573		1.6			NO	BSL
7440-62-2	Vanadium	8.46		36.4		SS301-06	13 / 13				36.4	32.7	7.8	NYSDEC TAGM 4046	150	YES	ASL
7440-66-6	Zinc	28.1		752		SS301-07	13 / 13				752	126	2,300	NYSDEC TAGM 4046	110	NO	BSL

APPENDIX E TABLE 14
SEAD-2 SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Time frame:	Cuurent/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-2

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)	Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Source	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]

Notes:
1. No field duplicate was available for any SEAD-2 soil samples. A laboratory duplicate was available for the sample collected from SS301-04. The laboratory duplicate (SS301-04duplicate) was treated as a discrete sample.
   Range of reporting limits were presented for nondetects only.
2. The maximum detected concentration was used for screening.
3. Background value is the maximum Seneca background concentrations.
4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at
   http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.
   The Region 9 PRGs were based on a target cancer risk of 1E-6 or a target hazard quotient of 1, whichever is lower. Direct contact exposure (ingestion and dermal contact) is evaluated to derive the PRGs.
   The Region 9 PRGs, if based on noncancer risk, were adjusted by multiplying 0.1 to represent a target hazard quotient of 0.1.
   EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene
   as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,
   was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.
   PRG for 4-methylphenol was used as screening value for 3 or 4-methyphenol as a conservative approach.
   Screening values for calcium, magnesium, potassium, and sodium were calculated based on an assumption of 200 mg/day soil ingestion
   and recommended dietary allowances and adequate intakes for 1-3 yr children (500 mg/day and 80 mg/day for calcium and magnesium) and
   minimum requirements for 1 yr children (225 mg/day and 1000 mg/day for sodium and potassium)
   from Marilyn Wright (2001) Dietary Reference Intakes.
   PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.
   PRG for nickel (soluble salts) was used as screening value for nickel.
5. Potential ARAR/TBC values are from NYSDEC Technical and Adminstrative Guidance Memorandum #4046
   (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)
   TAGM value for 4-methylphenol was used for 3 or 4-methylphenol.
6. Rationale codes — Selection Reason: Above Screening Levels (ASL); Chemicals in the Same Group were retained as COPC (CSG); No Screening Value or Toxicity Value (NSV)
   Deletion Reason: Essential Nutrient (NUT); Below Screening Level (BSL)

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

APPENDIX E TABLE 15
SEAD-2 SOIL EXPOSURE POINT CONCENTRATION SUMMARY

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
SENECA ARMY DEPOT ACTIVITY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-2

CAS Number	Chemical	Exposure Point Concentration [1] (mg/kg)
SVOC		
121-14-2	2,4-Dinitrotoluene	35.7
208-96-8	Acenaphthylene	2.41
56-55-3	Benzo(a)anthracene	66.6
50-32-8	Benzo(a)pyrene	56.9
205-99-2	Benzo(b)fluoranthene	102
191-24-2	Benzo(ghi)perylene	25.1
207-08-9	Benzo(k)fluoranthene	11.7
86-74-8	Carbazole	28.2
218-01-9	Chrysene	67.7
53-70-3	Dibenz(a,h)anthracene	19.9
132-64-9	Dibenzofuran	22.1
193-39-5	Indeno(1,2,3-cd)pyrene	24.9
91-20-3	Naphthalene	33.9
85-01-8	Phenanthrene	159
Inorganics		
7429-90-5	Aluminum	16800
7440-36-0	Antimony	4.94
7440-38-2	Arsenic	17.6
7440-43-9	Cadmium	4.2
7440-47-3	Chromium	52.8
7439-89-6	Iron	26300
7439-92-1	Lead	1570
7439-96-5	Manganese	522
7723-14-0	Phosphorus	1380
7631-86-9	Silica	1650
7440-21-3	Silicon	771
63705-05-5	Sulfur	1680
7440-62-2	Vanadium	36.4

Note:
1. The maximum detected concentration was used as exposure point concentration.

APPENDIX E TABLE 16
SEAD-2 SOIL AMBIENT AIR EXPOSURE POINT CONCENTRATIONS

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-2

Equation for Air EPC from Surface Soil (mg/m^3) = CSsurf x PM10 x CF

Variables:
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)
PM10 = Average Measured PM10 Concentration = 17 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m^3)
SVOC		
2,4-Dinitrotoluene	35.7	6.1E-07
Acenaphthylene	2.41	4.1E-08
Benzo(a)anthracene	66.6	1.1E-06
Benzo(a)pyrene	56.9	9.7E-07
Benzo(b)fluoranthene	102	1.7E-06
Benzo(ghi)perylene	25.1	4.3E-07
Benzo(k)fluoranthene	11.7	2.0E-07
Carbazole	28.2	4.8E-07
Chrysene	67.7	1.2E-06
Dibenz(a,h)anthracene	19.9	3.4E-07
Dibenzofuran	22.1	3.8E-07
Indeno(1,2,3-cd)pyrene	24.9	4.2E-07
Naphthalene	33.9	5.8E-07
Phenanthrene	159	2.7E-06
Inorganics		0.0E+00
Aluminum	16800	2.9E-04
Antimony	4.94	8.4E-08
Arsenic	17.6	3.0E-07
Cadmium	4.2	7.1E-08
Chromium	52.8	9.0E-07
Iron	26300	4.5E-04
Lead	1570	2.7E-05
Manganese	522	8.9E-06
Phosphorus	1380	2.3E-05
Silica	1650	2.8E-05
Silicon	771	1.3E-05
Sulfur	1680	2.9E-05
Vanadium	36.4	6.2E-07

APPENDIX E TABLE 17
SEAD-2 - AMBIENT AIR EXPOSURE POINT CONCENTRATIONS CAUSED BY CONSTRUCTION ACTIVITIES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-2

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

Variables:
CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)
PM10 = PM10 Concentration Calculated for Construction Worker= 50 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m^3)
SVOC		
2,4-Dinitrotoluene	35.7	1.8E-06
Acenaphthylene	2.41	1.2E-07
Benzo(a)anthracene	66.6	3.3E-06
Benzo(a)pyrene	56.9	2.8E-06
Benzo(b)fluoranthene	102	5.1E-06
Benzo(ghi)perylene	25.1	1.3E-06
Benzo(k)fluoranthene	11.7	5.9E-07
Carbazole	28.2	1.4E-06
Chrysene	67.7	3.4E-06
Dibenz(a,h)anthracene	19.9	1.0E-06
Dibenzofuran	22.1	1.1E-06
Indeno(1,2,3-cd)pyrene	24.9	1.2E-06
Naphthalene	33.9	1.7E-06
Phenanthrene	159	8.0E-06
Inorganics		
Aluminum	16800	8.4E-04
Antimony	4.94	2.5E-07
Arsenic	17.6	8.8E-07
Cadmium	4.2	2.1E-07
Chromium	52.8	2.6E-06
Iron	26300	1.3E-03
Lead	1570	7.9E-05
Manganese	522	2.6E-05
Phosphorus	1380	6.9E-05
Silica	1650	8.3E-05
Silicon	771	3.9E-05
Sulfur	1680	8.4E-05
Vanadium	36.4	1.8E-06

APPENDIX E TABLE 18
SEAD-2 SOIL - CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR - RME and Maximum Concentrations

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Air, mg/m3
IR = Inhalation Rate
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Inhalation RfD	Carc. Slope Inhalation	Air EPC from Surface Soil	Air EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Trespasser			
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/m3)	(mg/m3)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
SVOCs																
2,4-Dinitrotoluene	N/A	N/A	6.1E-07	1.8E-06												
Acenaphthylene	N/A	N/A	4.1E-08	1.2E-07												
Benzo(a)anthracene	N/A	N/A	1.1E-06	3.3E-06												
Benzo(a)pyrene	N/A	3.10E+00	9.7E-07	2.8E-06		6.76E-08		2E-07		7.96E-09		2E-08		9.09E-09		3E-08
Benzo(b)fluoranthene	N/A	N/A	1.7E-06	5.1E-06												
Benzo(ghi)perylene	N/A	N/A	4.3E-07	1.3E-06												
Benzo(k)fluoranthene	N/A	N/A	2.0E-07	5.9E-07												
Carbazole	N/A	N/A	4.8E-07	1.4E-06												
Chrysene	N/A	N/A	1.2E-06	3.4E-06												
Dibenz(a,h)anthracene	N/A	N/A	3.4E-07	1.0E-06												
Dibenzofuran	N/A	N/A	3.8E-07	1.1E-06												
Indeno(1,2,3-cd)pyrene	N/A	N/A	4.2E-07	1.2E-06												
Naphthalene	8.57E-04	N/A	5.8E-07	1.7E-06	1.13E-07		1E-04		3.32E-07		4E-04		6.32E-08		7E-05	
Phenanthrene	N/A	N/A	2.7E-06	8.0E-06												
Inorganics																
Aluminum	1.43E-03	N/A	2.9E-04	8.4E-04	5.59E-05		4E-02		1.64E-04		1E-01		3.13E-05		2E-02	
Antimony	N/A	N/A	8.4E-08	2.5E-07												
Arsenic	N/A	1.51E+01	3.0E-07	8.8E-07		2.09E-08		3E-07		2.46E-09		4E-08		2.81E-09		4E-08
Cadmium	N/A	6.30E+00	7.1E-08	2.1E-07		4.99E-09		3E-08		5.87E-10		4E-09		6.71E-10		4E-09
Chromium	N/A	N/A	9.0E-07	2.6E-06												
Iron	N/A	N/A	4.5E-04	1.3E-03												
Manganese	1.43E-05	N/A	8.9E-06	2.6E-05	1.74E-06		1E-01		5.11E-06		4E-01		9.72E-07		7E-02	
Phosphorus	N/A	N/A	2.3E-05	6.9E-05												
Silica	N/A	N/A	2.8E-05	8.3E-05												
Silicon	N/A	N/A	1.3E-05	3.9E-05												
Sulfur	N/A	N/A	#N/A	8.4E-05												
Vanadium	N/A	N/A	#N/A	1.8E-06												
Total Hazard Quotient and Cancer Risk:							**2E-01**	**6E-07**			**5E-01**	**7E-08**			**9E-02**	**7E-08**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Child Trespasser	
CA =	EPC Surface Only	CA =	EPC Surface and Sub-Surface	CA =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	15 kg
IR =	20 m3/day	IR =	20 m3/day	IR =	12 m3/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 year	ED =	6 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	2,190 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 19
CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL - Maximum Concentration and RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/kg
IR = Ingestion Rate
CF = Conversion Factor
FI = Fraction Ingested
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Oral RfD	Carc. Slope Oral	EPC Surface Soil	Industrial Worker				Construction Worker				Adolescent Trespasser			
				Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Semivolatile Organic Compounds															
2,4-Dinitrotoluene	2E-03	N/A	3.57E+01	3.49E-05		2E-02		1.15E-04		6E-02		9.78E-06		5E-03	
Acenaphthylene	N/A	N/A	2.41E+00												
Benzo(a)anthracene	N/A	7.3E-01	6.66E+01		2.33E-05		2E-05		3.07E-06		2E-06		1.30E-06		1E-06
Benzo(a)pyrene	N/A	7.3E+00	5.69E+01		1.99E-05		1E-04		2.62E-06		2E-05		1.11E-06		8E-06
Benzo(b)fluoranthene	N/A	7.3E-01	1.02E+02		3.56E-05		3E-05		4.71E-06		3E-06		2.00E-06		1E-06
Benzo(ghi)perylene	N/A	N/A	2.51E+01												
Benzo(k)fluoranthene	N/A	7.3E-02	1.17E+01		4.09E-06		3E-07		5.40E-07		4E-08		2.29E-07		2E-08
Carbazole	N/A	2.0E-02	2.82E+01		9.85E-06		2E-07		1.30E-06		3E-08		5.52E-07		1E-08
Chrysene	N/A	7.3E-03	6.77E+01		2.37E-05		2E-07		3.12E-06		2E-08		1.32E-06		1E-08
Dibenz(a,h)anthracene	N/A	7.3E+00	1.99E+01		6.95E-06		5E-05		9.18E-07		7E-06		3.89E-07		3E-06
Dibenzofuran	2E-03	N/A	2.21E+01	2.16E-05		1E-02		7.14E-05		4E-02		6.05E-06		3E-03	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	2.49E+01		8.70E-06		6E-06		1.15E-06		8E-07		4.87E-07		4E-07
Naphthalene	2E-02	N/A	3.39E+01	3.32E-05		2E-03		1.09E-04		5E-03		9.29E-06		5E-04	
Phenanthrene	N/A	N/A	1.59E+02												
Inorganics															
Aluminum	1E+00	N/A	1.68E+04	1.64E-02		2E-02		5.42E-02		5E-02		4.60E-03		5E-03	
Antimony	4E-04	N/A	4.94E+00	4.83E-06		1E-02		1.60E-05		4E-02		1.35E-06		3E-03	
Arsenic	3E-04	1.5E+00	1.76E+01	1.72E-05	6.15E-06	6E-02	9E-06	5.68E-05	8.12E-07	2E-01	1E-06	4.82E-06	3.44E-07	2E-02	5E-07
Cadmium	1E-03	N/A	4.20E+00	4.11E-06		4E-03		1.36E-05		1E-02		1.15E-06		1E-03	
Chromium	3E-03	N/A	5.28E+01	5.17E-05		2E-02		1.70E-04		6E-02		1.45E-05		5E-03	
Iron	3E-01	N/A	2.63E+04	2.57E-02		9E-02		8.49E-02		3E-01		7.21E-03		2E-02	
Manganese	2E-02	N/A	5.22E+02	5.11E-04		2E-02		1.69E-03		7E-02		1.43E-04		6E-03	
Phosphorus	N/A	N/A	1.38E+03												
Silica	N/A	N/A	1.65E+03												
Silicon	N/A	N/A	7.71E+02												
Sulfur	N/A	N/A	1.68E+03												
Vanadium	1E-03	N/A	3.64E+01	3.56E-05		4E-02		1.18E-04		1E-01		9.97E-06		1E-02	
Total Hazard Quotient and Cancer Risk:						**3E-01**	**3E-04**			**9E-01**	**3E-05**			**8E-02**	**1E-05**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC=	EPC Surface Only	EPC=	EPC Surface and Subsurface	EPC=	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
IR =	100 mg/day	IR =	330 mg/day	IR =	100 mg/day
FI =	1 unitless	FI =	1 unitless	FI =	1 unitless
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 20
SEAD-2 SOIL - CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL - Maximum Concentrations and RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

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

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

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

Analyte	Dermal RfD	Carc. Slope Dermal	Absorption Factor*	EPC Surface Soil	Industrial Worker				Construction Worker				Adolescent Trespasser			
					Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(unitless)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Semivolatile Organic Compounds																
2,4-Dinitrotoluene	2E-03	N/A	1.0E-01	3.57E+01	2.31E-05		1E-02		3.46E-05		2E-02		4.02E-06		2E-03	
Acenaphthylene	N/A	N/A	1.3E-01	2.41E+00												
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	6.66E+01		2.00E-05		1E-05		1.20E-06		9E-07		6.96E-07		5E-07
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	5.69E+01		1.71E-05		1E-04		1.02E-06		7E-06		5.94E-07		4E-06
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	1.02E+02		3.06E-05		2E-05		1.83E-06		1E-06		1.07E-06		8E-07
Benzo(ghi)perylene	N/A	N/A	1.3E-01	2.51E+01												
Benzo(k)fluoranthene	N/A	7.3E-02	1.3E-01	1.17E+01		3.51E-06		3E-07		2.10E-07		2E-08		1.22E-07		9E-09
Carbazole	N/A	2.0E-02	1.0E-01	2.82E+01		6.50E-06		1E-07		3.90E-07		8E-09		2.27E-07		5E-09
Chrysene	N/A	7.3E-03	1.3E-01	6.77E+01		2.03E-05		1E-07		1.22E-06		9E-09		7.07E-07		5E-09
Dibenz(a,h)anthracene	N/A	7.3E+00	1.3E-01	1.99E+01		5.97E-06		4E-05		3.58E-07		3E-06		2.08E-07		2E-06
Dibenzofuran	2E-03	N/A	1.0E-01	2.21E+01	1.43E-05		7E-03		2.14E-05		1E-02		2.49E-06		1E-03	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	2.49E+01		7.47E-06		5E-06		4.48E-07		3E-07		2.60E-07		2E-07
Naphthalene	2E-02	N/A	1.3E-01	3.39E+01	2.85E-05		1E-03		4.27E-05		2E-03		4.96E-06		2E-04	
Phenanthrene	N/A	N/A	1.3E-01	1.59E+02												
Inorganics																
Aluminum	1E+00	N/A	1E-03	1.68E+04	1.08E-04		1E-04		1.63E-04		2E-04		1.89E-05		2E-05	
Antimony	6E-05	N/A	1E-03	4.94E+00	3.19E-08		5E-04		4.79E-08		8E-04		5.56E-09		9E-05	
Arsenic	3E-04	1.5E+00	3E-02	1.76E+01	3.41E-06	1.22E-06	1E-02	2E-06	5.11E-06	7.31E-08	2E-02	1E-07	5.94E-07	4.24E-08	2E-03	6E-08
Cadmium	3E-05	N/A	1E-03	4.20E+00	2.71E-08		1E-03		4.07E-08		2E-03		4.73E-09		2E-04	
Chromium	8E-05	N/A	1E-03	5.28E+01	3.41E-07		5E-03		5.11E-07		7E-03		5.94E-08		8E-04	
Iron	3E-01	N/A	1E-03	2.63E+04	1.70E-04		6E-04		2.55E-04		8E-04		2.96E-05		1E-04	
Manganese	9E-04	N/A	1E-03	5.22E+02	3.37E-06		4E-03		5.06E-06		5E-03		5.87E-07		6E-04	
Phosphorus	N/A	N/A	1E-03	1.38E+03												
Silica	N/A	N/A	1E-03	1.65E+03												
Silicon	N/A	N/A	1E-03	7.71E+02												
Sulfur	N/A	N/A	1E-03	1.68E+03												
Vanadium	3E-05	N/A	1E-03	3.64E+01	2.35E-07		9E-03		3.53E-07		1E-02		4.10E-08		2E-03	
Total Hazard Quotient and Cancer Risk:							**5E-02**	**2E-04**			**8E-02**	**1E-05**			**9E-03**	**7E-06**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC =	EPC Surface Only	EPC =	EPC Surface and Subsurface	EPC =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
SA =	3,300 cm^2	SA =	3,300 cm^2	SA =	5,867 cm^2
AF =	0.2 mg/cm^2-event	AF =	0.3 mg/cm^2-event	AF =	0.07 mg/cm^2-event
EV =	1 event/day	EV =	1 event/day	EV =	1 event/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.
N/A= Information not available.
* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).
Absorption factors for inorganics without recommended dermal absorption fraction from soil were assumed to be 0.001 in accordance with the USEPA Region 4 (2000).
Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

APPENDIX E TABLE 21
SOIL EXPOSURE POINT CONCENTRATION SUMMARY - SOIL FOR SEAD-2

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-2

CAS Number	Chemical	Exposure Point Concentration [1] (mg/kg)
SVOC		
121-14-2	2,4-Dinitrotoluene	35.7
208-96-8	Acenaphthylene	2.4
56-55-3	Benzo(a)anthracene	31.8
50-32-8	Benzo(a)pyrene	27.5
205-99-2	Benzo(b)fluoranthene	43.9
191-24-2	Benzo(ghi)perylene	25.1
207-08-9	Benzo(k)fluoranthene	11.5
86-74-8	Carbazole	11.8
218-01-9	Chrysene	31.8
53-70-3	Dibenz(a,h)anthracene	8.2
132-64-9	Dibenzofuran	22.1
193-39-5	Indeno(1,2,3-cd)pyrene	11.3
91-20-3	Naphthalene	33.9
85-01-8	Phenanthrene	159
Inorganics		
7429-90-5	Aluminum	8828
7440-36-0	Antimony	4.9
7440-38-2	Arsenic	12.4
7440-43-9	Cadmium	4.2
7440-47-3	Chromium	52.8
7439-89-6	Iron	20.2
7439-92-1	Lead	1570
7439-96-5	Manganese	412.7
7723-14-0	Phosphorus	1380
7631-86-9	Silica	1650
7440-21-3	Silicon	771
63705-05-5	Sulfur	1680
7440-62-2	Vanadium	24.2

Note:
1. The 95th UCL of the mean was used as exposure point concentration.

APPENDIX E TABLE 22
SEAD-2 SOIL - AMBIENT AIR EXPOSURE POINT CONCENTRATIONS

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-2

Equation for Air EPC from Surface Soil (mg/m^3) = CSsurf x PM10 x CF

Variables:
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)
PM10 = Average Measured PM10 Concentration = 17 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m^3)
SVOC		
2,4-Dinitrotoluene	35.7	6.1E-07
Acenaphthylene	2.41	4.1E-08
Benzo(a)anthracene	31.82313	5.4E-07
Benzo(a)pyrene	27.47989	4.7E-07
Benzo(b)fluoranthene	43.88012	7.5E-07
Benzo(ghi)perylene	25.1	4.3E-07
Benzo(k)fluoranthene	11.54687	2.0E-07
Carbazole	11.81538	2.0E-07
Chrysene	31.75916	5.4E-07
Dibenz(a,h)anthracene	8.161879	1.4E-07
Dibenzofuran	22.1	3.8E-07
Indeno(1,2,3-cd)pyrene	11.31244	1.9E-07
Naphthalene	33.9	5.8E-07
Phenanthrene	159	2.7E-06
Inorganics		0.0E+00
Aluminum	8828.238	1.5E-04
Antimony	4.94	8.4E-08
Arsenic	12.36126	2.1E-07
Cadmium	4.2	7.1E-08
Chromium	52.8	9.0E-07
Iron	20.18755	3.4E-07
Lead	1570	2.7E-05
Manganese	412.7462	7.0E-06
Phosphorus	1380	2.3E-05
Silica	1650	2.8E-05
Silicon	771	1.3E-05
Sulfur	1680	2.9E-05
Vanadium	24.15559	4.1E-07

APPENDIX E TABLE 23
SEAD-2 AMBIENT AIR EXPOSURE POINT CONCENTRATIONS CAUSED BY CONSTRUCTION ACTIVITIES

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-2

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

Variables:
CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)
PM10 = PM10 Concentration Calculated for Construction Worker= 50 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	**EPC Data for Surface Soil** (mg/kg)	**Calculated Air EPC Surface and Subsurface Soil** (mg/m^3)
SVOC		
2,4-Dinitrotoluene	35.7	1.8E-06
Acenaphthylene	2.41	1.2E-07
Benzo(a)anthracene	31.82313	1.6E-06
Benzo(a)pyrene	27.47989	1.4E-06
Benzo(b)fluoranthene	43.88012	2.2E-06
Benzo(ghi)perylene	25.1	1.3E-06
Benzo(k)fluoranthene	11.54687	5.8E-07
Carbazole	11.81538	5.9E-07
Chrysene	31.75916	1.6E-06
Dibenz(a,h)anthracene	8.161879	4.1E-07
Dibenzofuran	22.1	1.1E-06
Indeno(1,2,3-cd)pyrene	11.31244	5.7E-07
Naphthalene	33.9	1.7E-06
Phenanthrene	159	8.0E-06
Inorganics		
Aluminum	8828.238	4.4E-04
Antimony	4.94	2.5E-07
Arsenic	12.36126	6.2E-07
Cadmium	4.2	2.1E-07
Chromium	52.8	2.6E-06
Iron	20.18755	1.0E-06
Lead	1570	7.9E-05
Manganese	412.7462	2.1E-05
Phosphorus	1380	6.9E-05
Silica	1650	8.3E-05
Silicon	771	3.9E-05
Sulfur	1680	8.4E-05
Vanadium	24.15559	1.2E-06

APPENDIX E TABLE 24
CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Air, mg/m3
IR = Inhalation Rate
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Inhalation RfD	Carc. Slope Inhalation	Air EPC from Surface Soil	Air EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Trespasser			
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/m3)	(mg/m3)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
SVOCs																
2,4-Dinitrotoluene	N/A	N/A	6.1E-07	1.8E-06												
Acenaphthylene	N/A	N/A	4.1E-08	1.2E-07												
Benzo(a)anthracene	N/A	N/A	5.4E-07	1.6E-06												
Benzo(a)pyrene	N/A	3.10E+00	4.7E-07	1.4E-06		3.27E-08		1E-07		3.84E-09		1E-08		4.39E-09		1E-08
Benzo(b)fluoranthene	N/A	N/A	7.5E-07	2.2E-06												
Benzo(ghi)perylene	N/A	N/A	4.3E-07	1.3E-06												
Benzo(k)fluoranthene	N/A	N/A	2.0E-07	5.8E-07												
Carbazole	N/A	N/A	2.0E-07	5.9E-07												
Chrysene	N/A	N/A	5.4E-07	1.6E-06												
Dibenz(a,h)anthracene	N/A	N/A	1.4E-07	4.1E-07												
Dibenzofuran	N/A	N/A	3.8E-07	1.1E-06												
Indeno(1,2,3-cd)pyrene	N/A	N/A	1.9E-07	5.7E-07												
Naphthalene	8.57E-04	N/A	5.8E-07	1.7E-06	1.13E-07		1E-04		3.32E-07		4E-04		6.32E-08		7E-05	
Phenanthrene	N/A	N/A	2.7E-06	8.0E-06												
Inorganics																
Aluminum	1.43E-03	N/A	1.5E-04	4.4E-04	2.94E-05		2E-02		8.64E-05		6E-02		1.64E-05		1E-02	
Antimony	N/A	N/A	8.4E-08	2.5E-07												
Arsenic	N/A	1.51E+01	2.1E-07	6.2E-07		1.47E-08		2E-07		1.73E-09		3E-08		1.97E-09		3E-08
Cadmium	N/A	6.30E+00	7.1E-08	2.1E-07		4.99E-09		3E-08		5.87E-10		4E-09		6.71E-10		4E-09
Chromium	N/A	N/A	9.0E-07	2.6E-06												
Iron	N/A	N/A	3.4E-07	1.0E-06												
Manganese	1.43E-05	N/A	7.0E-06	2.1E-05	1.37E-06		1E-01		4.04E-06		3E-01		7.69E-07		5E-02	
Phosphorus	N/A	N/A	2.3E-05	6.9E-05												
Silica	N/A	N/A	2.8E-05	8.3E-05												
Silicon	N/A	N/A	1.3E-05	3.9E-05												
Sulfur	N/A	N/A	#N/A	8.4E-05												
Vanadium	N/A	N/A	#N/A	1.2E-06												
Total Hazard Quotient and Cancer Risk:							**1E-01**	**4E-07**			**3E-01**	**4E-08**			**7E-02**	**5E-08**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Child Trespasser	
CA =	EPC Surface Only	CA =	EPC Surface and Sub-Surface	CA =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	15 kg
IR =	20 m3/day	IR =	20 m3/day	IR =	12 m3/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 year	ED =	6 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	2,190 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 25
SEAD- 2 - CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL - 95TH UCL Concentrations and RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/kg
IR = Ingestion Rate
CF = Conversion Factor
FI = Fraction Ingested
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Oral RfD	Carc. Slope Oral	EPC Surface Soil	Industrial Worker				Construction Worker				Adolescent Trespasser			
				Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Semivolatile Organic Compounds															
2,4-Dinitrotoluene	2E-03	N/A	3.57E+01	1.53E-05		8E-03		3.06E-05		2E-02		4.89E-06		2E-03	
Acenaphthylene	N/A	N/A	2.41E+00												
Benzo(a)anthracene	N/A	7.3E-01	3.18E+01		1.75E-06		1E-06		3.90E-07		3E-07		3.11E-07		2E-07
Benzo(a)pyrene	N/A	7.3E+00	2.75E+01		1.51E-06		1E-05		3.36E-07		2E-06		2.69E-07		2E-06
Benzo(b)fluoranthene	N/A	7.3E-01	4.39E+01		2.42E-06		2E-06		5.37E-07		4E-07		4.29E-07		3E-07
Benzo(ghi)perylene	N/A	N/A	2.51E+01												
Benzo(k)fluoranthene	N/A	7.3E-02	1.15E+01		6.36E-07		5E-08		1.41E-07		1E-08		1.13E-07		8E-09
Carbazole	N/A	2.0E-02	1.18E+01		6.51E-07		1E-08		1.45E-07		3E-09		1.16E-07		2E-09
Chrysene	N/A	7.3E-03	3.18E+01		1.75E-06		1E-08		3.89E-07		3E-09		3.11E-07		2E-09
Dibenz(a,h)anthracene	N/A	7.3E+00	8.16E+00		4.50E-07		3E-06		9.99E-08		7E-07		7.99E-08		6E-07
Dibenzofuran	2E-03	N/A	2.21E+01	9.47E-06		5E-03		1.89E-05		9E-03		3.03E-06		2E-03	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.13E+01		6.23E-07		5E-07		1.39E-07		1E-07		1.11E-07		8E-08
Naphthalene	2E-02	N/A	3.39E+01	1.45E-05		7E-04		2.91E-05		1E-03		4.64E-06		2E-04	
Phenanthrene	N/A	N/A	1.59E+02												
Inorganics															
Aluminum	1E+00	N/A	8.83E+03	3.78E-03		4E-03		7.57E-03		8E-03		1.21E-03		1E-03	
Antimony	4E-04	N/A	4.94E+00	2.12E-06		5E-03		4.23E-06		1E-02		6.77E-07		2E-03	
Arsenic	3E-04	1.5E+00	1.24E+01	5.30E-06	6.81E-07	2E-02	1E-06	1.06E-05	1.51E-07	4E-02	2E-07	1.69E-06	1.21E-07	6E-03	2E-07
Cadmium	1E-03	N/A	4.20E+00	1.80E-06		2E-03		3.60E-06		4E-03		5.75E-07		6E-04	
Chromium	3E-03	N/A	5.28E+01	2.26E-05		8E-03		4.53E-05		2E-02		7.23E-06		2E-03	
Iron	3E-01	N/A	2.02E+01	8.65E-06		3E-05		1.73E-05		6E-05		2.77E-06		9E-06	
Manganese	2E-02	N/A	4.13E+02	1.77E-04		8E-03		3.54E-04		2E-02		5.65E-05		2E-03	
Phosphorus	N/A	N/A	1.38E+03												
Silica	N/A	N/A	1.65E+03												
Silicon	N/A	N/A	7.71E+02												
Sulfur	N/A	N/A	1.68E+03												
Vanadium	1E-03	N/A	2.42E+01	1.04E-05		1E-02		2.07E-05		2E-02		3.31E-06		3E-03	
Total Hazard Quotient and Cancer Risk:						**7E-02**	**2E-05**			**1E-01**	**4E-06**			**2E-02**	**3E-06**

	Assumptions for Industrial Worker	Assumptions for Construction Worker	Assumptions for Adolescent Trespasser
CF =	1E-06 kg/mg	1E-06 kg/mg	1E-06 kg/mg
EPC=	EPC Surface Only	EPC Surface and Subsurface	EPC Surface Only
BW =	70 kg	70 kg	50 kg
IR =	50 mg/day	100 mg/day	50 mg/day
FI =	1 unitless	1 unitless	1 unitless
EF =	219 days/year	219 days/year	50 days/year
ED =	9 years	1 years	5 years
AT (Nc) =	3,285 days	365 days	1,825 days
AT (Car) =	25,550 days	25,550 days	25,550 days

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

APPENDIX E TABLE 26
SEAD-2 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL - 95th UCL Concentrations

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

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

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

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

Analyte	Dermal RfD	Carc. Slope Dermal	Absorption Factor*	EPC Surface Soil	Industrial Worker				Construction Worker				Adolescent Trespasser			
					Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(unitless)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Semivolatile Organic Compounds																
2,4-Dinitrotoluene	2E-03	N/A	1.0E-01	3.57E+01	2.31E-05		1E-02		3.46E-05		2E-02		4.02E-06		2E-03	
Acenaphthylene	N/A	N/A	1.3E-01	2.41E+00												
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	3.18E+01		9.54E-06		7E-06		5.72E-07		4E-07		3.32E-07		2E-07
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	2.75E+01		8.24E-06		6E-05		4.94E-07		4E-06		2.87E-07		2E-06
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	4.39E+01		1.32E-05		1E-05		7.89E-07		6E-07		4.58E-07		3E-07
Benzo(ghi)perylene	N/A	N/A	1.3E-01	2.51E+01												
Benzo(k)fluoranthene	N/A	7.3E-02	1.3E-01	1.15E+01		3.46E-06		3E-07		2.08E-07		2E-08		1.21E-07		9E-09
Carbazole	N/A	2.0E-02	1.0E-01	1.18E+01		2.73E-06		5E-08		1.64E-07		3E-09		9.50E-08		2E-09
Chrysene	N/A	7.3E-03	1.3E-01	3.18E+01		9.52E-06		7E-08		5.71E-07		4E-09		3.32E-07		2E-09
Dibenz(a,h)anthracene	N/A	7.3E+00	1.3E-01	8.16E+00		2.45E-06		2E-05		1.47E-07		1E-06		8.53E-08		6E-07
Dibenzofuran	2E-03	N/A	1.0E-01	2.21E+01	1.43E-05		7E-03		2.14E-05		1E-02		2.49E-06		1E-03	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	1.13E+01		3.39E-06		2E-06		2.04E-07		1E-07		1.18E-07		9E-08
Naphthalene	2E-02	N/A	1.3E-01	3.39E+01	2.85E-05		1E-03		4.27E-05		2E-03		4.96E-06		2E-04	
Phenanthrene	N/A	N/A	1.3E-01	1.59E+02												
Inorganics																
Aluminum	1E+00	N/A	1E-03	8.83E+03	5.70E-05		6E-05		8.55E-05		9E-05		9.93E-06		1E-05	
Antimony	6E-05	N/A	1E-03	4.94E+00	3.19E-08		5E-04		4.79E-08		8E-04		5.56E-09		9E-05	
Arsenic	3E-04	1.5E+00	3E-02	1.24E+01	2.39E-06	8.55E-07	8E-03	1E-06	3.59E-06	5.13E-08	1E-02	8E-08	4.17E-07	2.98E-08	1E-03	4E-08
Cadmium	3E-05	N/A	1E-03	4.20E+00	2.71E-08		1E-03		4.07E-08		2E-03		4.73E-09		2E-04	
Chromium	8E-05	N/A	1E-03	5.28E+01	3.41E-07		5E-03		5.11E-07		7E-03		5.94E-08		8E-04	
Iron	3E-01	N/A	1E-03	2.02E+01	1.30E-07		4E-07		1.96E-07		7E-07		2.27E-08		8E-08	
Manganese	9E-04	N/A	1E-03	4.13E+02	2.67E-06		3E-03		4.00E-06		4E-03		4.64E-07		5E-04	
Phosphorus	N/A	N/A	1E-03	1.38E+03												
Silica	N/A	N/A	1E-03	1.65E+03												
Silicon	N/A	N/A	1E-03	7.71E+02												
Sulfur	N/A	N/A	1E-03	1.68E+03												
Vanadium	3E-05	N/A	1E-03	2.42E+01	1.56E-07		6E-03		2.34E-07		9E-03		2.72E-08		1E-03	
Total Hazard Quotient and Cancer Risk:							**4E-02**	**1E-04**			**6E-02**	**6E-06**			**8E-03**	**3E-06**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC =	EPC Surface Only	EPC =	EPC Surface and Subsurface	EPC =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
SA =	3,300 cm^2	SA =	3,300 cm^2	SA =	5,867 cm^2
AF =	0.2 mg/cm^2-event	AF =	0.3 mg/cm^2-event	AF =	0.07 mg/cm^2-event
EV =	1 event/day	EV =	1 event/day	EV =	1 event/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.
N/A= Information not available.
* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).
Absorption factors for inorganics without recommended dermal absorption fraction from soil were assumed to be 0.001 in accordance with the USEPA Region 4 (2000).
Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

APPENDIX E TABLE 27
SEAD-5 SITE SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Time frame:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-5

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)	Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Source	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]
SVOC															
91-57-6	2-Methylnaphthalene	0.059	J	28		SEAD5-PX-SS-107-FS1	41 / 166	0.26 - 0.39	28		31			NO	BSL
83-32-9	Acenaphthene	0.066	J	110		SEAD5-PX-SS-107-FS1	67 / 166	0.26 - 0.39	110		370	NYSDEC Subpart 375-6	1,000	NO	BSL
208-96-8	Acenaphthylene	0.061	J	9.5		SEAD5-PX-SS-107-FS1	84 166	0.26 - 0.39	9.5			NYSDEC Subpart 375-6	1,000	YES	NSV
120-12-7	Anthracene	0.056	J	290		SEAD5-PX-SS-107-FS1	103 / 166	0.26 - 0.39	290		2,200	NYSDEC Subpart 375-6	1,000	NO	BSL
56-55-3	Benzo(a)anthracene	0.056	J	400		SEAD5-PX-SS-107-FS1	128 / 166	0.26 - 0.39	400		0.62	NYSDEC Subpart 375-6	11	YES	ASL
50-32-8	Benzo(a)pyrene	0.067	J	310		SEAD5-PX-SS-107-FS1	119 / 166	0.26 - 0.39	310		0.062	NYSDEC Subpart 375-6	1.1	YES	ASL
205-99-2	Benzo(b)fluoranthene	0.058	J	400		SEAD5-PX-SS-107-FS1	126 / 166	0.26 - 0.39	400		0.62	NYSDEC Subpart 375-6	11	YES	ASL
191-24-2	Benzo(ghi)perylene	0.055	J	130		SEAD5-PX-SS-107-FS1	123 / 166	0.26 - 0.39	130			NYSDEC Subpart 375-6	1,000	YES	NSV
207-08-9	Benzo(k)fluoranthene	0.057	J	130		SEAD5-PX-SS-107-FS1	107 / 166	0.26 - 0.39	130		35	NYSDEC Subpart 375-6	110	YES	ASL
218-01-9	Chrysene	0.062	J	350		SEAD5-PX-SS-107-FS1	128 / 166	0.26 - 0.39	350		62	NYSDEC Subpart 375-6	110	YES	ASL
53-70-3	Dibenzo(a,h)anthracene	0.06	J	66		SEAD5-PX-SS-107-FS1	86 166	0.26 - 0.39	66		0.062	NYSDEC Subpart 375-6	1.1	YES	ASL
206-44-0	Fluoranthene	0.069	J	890		SEAD5-PX-SS-107-FS1	133 / 166	0.26 - 0.39	890		230	NYSDEC Subpart 375-6	1,000	YES	ASL
86-73-7	Fluorene	0.058	J	140		SEAD5-PX-SS-107-FS1	70 / 166	0.26 - 0.39	140		270	NYSDEC Subpart 375-6	1,000	NO	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	0.06	J	140		SEAD5-PX-SS-107-FS1	120 / 166	0.26 - 0.39	140		0.62	NYSDEC Subpart 375-6	11	YES	ASL
91-20-3	Naphthalene	0.058	J	56		SEAD5-PX-SS-107-FS1	77 166	0.26 - 0.39	56		5.6	NYSDEC Subpart 375-6	1,000	YES	ASL
85-01-8	Phenanthrene	0.06	J	888		SEAD5-PX-SS-107-FS1	126 / 166	0.26 - 0.39	888			NYSDEC Subpart 375-6	1,000	YES	NSV
129-00-0	Pyrene	0.065	J	740		SEAD5-PX-SS-107-FS1	131 / 166	0.26 - 0.39	740		230	NYSDEC Subpart 375-6	1,000	YES	ASL
Inorganics															
7440-38-2	Arsenic	2.1	J	19.5		SEAD5-PX-SS-066-FS	165 / 166	6.4 - 9.4	19.5	21.5	0.39	NYSDEC Subpart 375-6	16	YES	ASL
7440-39-3	Barium	35.3		241		SEAD5-FX-SS-060-FS	166 / 166	-	241	159	540	NYSDEC Subpart 375-6	10,000	NO	BSL
7440-43-9	Cadmium	0.0209	J	2.35	J	SEAD5-PX-SS-100-FS3	106 / 166	0.64 - 0.93	2.35	2.9	3.7	NYSDEC Subpart 375-6	60	NO	BSL
7440-47-3	Chromium	8.2	J	123		SEAD5-PX-SS-066FS	166 / 166		123	32.7	21	NYSDEC Subpart 375-6	800	YES	ASL
7440-50-8	Copper	11.9	J	117		SEAD5-FX-SS-63-FS	157 / 157		117	62.8	310	NYSDEC Subpart 375-6	10,000	NO	BSL
7439-92-1	Lead	10.4		1470		SEAD5-PX-SS-066-FS	166 / 166		1470	266	400	NYSDEC Subpart 375-6	3,900	YES	ASL
7439-97-6	Mercury	0.0167		3.14		SEAD5-FX-SS-63-FS	166 / 166		3.14	0.13	2.3			YES	ASL
7782-49-2	Selenium	0.36	J	44	J	SEAD5-PX-SS-92-FS2	135 / 166	0.64 - 20	44	1.7	39	NYSDEC Subpart 375-6	6,800	YES	ASL
7440-22-4	Silver	0.211	J	8.12		SEAD5-FX-SS-63-FS	75 / 166	1.8 - 2.4	8.12	0.87	39	NYSDEC Subpart 375-6	6,800	NO	BSL
7440-66-6	Zinc	33.7		241		SEAD5-FX-SS-63-FS	157 / 157	10.9	241	126	2,300	NYSDEC Subpart 375-6	10,000	NO	BSL

APPENDIX E TABLE 27
SEAD-5 SITE SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Time frame:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-5

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)	Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Source	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]

Notes:
1. Field duplicates were not uniquely identified for any SEAD-5 soil samples.
Range of reporting limits were presented for nondetects only.
2. The maximum detected concentration was used for screening.
3. Background value is the maximum Seneca background concentrations.
4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at
http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.
The Region 9 PRGs were based on a target cancer risk of 1E-6 or a target hazard quotient of 1, whichever is lower. Direct contact exposure (ingestion and dermal contact) is evaluated to derive the PRGs.
The Region 9 PRGs, if based on noncancer risk, were adjusted by multiplying 0.1 to represent a target hazard quotient of 0.1.
EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene
as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,
was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.
PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.
5. Potential ARAR/TBC values are from NYSDEC Brownfield Industrial Use Soil Cleanup Objectives, http://www.dec.state.ny.us/website/regs/subpart375_6.html
Soil Cleanup Objective for Cr(VI) was used for chromium.
6. Rationale codes — Selection Reason: Above Screening Levels (ASL); No Screening Value or Toxicity Value (NSV)
Deletion Reason: Below Screening Level (BSL)

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

APPENDIX E TABLE 28
SEAD-5 SURFACE SOIL - SOIL EXPOSURE POINT CONCENTRATION SUMMARY

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

Scenario Timeframe:	Current/Future
Medium:	Soil Combined
Exposure Medium:	Soil Combined
Exposure Point:	SEAD-5

Chemical of Potential Concern	Units	Arithmetic Mean (1)	95% UCL of Normal Data (1)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)			Central Tendency (2)		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Surface Soil												
Benzo(a)anthracene	mg/kg	5.5	9.7	400		mg/kg	21.5	97.5 Chebyshev	Non-parametric, MH	21.5	97.5 Chebyshev	Non-parametric, MH
Benzo(a)pyrene	mg/kg	4.4	7.7	310		mg/kg	16.8	97.5 Chebyshev	Non-parametric, HE	16.8	97.5 Chebyshev	Non-parametric, HE
Benzo(b)fluoranthene	mg/kg	5.7	10.0	400		mg/kg	21.8	97.5 Chebyshev	Non-parametric, HE	21.8	97.5 Chebyshev	Non-parametric, HE
Benzo(k)fluoranthene	mg/kg	1.8	3.08	130		mg/kg	6.744	97.5 Chebyshev	Non-parametric, MH	6.744	97.5 Chebyshev	Non-parametric, MH
Chrysene	mg/kg	4.7	8.4	350		mg/kg	18.534	97.5 Chebyshev	Non-parametric, HE	18.534	97.5 Chebyshev	Non-parametric, HE
Dibenz(a,h)anthracer	mg/kg	0.9	1.552	66		mg/kg	3.41	97.5 Chebyshev	Non-parametric, MH	3.41	97.5 Chebyshev	Non-parametric, MH
Fluoranthene	mg/kg	11.7	21.165	890		mg/kg	47.30	97.5 Chebyshev	Non-parametric, HE	47.30	97.5 Chebyshev	Non-parametric, HE
Fluorene	mg/kg	1.6	3.025	140		mg/kg	7.05	97.5 Chebyshev	Non-parametric, MH	7.05	97.5 Chebyshev	Non-parametric, MH
Indeno(1,2,3-cd)pyre	mg/kg	2.3	3.829	140		mg/kg	8.04	97.5% Chebyshev	Non-parametric, HE	8.04	97.5% Chebyshev	Non-parametric, HE
Pyrene	mg/kg	9.58	17.308	740		mg/kg	38.757	97.5% Chebyshev	Non-parametric, HE	38.757	97.5% Chebyshev	Non-parametric, HE
Arsenic	mg/kg	8.8	9.2	32		mg/kg	9.3	95% modified t	Non-parametric, M	9.3	95% modified t	Non-parametric, M
Cadmium	mg/kg	0.29	0.34	3.2		mg/kg	0.411	95% Chebyshev	Non-parametric, MO	0.411	95% Chebyshev	Non-parametric, MO
Mercury	mg/kg	0.12	0.15	3.14	J	mg/kg	0.2074	95% Chebyshev	Non-parametric, MO	0.2	95% Chebyshev	Non-parametric, MO
Selenium	mg/kg	14.09	15.50	44	J	mg/kg	19.41	97.5% Chebyshev	Non-parametric, MH	19.4	97.5% Chebyshev	Non-parametric, MH

Notes:
1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.
   Nondetectes were assumed to be half reporting limits.
2. The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004)
   and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).
   HE - highly skewed to extremely highly skewed (standard deviation of log-transformed data in the interval (2.0, 3.0] data set.
   MH - moderately to highly skewed (standard deviation of log-transformed data in the interval (1.0, 2.0] data set.
   MO - moderately skewed (standard deviation of log-transformed data in the interval (0.5,1] data set.
   M - mildly skewed (standard deviation of log-transformed data less than or equal to 0.5) data set.
   Q - qualifier
   J = Estimated Value

APPENDIX E TABLE 29
SEAD-5 SURFACE SOIL - AMBIENT AIR EXPOSURE POINT CONCENTRATIONS

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-5

Equation for Air EPC from Surface Soil (mg/m³) CSsurf x PM10 x CF

Variables:
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)
PM10 = Average Measured PM10 Concentration = 17 ug/m³
CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure		Central Tendency Exposure	
	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m³)	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m³)
Benzo(a)anthracene	21.5	3.7E-07	21.5	3.7E-07
Benzo(a)pyrene	16.8	2.9E-07	16.8	2.9E-07
Benzo(b)fluoranthene	21.8	3.7E-07	21.8	3.7E-07
Benzo(k)fluoranthene	6.7	1.1E-07	6.7	1.1E-07
Chrysene	18.5	3.2E-07	18.5	3.2E-07
Dibenz(a,h)anthracene	3.4	5.8E-08	3.4	5.8E-08
Fluoranthene	47.3	8.0E-07	47.3	8.0E-07
Fluorene	7.0	1.2E-07	7.0	1.2E-07
Indeno(1,2,3-cd)pyrene	8.0	1.4E-07	8.0	1.4E-07
Pyrene	38.8	6.6E-07	38.8	6.6E-07
Arsenic	9.3	1.6E-07	9.3	1.6E-07
Cadmium	0.4	7.0E-09	0.4	7.0E-09
Mercury	0.2	3.5E-09	0.2	3.5E-09
Selenium	19.4	3.3E-07	19.4	3.3E-07

APPENDIX E TABLE 30
SEAD- 5 SOIL - AMBIENT AIR EXPOSURE POINT CONCENTRATIONS

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-5

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

Variables:
CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)
PM10 = PM10 Concentration Calculated for Construction Worker= 149 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure		Central Tendency Exposure	
	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m^3)	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m^3)
Benzo(a)anthracene	21.498	3.2E-06	21.498	3.2E-06
Benzo(a)pyrene	16.831	2.5E-06	16.831	2.5E-06
Benzo(b)fluoranthene	21.762	3.3E-06	21.762	3.3E-06
Benzo(k)fluoranthene	6.744	1.0E-06	6.744	1.0E-06
Chrysene	18.534	2.8E-06	18.534	2.8E-06
Dibenz(a,h)anthracene	3.411	5.1E-07	3.411	5.1E-07
Fluoranthene	47.299	7.1E-06	47.299	7.1E-06
Fluorene	7.048	1.1E-06	7.048	1.1E-06
Indeno(1,2,3-cd)pyrene	8.038	1.2E-06	8.038	1.2E-06
Pyrene	38.757	5.8E-06	38.757	5.8E-06
Arsenic	9.25	1.4E-06	9.25	1.4E-06
Cadmium	0.411	6.1E-08	0.411	6.1E-08
Mercury	0.2074	3.1E-08	0.2074	3.1E-08
Selenium	19.41	2.9E-06	19.41	2.9E-06

APPENDIX E TABLE 31
CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR - SEAD-5 95th UCL and RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m3
IR = Inhalation Rate
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Inhalation RfD	Carc. Slope Inhalation	Air EPC from Surface Soil	Air EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Trespasser			
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/m3)	(mg/m3)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Acenaphthylene	N/A	N/A	1.4E-07	1.2E-06												
Benzo(a)anthracene	N/A	N/A	3.7E-07	3.2E-06												
Benzo(a)pyrene	N/A	3.10E+00	2.9E-07	2.5E-06		2.00E-08		6E-08		7.03E-09		2E-08		2.51E-11		8E-11
Benzo(b)fluoranthene	N/A	N/A	3.7E-07	3.3E-06												
Benzo(ghi)perylene	N/A	N/A	1.3E-07	1.1E-06												
Benzo(k)fluoranthene	N/A	N/A	1.1E-07	1.0E-06												
Chrysene	N/A	N/A	3.2E-07	2.8E-06												
Dibenz(a,h)anthracene	N/A	N/A	5.8E-08	5.1E-07												
Fluoranthene	N/A	N/A	8.0E-07	7.1E-06												
Fluorene	N/A	N/A	1.2E-07	1.1E-06												
Indeno(1,2,3-cd)pyrene	N/A	N/A	1.4E-07	1.2E-06												
Phenanthrene	N/A	N/A	7.6E-07	6.7E-06												
Pyrene	N/A	N/A	6.6E-07	5.8E-06												
Arsenic	N/A	1.51E+01	1.6E-07	1.4E-06		1.10E-08		2E-07		3.86E-09		6E-08		1.38E-11		2E-10
Mercury	N/A	N/A	3.5E-09	3.1E-08												
Selenium	N/A	N/A	3.2E-07	2.8E-06												
Total Hazard Quotient and Cancer Risk:								**2E-07**				**8E-08**				**3E-10**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Tresspasser	
CA =	EPC Surface Only	CA =	EPC Surface and Sub-Surface	CA =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
IR =	20 m3/day	IR =	20 m3/day	IR =	1.6 m3/day
EF =	250 days/year	EF =	250 days/year	EF =	14 days/year
ED =	25 years	ED =	1 year	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 32
CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL - SEAD-5 RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/kg
IR = Ingestion Rate
CF = Conversion Factor
FI = Fraction Ingested
B = Bioavailability
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Oral RfD	Carc. Slope Oral	Bioavailablity	EPC Surface Soil	EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Tresspasser			
						Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(unitless)	(mg/kg)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Acenaphthylene	N/A	N/A	1	8.0E+00	8.0E+00												
Benzo(a)anthracene	N/A	7.3E-01	1	2.1E+01	2.1E+01		7.51E-06		5E-06		9.92E-07		7E-07		1.18E-07		9E-08
Benzo(a)pyrene	N/A	7.3E+00	1	1.7E+01	1.7E+01		5.88E-06		4E-05		7.76E-07		6E-06		9.22E-08		7E-07
Benzo(b)fluoranthene	N/A	7.3E-01	1	2.2E+01	2.2E+01		7.60E-06		6E-06		1.00E-06		7E-07		1.19E-07		9E-08
Benzo(ghi)perylene	N/A	N/A	1	7.6E+00	7.6E+00												
Benzo(k)fluoranthene	N/A	7.3E-02	1	6.7E+00	6.7E+00		2.36E-06		2E-07		3.11E-07		2E-08		3.70E-08		3E-09
Chrysene	N/A	7.3E-03	1	1.9E+01	1.9E+01		6.48E-06		5E-08		8.55E-07		6E-09		1.02E-07		7E-10
Dibenz(a,h)anthracene	N/A	7.3E+00	1	3.4E+00	3.4E+00		1.19E-06		9E-06		1.57E-07		1E-06		1.87E-08		1E-07
Fluoranthene	4.00E-02	N/A	1	4.7E+01	4.7E+01	4.63E-05		1E-03		1.53E-04		4E-03		3.63E-06		9E-05	
Fluorene	4.00E-02	N/A	1	7.0E+00	7.0E+00	6.90E-06		2E-04		2.28E-05		6E-04		5.41E-07		1E-05	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1	8.0E+00	8.0E+00		2.81E-06		2E-06		3.71E-07		3E-07		4.40E-08		3E-08
Phenanthrene	N/A	N/A	1	4.5E+01	4.5E+01												
Pyrene	3.00E-02	N/A	1	3.9E+01	3.9E+01	3.79E-05		1E-03		1.25E-04		4E-03		2.97E-06		1E-04	
Arsenic	3.00E-04	1.5E+00	1	9.2E+00	9.2E+00	9.04E-06	3.23E-06	3E-02	5E-06	2.98E-05	4.26E-07	1E-01	6E-07	7.09E-07	5.06E-08	2E-03	8E-08
Mercury	3.00E-04	N/A	1	2.1E-01	2.1E-01	2.03E-07		7E-04		6.70E-07		2E-03		1.59E-08		5E-05	
Selenium	5.00E-03	N/A	1	1.9E+01	1.9E+01	1.85E-05		4E-03		6.12E-05		1E-02		1.45E-06		3E-04	
Total Hazard Quotient and Cancer Risk:								**4E-02**	**7E-05**			**1E-01**	**9E-06**			**3E-03**	**1E-06**

Assumptions for Industrial Worker

CF =	1E-06 kg/mg
EPC=	EPC Surface Only
BW =	70 kg
IR =	100 mg/day
FI =	1 unitless
EF =	250 days/year
ED =	25 years
AT (Nc) =	9,125 days
AT (Car) =	25,550 days

Assumptions for Construction Worker

CF =	1E-06 kg/mg
EPC=	EPC Surface and Subsurface
BW =	70 kg
IR =	330 mg/day
FI =	1 unitless
EF =	250 days/year
ED =	1 years
AT (Nc) =	365 days
AT (Car) =	25,550 days

Assumptions for Adolescent Trespasser

CF =	1E-06 kg/mg
EPC=	EPC Surface Only
BW =	50 kg
IR =	100 mg/day
FI =	1 unitless
EF =	14 days/year
ED =	5 years
AT (Nc) =	1,825 days
AT (Car) =	25,550 days

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

APPENDIX E TABLE 33
SEAD-5 CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL - 95th UCL and RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

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

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

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

Analyte	Dermal RfD	Carc. Slope Dermal	Absorption Factor*	EPC Surface Soil	EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Trespasser			
						Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(unitless)	(mg/kg)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Acenaphthylene	N/A	N/A	1.3E-01	#N/A	#N/A												
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	2.1E+01	2.1E+01		6.45E-06		5E-06		3.87E-07		3E-07		6.29E-08		4.59E-08
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	1.7E+01	1.7E+01		5.05E-06		4E-05		3.03E-07		2E-06		4.92E-08		3.59E-07
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	2.2E+01	2.2E+01		6.53E-06		5E-06		3.92E-07		3E-07		6.37E-08		4.65E-08
Benzo(ghi)perylene	N/A	N/A	1.3E-01	7.6E+00	7.6E+00												
Benzo(k)fluoranthene	N/A	7.3E-02	1.3E-01	6.7E+00	6.7E+00		2.02E-06		1E-07		1.21E-07		9E-09		1.97E-08		1.44E-09
Chrysene	N/A	7.3E-03	1.3E-01	1.9E+01	1.9E+01		5.56E-06		4E-08		3.33E-07		2E-09		5.42E-08		3.96E-10
Dibenz(a,h)anthracene	N/A	7.3E+00	1.3E-01	3.4E+00	3.4E+00		1.02E-06		7E-06		6.14E-08		4E-07		9.98E-09		7.28E-08
Fluoranthene	4.00E-02	N/A	1.3E-01	4.7E+01	4.7E+01	3.97E-05		1E-03		5.96E-05		1E-03		1.94E-06		4.84E-05	
Fluorene	4.00E-02	N/A	1.3E-01	7.0E+00	7.0E+00	5.92E-06		1E-04		8.88E-06		2E-04		2.89E-07		7.22E-06	
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	8.0E+00	8.0E+00		2.41E-06		2E-06		1.45E-07		1E-07		2.35E-08		1.72E-08
Phenanthrene	N/A	N/A	1.3E-01	4.5E+01	4.5E+01												
Pyrene	3.00E-02	N/A	1.3E-01	3.9E+01	3.9E+01	3.25E-05		1E-03		4.88E-05		2E-03		1.59E-06		5.29E-05	
Arsenic	3.00E-04	1.5E+00	3.0E-02	9.2E+00	9.2E+00	1.79E-06	6.39E-07	6E-03	1E-06	2.69E-06	3.84E-08	9E-03	6E-08	8.73E-08	6.24E-09	2.91E-04	9.36E-09
Mercury	2.10E-05	N/A	1E-03	2.1E-01	2.1E-01	1.34E-09		6E-05		2.01E-09		1E-04		6.53E-11		3.11E-06	
Selenium	5.00E-03	N/A	1E-03	1.9E+01	1.9E+01	1.22E-07		2E-05		1.84E-07		4E-05		5.97E-09		1.19E-06	
Total Hazard Quotient and Cancer Risk:								**8E-03**	**6E-05**			**1E-02**	**3E-06**			**4E-04**	**6E-07**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
CS =	EPC Surface Only	EPC =	EPC Surface and Subsurface	EPC =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
SA =	3,300 cm^2	SA =	3,300 cm^2	SA =	5,867 cm^2
AF =	0.2 mg/cm^2-event	AF =	0.3 mg/cm^2-event	AF =	0.07 mg/cm^2-event
EV =	1 event/day	EV =	1 event/day	EV =	1 event/day
EF =	250 days/year	EF =	250 days/year	EF =	14 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.
N/A= Information not available.
* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).
Absorption factors for antimony and iron were assumed to be 0.001 in accordance with the USEPA Region 4 (2000)
Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

APPENDIX E TABLE 34
SEAD-24 SITE SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Time frame:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-24

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)			Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	Is Max > PRG ?	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]
SVOC																			
83-32-9	Acenaphthene	0.027	J	0.027	J	SEAD24-PX-A1-SS-032-FS	/ 39		-	145	0.027		370	50000	TAGM 4046	NO	50	NO	BSL
208-96-8	Acenaphthylene	0.034	J	0.066	J	SEAD24-FX-A1-SS-073-FS	/ 39		-	145	0.066				TAGM 4046		41	NO	NSV
120-12-7	Anthracene	0.021J	J	0.06	J	SEAD24-PX-A1-SS-032-FS	/ 39	140	-	145	0.06		2,200	50000	TAGM 4046	NO	50	NO	BSL
56-55-3	Benzo(a)anthracene	0.027	J	0.38	J	SEAD24-FX-A1-SS-032-FS	/ 39	34.9	-	145	0.38		0.62	224	TAGM 4046	NO	0.224	NO	CSG
50-32-8	Benzo(a)pyrene	0.019	J	0.26	J	SEAD24-FX-A1-SS-073-FS	/ 39	140	-	145	0.26		0.062	61	TAGM 4046	YES	0.061	YES	ASL
205-99-2	Benzo(b)fluoranthene	0.045	JH	0.28	JH	SEAD24-PX-A1-SS-032-FS	/ 39		-	145	0.28		0.62	1100	TAGM 4046	NO	1.1	NO	CSG
191-24-2	Benzo(ghi)perylene	0.019	JM	0.17	J	SEAD24-PX-A1-SS-083-FS	/ 39	34.9	-	145	0.17			50000	TAGM 4046	YES	50	NO	NSV
207-08-9	Benzo(k)fluoranthene	0.063	J	0.43	J	SEAD24-PX-A1-SS-032-FS	/ 39		-	145	0		35	50000	TAGM 4046	NO	1.1	NO	CSG
218-01-9	Chrysene	0.019	J	0.42	J	SEAD24-PX-A1-SS-032-FS	/ 39		-	145	0.42		62	400	TAGM 4046	NO	0.4	NO	CSG
53-70-3	Dibenzo(a,h)anthracene	0.081	J	0.081	J	SEAD24-FX-A1-SS-083-FS	/ 39		-	145	0.081		0.062		TAGM 4046	YES	0.014	YES	ASL
206-44-0	Fluoranthene	0.028	J	0.79		SEAD24-PX-A1-SS-032-FS	/ 39		-	145	0.79		230	50000	TAGM 4046	NO	50	NO	BSL
86-73-7	Fluorene	0.04	JH	0.04	JH	SEAD24-PX-A1-SS-032-FS	/ 39		-	145	0.04		270	50000	TAGM 4046	NO	50	NO	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	0.029	J	0.16	J	SEAD24-FX-A1-SS-083-FS	/ 39	34.9	-	145	0.16		0.62	3200	TAGM 4046	NO	3.2	NO	CSG
85-01-8	Phenanthrene	0.042	J	0.55		SEAD24-PX-A1-SS-032-FS	/ 39		-	145	0.55			50000	TAGM 4046		50	NO	NSV
129-00-0	Pyrene	0.028	J	0.76		SEAD24-PX-A1-SS-032-FS	/ 39		-	145	0.76		230	50000	TAGM 4046	NO	50	NO	BSL
Inorganics																			
7629-90-5	Aluminum	12700		22600		SEAD24-FX-A1-SS-078-FS	/ 37				22600	20500	7,600		TAGM 4046		19300	YES	ASL
7440-36-0	Antimony	11.6		18.9		SEAD24-FX-A1-SS-061-FS	/ 37				18.9	6.55	3.1		TAGM 4046		539	YES	ASL
7440-38-2	Arsenic	8.3		69.2		SEAD24-FX-A1-SS-091-FS	/ 184		-		69.2	21.5	0.39	8.2	TAGM 4046	YES	8.2	YES	ASL
7440-39-3	Barium	101		148		SEAD24-PX-A1-SS-061-FS	/ 37		-		148	159	540	300	TAGM 4046	NO	300	NO	BSL
7440-41-7	Beryllium	0.52	J	1.2	B	SEAD24-FX-A1-SS-078-FS	/ 37				1.2	1.4	15		TAGM 4046		1.1	NO	BSL
7440-43-9	Cadmium			1.1		SEAD24-PX-A1-SS-061-FS	/ 37		-		1.1	2.9	3.7	2.3	TAGM 4046	NO	2.3	NO	BSL
	Calcium	3560		92900		SEAD24-PX-A1-SS-046-FS	/ 37				92900	293000			TAGM 4046		121000	NO	NSV
7440-47-3	Chromium	18		33.8		SEAD24-FX-A1-SS-078-FS	/ 37		-		33.8	32.7	21	29.6	TAGM 4046	YES	29.6	YES	ASL
7440-48-4	Cobalt	8		18.5		SEAD24-FX-A2-SS-010-FS	/ 37				18.5	29.1	92		TAGM 4046		30	NO	BSL
7440-50-8	Copper	24.8		48.6		SEAD24-PX-A1-SS-037-FS	/ 37		-		48.6	62.8	310	33	TAGM 4046	NO	33	NO	BSL
7439-89-6	Iron	22400		43000		SEAD24-FX-A1-SS-078-FS	/ 37				43000	38600	2,300		TAGM 4046		36500	YES	ASL
7439-92-1	Lead	25.1		394		SEAD24-PX-A3-SS-006-FS	/ 184		-		394	266	400	24.8	TAGM 4046	NO	24.8	NO	BSL
	Magnesium	3270		61900		SEAD24-PX-A1-SS-046-FS	/ 37				61900	29100			TAGM 4046		21500	NO	NSV
7439-96-5	Manganese	332		893		SEAD24-PX-A1-SS-001-FS	/ 37				893	2380	180		TAGM 4046		1060	YES	ASL
7439-97-6	Mercury	0.05		0.1		SEAD24-PX-A2-SS-015-FS	/ 37		-		0.1	0.13	2.3	0.1	TAGM 4046	NO	0.1	NO	BSL
7440-02-0	Nickel	21.9		52.7		SEAD24-FX-A1-SS-015-FS	/ 37				52.7	62.3	160		TAGM 4046		49	NO	BSL
	Potassium	1600		2590		SEAD24-PX-A1-SS-037-FS	/ 37				2590	3160			TAGM 4046		2380	NO	NSV
7782-49-2	Selenium	1.6	J	2.1	J	SEAD24-PX-A1-SS-006-FS	/ 37	421	-	504	2.1	1.7	39	2	TAGM 4046	NO	2	NO	BSL
7440-22-4	Silver	0.45	J	0.57	J	SEAD24-FX-A1-SS-035-FS	/ 37	249	-	317	0.57	0.87	39	0.75	TAGM 4046	NO	0.75	NO	BSL
	Sodium	75.4		238		SEAD24-PX-A1-SS-046-FS	/ 37				238	269			TAGM 4046		172	NO	NSV
7440-28-0	Thallium			3.1		SEAD24-FX-A1-SS-073-FS	/ 37				3.1	1.2	0.52		TAGM 4046		0.7	YES	ASL
7440-62-2	Vanadium	22		32.3		SEAD24-FX-A1-SS-078-FS	/ 37				32.3	32.7	7.8		TAGM 4046		150	YES	ASL
7440-66-6	Zinc	154		1216		SEAD24-PX-A2-SS-010-FS	/ 259	0	-		1216	126	2,300	110	TAGM 4046	NO	110	NO	BSL

APPENDIX E TABLE 34
SEAD-24 SITE SOIL - OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Time frame:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-24

CAS Number	Chemical	Minimum Detected Concentration [1] (mg/kg)	Q	Maximum Detected Concentration [1] (mg/kg)	Q	Location of Maximum Concentration	Detection Frequency [1]	Range of Reporting Limits [1] (mg/kg)	Concentration Used for Screening [2] (mg/kg)	Background Value [3] (mg/kg)	Screening Value [4] (mg/kg)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	Is Max > PRG ?	Potential ARAR / TBC Value [5] (mg/kg)	COPC Flag	Rationale for Contaminant Deletion or Selection [6]

Notes:
1. No field duplicate was available for any SEAD-1 soil samples. A laboratory duplicate was available for the sample collected from SS307-05. The laboratory duplicate (SS307-05duplicate) was treated as a discrete sample.
   Range of reporting limits were presented for nondetects only.
2. The maximum detected concentration was used for screening.
3. Background value is the maximum Seneca background concentrations.
4. EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soil. On-line resources available at
   http://www.epa.gov/region09/waste/sfund/prg/files/prgtable2004.xls. Last updated December 2004.
   The Region 9 PRGs were based on a target cancer risk of 1E-6 or a target hazard quotient of 1, whichever is lower. Direct contact exposure (ingestion and dermal contact) is evaluated to derive the PRGs.
   The Region 9 PRGs, if based on noncancer risk, were adjusted by multiplying 0.1 to represent a target hazard quotient of 0.1.
   EPA Region III Risk Based Concentration (RBC) for residential soil was used as screening value for 2-methylnaphthalene
   as no Region 9 PRG is available. EPA Region III RBC, available on-line at http://www.epa.gov/reg3hwmd/risk/human/rbc/rbc1004.XLS,
   was calculated based on soil ingestion exposure and a target cancer risk of 1E-6 and a target hazard quotient of 1.
   PRG for total chromium (1:6 ratio Cr VI: Cr III) was used as screening value for chromium.
   PRG for nickel (soluble salts) was used as screening value for nickel.
5. Potential ARAR/TBC values are from NYSDEC Technical and Adminstrative Guidance Memorandum #4046
   (on-line resources available at http://www.dec.state.ny.us/website/der/tagms/prtg4046.html)
6. Rationale codes
   Selection Reason: Above Screening Levels (ASL)
   Chemicals in the Same Group were retained as COPC (CSG)
   No Screening Value or Toxicity Value (NSV)
   Deletion Reason: Essential Nutrient (NUT)
   Below Screening Level (BSL)

Definitions:
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
Q = Qualifier
J = Estimated Value
NJ = Presence of the analyte has been "tentatively identified" and the associated numerical value represents its approximate concentration.

APPENDIX E TABLE 35
SOIL EXPOSURE POINT CONCENTRATION SUMMARY - SURFACE SOIL FOR SEAD-24

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Soil
Exposure Point:	SEAD-24

Chemical of Potential Concern	Units	Arithmetic Mean (1)	95% UCL of Normal Data (1)	Maximum Detected Concentration (1)	Q	EPC Units	Reasonable Maximum Exposure (2)			Central Tendency (2)		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Surface Soil												
Benzo(a)anthracene	mg/kg					mg/kg	0.27	MDC	MDC	0.27	MDC	MDC
Benzo(a)pyrene	mg/kg	0.029	0.044	0.26	J	mg/kg	0.07	MDC	MDC	0.07	MDC	MDC
Benzo(b)fluoranthene	mg/kg					mg/kg	0.22	MDC	MDC	0.22	MDC	MDC
Benzo(k)fluoranthene	mg/kg					mg/kg	0.23	MDC	MDC	0.23	MDC	MDC
Chrysene	mg/kg					mg/kg	0.31	MDC	MDC	0.31	MDC	MDC
Dibenz(a,h)anthracen	mg/kg	0.013	0.017	0.081	J	mg/kg	0.017	MDC	MDC	0.017	MDC	MDC
Indeno(1,2,3-cd)pyren	mg/kg					mg/kg	0.16	MDC	MDC	0.16	MDC	MDC
Aluminum	mg/kg	15013	16289.51	22600		mg/kg	16290	95% Student's-t	Normal	16290	95% Student's-t	Normal
Antimony	mg/kg	5.0	6.0	18.9		mg/kg	7.4	95 Chebyshev	Non-parametric	7.4	95 Chebyshev	Non-parametric
Arsenic	mg/kg	8.0	8.6	69.2		mg/kg	8.6	95% Student's-t	Normal	8.6	95% Student's-t	Normal
Iron	mg/kg	26,047	28,384	43,000		mg/kg	28,384	95% Student's-t	Normal	28384	95% Student's-t	Normal
Manganese	mg/kg	499	563	893		mg/kg	563	95% Student's-t	Normal	563	95% Student's-t	Normal
Thallium	mg/kg	9.36	10.62	13.15		mg/kg	12.21556	95% Chebyshev	Non-parametric	12.22	95% Chebyshev	Non-parametric
Vanadium	mg/kg	23.85	25.64	32.3		mg/kg	25.64449	95% Student's-t	Normal	25.64	95% Student's-t	Normal

Notes:
1. Field duplicates were averaged and regarded as one sample entry. Lab duplicates were not included in the assessment.
   Nondetectes were assumed to be half reporting limits.
2. The EPCs were calculated using the ProUCL (Version 3.00.02) and the EPCs were selected in accordance with the ProUCL Version 3.0 User Guide (USEPA, 2004)
   and the Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002).
   For carcinogenic PAHs, the maximum detected concentrations were used as EPCs as a conservative approach.

Q - qualifier
J = Estimated Value

APPENDIX E TABLE 36
AMBIENT AIR EXPOSURE POINT CONCENTRATIONS - SURFACE SOIL FOR SEAD-24

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-24

Equation for Air EPC from Surface Soil (mg/m^3) CSsurf x PM10 x CF

Variables:
CSsurf = Chemical Concentration in Surface Soil, from EPC data (mg/kg)
PM10 = Average Measured PM10 Concentration = 17 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure		Central Tendency Exposure	
	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m^3)	EPC Data for Surface Soil (mg/kg)	Calculated Air EPC Surface Soil (mg/m^3)
Benzo(a)anthracene	0.3	4.6E-09	0.3	4.6E-09
Benzo(a)pyrene	0.0687273	1.2E-09	0.1	1.2E-09
Benzo(b)fluoranthene	0.2	3.7E-09	0.2	3.7E-09
Benzo(k)fluoranthene	0.2	3.9E-09	0.2	3.9E-09
Chrysene	0.3	5.3E-09	0.3	5.3E-09
Dibenz(a,h)anthracene	0.0	2.9E-10	0.0	2.9E-10
Indeno(1,2,3-cd)pyrene	0.2	2.7E-09	0.2	2.7E-09
Aluminum	16289.5	2.8E-04	16289.5	2.8E-04
Antimony	7.4	1.3E-07	7.4	1.3E-07
Arsenic	8.6	1.5E-07	8.6	1.5E-07
Iron	28383.8	4.8E-04	28383.8	4.8E-04
Manganese	562.7	9.6E-06	562.7	9.6E-06
Thallium	12.2	2.1E-07	12.2	2.1E-07
Vanadium	25.6	4.4E-07	25.6	4.4E-07

APPENIDX E TABLE 37
AMBIENT AIR EXPOSURE POINT CONCENTRATIONS - SURFACE AND SUBSURFACE SOIL FOR SEAD-24

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Air
Exposure Point:	SEAD-24

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

Variables:
CStot = Chemical Concentration in Total Soils, from EPC data (mg/kg)
PM10 = PM10 Concentration Calculated for Construction Worker= 219 ug/m^3
CF = Conversion Factor = 1E-9 kg/ug

Analyte	Reasonable Maximum Exposure		Central Tendency Exposure	
	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m^3)	EPC Data for Surface and Subsurface Soil (mg/kg)	Calculated Air EPC Surface and Subsurface Soil (mg/m^3)
Benzo(a)anthracene	0.27	5.9E-08	0.27	5.9E-08
Benzo(a)pyrene	0.06872725	1.5E-08	0.06872725	1.5E-08
Benzo(b)fluoranthene	0.22	4.8E-08	0.22	4.8E-08
Benzo(k)fluoranthene	0.23	5.1E-08	0.23	5.1E-08
Chrysene	0.31	6.8E-08	0.31	6.8E-08
Dibenz(a,h)anthracene	0.01706828	3.8E-09	0.01706828	3.8E-09
Indeno(1,2,3-cd)pyrene	0.16	3.5E-08	0.16	3.5E-08
Aluminum	16289.51	3.6E-03	16289.51	3.6E-03
Antimony	7.415668	1.6E-06	7.415668	1.6E-06
Arsenic	8.63403	1.9E-06	8.63403	1.9E-06
Iron	28383.76	6.2E-03	28383.76	6.2E-03
Manganese	562.6992	1.2E-04	562.6992	1.2E-04
Thallium	12.21556	2.7E-06	12.21556	2.7E-06
Vanadium	25.64449	5.6E-06	25.64449	5.6E-06

APPENDIX E TABLE 38
CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = EPC in Air, mg/m3
IR = Inhalation Rate
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Inhalation RfD	Carc. Slope Inhalation	Air EPC from Surface Soil	Air EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Trespasser			
					Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/m3)	(mg/m3)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Benzo(a)anthracene	N/A	N/A	4.6E-09	5.9E-08												
Benzo(a)pyrene	N/A	3.10E+00	1.2E-09	1.5E-08		8.17E-11		3E-10		4.23E-11		1E-10		3.66E-13		1E-12
Benzo(b)fluoranthene	N/A	N/A	3.7E-09	4.8E-08												
Benzo(k)fluoranthene	N/A	N/A	3.9E-09	5.1E-08												
Chrysene	N/A	N/A	5.3E-09	6.8E-08												
Dibenz(a,h)anthracene	N/A	N/A	2.9E-10	3.8E-09												
Indeno(1,2,3-cd)pyrene	N/A	N/A	2.7E-09	3.5E-08												
Aluminum	1.43E-03	N/A	2.8E-04	3.6E-03	5.42E-05		4E-02		7.01E-04		0.49		1.21E-06		8E-04	
Antimony	N/A	N/A	1.3E-07	1.6E-06												
Arsenic	N/A	1.51E+01	1.5E-07	1.9E-06		1.03E-08		2E-07		5.31E-09		8E-08		4.60E-11		7E-10
Iron	N/A	N/A	4.8E-04	6.2E-03												
Manganese	1.43E-05	N/A	9.6E-06	1.2E-04	1.87E-06		1E-01		2.42E-05		2E+00		4.19E-08		3E-03	
Thallium	N/A	N/A	2.1E-07	2.7E-06												
Vanadium	N/A	N/A	4.4E-07	5.6E-06												
Total Hazard Quotient and Cancer Risk:							**2E-01**	**2E-07**			**2E+00**	**8E-08**			**4E-03**	**7E-10**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Tresspasser	
CA =	EPC Surface Only	CA =	EPC Surface and Sub-Surface	CA =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
IR =	20 m3/day	IR =	20 m3/day	IR =	1.6 m3/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 year	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 39
CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL - SEAD-24 SOIL, 95th UCL Values and RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/kg
IR = Ingestion Rate
CF = Conversion Factor
FI = Fraction Ingested
B = Bioavailability
EF = Exposure Frequency
ED = Exposure Duration
BW = Bodyweight
AT = Averaging Time

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

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

Analyte	Oral RfD	Carc. Slope Oral	Bioavailablity	EPC Surface Soil	EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Tresspasser			
						Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(unitless)	(mg/kg)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Benzo(a)anthracene	N/A	7.3E-01	1	2.7E-01	2.7E-01		9.44E-08		7E-08		1.25E-08		9E-09		5.28E-09		4E-09
Benzo(a)pyrene	N/A	7.3E+00	1	6.9E-02	6.9E-02		2.40E-08		2E-07		3.17E-09		2E-08		1.34E-09		1E-08
Benzo(b)fluoranthene	N/A	7.3E-01	1	2.2E-01	2.2E-01		7.69E-08		6E-08		1.01E-08		7E-09		4.31E-09		3E-09
Benzo(k)fluoranthene	N/A	7.3E-02	1	2.3E-01	2.3E-01		8.04E-08		6E-09		1.06E-08		8E-10		4.50E-09		3E-10
Chrysene	N/A	7.3E-03	1	3.1E-01	3.1E-01		1.08E-07		8E-10		1.43E-08		1E-10		6.07E-09		4E-11
Dibenz(a,h)anthracene	N/A	7.3E+00	1	1.7E-02	1.7E-02		5.96E-09		4E-08		7.87E-10		6E-09		3.34E-10		2E-09
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1	1.6E-01	1.6E-01		5.59E-08		4E-08		7.38E-09		5E-09		3.13E-09		2E-09
Aluminum	1.00E+00	N/A	1	16289.5	1.6E+04	1.59E-02		2E-02		5.26E-02		5.3E-02		4.46E-03		4E-03	
Antimony	4.00E-04	N/A	1	7.4E+00	7.4E+00	7.26E-06		2E-02		2.39E-05		6.0E-02		2.03E-06		5E-03	
Arsenic	3.00E-04	1.5E+00	1	8.6E+00	8.6E+00	8.45E-06	3.02E-06	3E-02	5E-06	2.79E-05	3.98E-07	9.3E-02	6E-07	2.37E-06	1.69E-07	8E-03	3E-07
Iron	3.00E-01	N/A	1	2.8E+04	2.8E+04	2.78E-02		9E-02		9.17E-02		3.1E-01		7.78E-03		3E-02	
Manganese	2.33E-02	N/A	1	5.6E+02	5.6E+02	5.51E-04		2E-02		1.82E-03		7.8E-02		1.54E-04		7E-03	
Thallium	6.47E-04	N/A	1	1.2E+01	1.2E+01	1.20E-05		2E-02		3.94E-05		6.1E-02		3.35E-06		5E-03	
Vanadium	1.00E-03	N/A	1	2.6E+01	2.6E+01	2.51E-05		3E-02		8.28E-05		8.3E-02		7.03E-06		7E-03	
Total Hazard Quotient and Cancer Risk:								**2E-01**	**5E-06**			**7E-01**	**6E-07**			**6E-02**	**3E-07**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC=	EPC Surface Only	EPC=	EPC Surface and Subsurface	EPC=	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
IR =	100 mg/day	IR =	330 mg/day	IR =	100 mg/day
FI =	1 unitless	FI =	1 unitless	FI =	1 unitless
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 40
CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL - SEAD-24 SOII, 95th UCL Values and RME

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

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

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

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

Analyte	Dermal RfD	Carc. Slope Dermal	Absorption Factor*	EPC Surface Soil	EPC from Total Soils	Industrial Worker				Construction Worker				Adolescent Trespasser			
						Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk	Absorbed Dose (mg/kg-day)		Hazard Quotient	Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(unitless)	(mg/kg)	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			(Nc)	(Car)		
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	2.7E-01	2.7E-01		8.10E-08		6E-08		4.86E-09		4E-09		2.82E-09		2.06E-09
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	6.9E-02	6.9E-02		2.06E-08		2E-07		1.24E-09		9E-09		7.18E-10		5.24E-09
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	2.2E-01	2.2E-01		6.60E-08		5E-08		3.96E-09		3E-09		2.30E-09		1.68E-09
Benzo(k)fluoranthene	N/A	7.3E-02	1.3E-01	2.3E-01	2.3E-01		6.90E-08		5E-09		4.14E-09		3E-10		2.40E-09		1.75E-10
Chrysene	N/A	7.3E-03	1.3E-01	3.1E-01	3.1E-01		9.29E-08		7E-10		5.58E-09		4E-11		3.24E-09		2.36E-11
Dibenz(a,h)anthracene	N/A	7.3E+00	1.3E-01	1.7E-02	1.7E-02		5.12E-09		4E-08		3.07E-10		2E-09		1.78E-10		1.30E-09
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	1.6E-01	1.6E-01		4.80E-08		4E-08		2.88E-09		2E-09		1.67E-09		1.22E-09
Aluminum	1.00E+00	N/A	1E-03	1.6E+04	1.6E+04	1.05E-04		1E-04		1.58E-04		2E-04		1.83E-05		1.83E-05	
Antimony	6.00E-05	N/A	1E-03	7.4E+00	7.4E+00	4.79E-08		8E-04		7.18E-08		1E-03		8.34E-09		1.39E-04	
Arsenic	3.00E-04	1.5E+00	3.0E-02	8.6E+00	8.6E+00	1.67E-06	5.97E-07	6E-03	9E-07	2.51E-06	3.58E-08	8E-03	5E-08	2.91E-07	2.08E-08	9.71E-04	3.12E-08
Iron	3.00E-01	N/A	1E-03	2.8E+04	2.8E+04	1.83E-04		6E-04		2.75E-04		9E-04		3.19E-05		1.06E-04	
Manganese	9.33E-04	N/A	1E-03	5.6E+02	5.6E+02	3.63E-06		4E-03		5.45E-06		6E-03		6.33E-07		6.78E-04	
Thallium	6.47E-04	N/A	1E-03	1.2E+01	1.2E+01	7.89E-08		1E-04		1.18E-07		2E-04		1.37E-08		2.13E-05	
Vanadium	2.60E-05	N/A	1E-03	2.6E+01	2.6E+01	1.66E-07		6E-03		2.48E-07		1E-02		2.89E-08		1.11E-03	
Total Hazard Quotient and Cancer Risk:								**2E-02**	**1E-06**			**3E-02**	**7E-08**			**3E-03**	**4E-08**

Assumptions for Industrial Worker		Assumptions for Construction Worker		Assumptions for Adolescent Trespasser	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
CS =	EPC Surface Only	EPC =	EPC Surface and Subsurface	EPC =	EPC Surface Only
BW =	70 kg	BW =	70 kg	BW =	50 kg
SA =	3,300 cm^2	SA =	3,300 cm^2	SA =	5,867 cm^2
AF =	0.2 mg/cm^2-event	AF =	0.3 mg/cm^2-event	AF =	0.07 mg/cm^2-event
EV =	1 event/day	EV =	1 event/day	EV =	1 event/day
EF =	250 days/year	EF =	250 days/year	EF =	50 days/year
ED =	25 years	ED =	1 years	ED =	5 years
AT (Nc) =	9,125 days	AT (Nc) =	365 days	AT (Nc) =	1,825 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days	AT (Car) =	25,550 days

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.
N/A= Information not available.
* Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (Volume I).
Absorption factors for antimony and iron were assumed to be 0.001 in accordance with the USEPA Region 4 (2000)
Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

APPENDIX E TABLE 41
CALCULATION OF INTAKE AND RISK FROM INHALATION OF DUST IN AMBIENT AIR FOR RESIDENTIAL RECEPTORS
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-24 SURFACE SOIL

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus, NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

CA = Chemical Concentration in Air from Stockpile Soil, mg/m^3
IR = Inhalation Rate, m^3/day
EF = Exposure Frequency, day/year
ED = Exposure Duration, year
BW = Bodyweight, kg
AT = Averaging Time, day

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

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

Analyte	Inhalation RfD (mg/kg-day)	Carc. Slope Inhalation (mg/kg-day)$^{-1}$	Air EPC from Soil (mg/m^3)	Resident (Adult) Intake (mg/kg-day) (Nc)	Resident (Adult) Intake (mg/kg-day) (Car)	Resident (Adult) Hazard Quotient	Resident (Adult) Contribution to Lifetime Cancer Risk	Resident (Child) Intake (mg/kg-day) (Nc)	Resident (Child) Intake (mg/kg-day) (Car)	Resident (Child) Hazard Quotient	Resident (Child) Contribution to Lifetime Cancer Risk	Resident Total Lifetime Cancer Risk
Benzo(a)anthracene	N/A	N/A	4.6E-09									
Benzo(a)pyrene	N/A	3.1E+00	1.2E-09		1.10E-10		3E-10		4.55E-11		1E-10	5E-10
Benzo(b)fluoranthene	N/A	N/A	3.7E-09									
Benzo(k)fluoranthene	N/A	N/A	3.9E-09									
Chrysene	N/A	N/A	5.3E-09									
Dibenz(a,h)anthracene	N/A	N/A	2.9E-10									
Indeno(1,2,3-cd)pyrene	N/A	N/A	2.7E-09									
Aluminum	1.43E-03	N/A	2.8E-04	7.59E-05		5E-02		1.26E-04		9E-02		
Antimony	N/A	N/A	1.3E-07									
Arsenic	N/A	1.5E+01	1.5E-07		1.38E-08		2E-07		5.71E-09		9E-08	3E-07
Iron	N/A	N/A	4.8E-04									
Manganese	1E-05	N/A	9.6E-06	2.62E-06		2E-01		4.34E-06		3E-01		
Thallium	N/A	N/A	2.1E-07									
Vanadium	N/A	N/A	4.4E-07									
Total Hazard Quotient and Cancer Risk:						**2E-01**	**2E-07**			**4E-01**	**9E-08**	**3E-07**

Assumptions for Resident (Adult)		Assumptions for Resident (Child)	
CA =	Air EPC from Stockpile Soil	CA =	Air EPC from Stockpile Soil
BW =	70 kg	BW =	15 kg
IR =	20 m3/day	IR =	7.1 m3/day
EF =	350 days/year	EF =	350 days/year
ED =	24 years	ED =	6 years
AT (Nc) =	8,760 days	AT (Nc) =	2,190 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 42
CALCULATION OF INTAKE AND RISK FROM THE INGESTION OF SOIL FOR RESIDENTIAL RECEPTORS
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-24 SOIL

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/k
IR = Ingestion Rate, mg/day
CF = Conversion Factor, kg/mg
FI = Fraction Ingested, unitless
EF = Exposure Frequency, day/year
ED = Exposure Duration, year
BW = Bodyweight, kg
AT = Averaging Time, day

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

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

Equation for Total Lifetime Cancer Risk = Adult Contribution + Child Contribution

Analyte	Oral RfD	Carc. Slope Oral	EPC Soil	Resident (Adult)				Resident (Child)				Resident
				Intake (mg/kg-day)		Hazard Quotient	Contribution to Lifetime Cancer Risk	Intake (mg/kg-day)		Hazard Quotient	Contribution to Lifetime Cancer Risk	Total Lifetime Cancer Risk
	(mg/kg-day)	(mg/kg-day)-1	(mg/kg)	(Nc)	(Car)			(Nc)	(Car)			
Benzo(a)anthracene	N/A	7.3E-01	2.7E-01		1.27E-07		9E-08		2.96E-07		2E-07	3E-07
Benzo(a)pyrene	N/A	7.3E+00	6.9E-02		3.23E-08		2E-07		7.53E-08		5E-07	8E-07
Benzo(b)fluoranthene	N/A	7.3E-01	2.2E-01		1.03E-07		8E-08		2.41E-07		2E-07	3E-07
Benzo(k)fluoranthene	N/A	7.3E-02	2.3E-01		1.08E-07		8E-09		2.52E-07		2E-08	3E-08
Chrysene	N/A	7.3E-03	3.1E-01		1.46E-07		1E-09		3.40E-07		2E-09	4E-09
Dibenz(a,h)anthracene	N/A	7.3E+00	1.7E-02		8.02E-09		6E-08		1.87E-08		1E-07	2E-07
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.6E-01		7.51E-08		5E-08		1.75E-07		1E-07	2E-07
Aluminum	1.0E+00	N/A	1.6E+04	2.23E-02		2E-02		2.08E-01		0.208		
Antimony	4E-04	N/A	7.4E+00	1.02E-05		3E-02		9.48E-05		0.237		
Arsenic	3E-04	1.5E+00	8.6E+00	1.18E-05	4.06E-06	4E-02	6E-06	1.10E-04	9.46E-06	0.368	1E-05	2E-05
Iron	3E-01	N/A	2.8E+04	3.89E-02		1E-01		3.63E-01		1.210		
Manganese	2.3E-02	N/A	5.6E+02	7.71E-04		3E-02		7.19E-03		0.308		
Thallium	6E-04	N/A	1.2E+01	1.67E-05		3E-02		1.56E-04		0.242		
Vanadium	1.0E-03	N/A	2.6E+01	3.51E-05		4E-02		3.28E-04		0.328		
Total Hazard Quotient and Cancer Risk:						**3E-01**	**7E-06**			**2.901**	**2E-05**	**2E-05**

Assumptions for Resident (Adult)		Assumptions for Resident (Child)	
CF =	1E-06 kg/mg	CF =	1E-06 kg/mg
EPC=	EPC Surface Only	EPC=	EPC Surface Only
BW =	70 kg	BW =	15 kg
IR =	100 mg/day	IR =	200 mg/day
FI =	1 unitless	FI =	1 unitless
EF =	350 days/year	EF =	350 days/year
ED =	24 years	ED =	6 years
AT (Nc) =	8,760 days	AT (Nc) =	2,190 days
AT (Car) =	25,550 days	AT (Car) =	25,550 days

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

APPENDIX E TABLE 43
CALCULATION OF ABSORBED DOSE AND RISK FROM DERMAL CONTACT TO SOIL FOR RESIDENTIAL RECEPTORS
REASONABLE MAXIMUM EXPOSURE (RME) - SEAD-24 SOIL

Record of Decision - Five Former SWMUs - SEADs 1, 2, 5, 24, and 48
Seneca Army Depot Activity, Romulus NY

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

Variables (Assumptions for Each Receptor are Listed at the Bottom):

EPC = Exposure Point Concentration in Soil, mg/kg
CF = Conversion Factor, kg/mg
SA = Surface Contact Area, cm^2
AF = Adherence Factor, mg/cm^2-event
ABS = Absorption Factor, unitless
EV = Event Frequency, event/day
EF = Exposure Frequency, day/year
ED = Exposure Duration, year
BW = Bodyweight, kg
AT = Averaging Time, day

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

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

Equation for Total Lifetime Cancer Risk = Adult Contribution + Child Contribution

Analyte	Dermal RfD (mg/kg-day)	Carc. Slope Dermal (mg/kg-day)-1	Absorption Factor* (unitless)	EPC Soil (mg/kg)	Resident (Adult) Intake (mg/kg-day) (Nc)	Resident (Adult) Intake (mg/kg-day) (Car)	Resident (Adult) Hazard Quotient	Resident (Adult) Contribution to Lifetime Cancer Risk	Resident (Child) Intake (mg/kg-day) (Nc)	Resident (Child) Intake (mg/kg-day) (Car)	Resident (Child) Hazard Quotient	Resident (Child) Contribution to Lifetime Cancer Risk	Resident Total Lifetime Cancer Risk
Benzo(a)anthracene	N/A	7.3E-01	1.3E-01	2.7E-01		6.58E-08		5E-08		1.08E-07		8E-08	1E-07
Benzo(a)pyrene	N/A	7.3E+00	1.3E-01	6.9E-02		1.67E-08		1E-07		2.74E-08		2E-07	3E-07
Benzo(b)fluoranthene	N/A	7.3E-01	1.3E-01	2.2E-01		5.36E-08		4E-08		8.78E-08		6E-08	1E-07
Benzo(k)fluoranthene	N/A	7.3E-02	1.3E-01	2.3E-01		5.60E-08		4E-09		9.17E-08		7E-09	1E-08
Chrysene	N/A	7.3E-03	1.3E-01	3.1E-01		7.55E-08		6E-10		1.24E-07		9E-10	1E-09
Dibenz(a,h)anthracene	N/A	7.3E+00	1.3E-01	1.7E-02		4.16E-09		3E-08		6.81E-09		5E-08	8E-08
Indeno(1,2,3-cd)pyrene	N/A	7.3E-01	1.3E-01	1.6E-01		3.90E-08		3E-08		6.38E-08		5E-08	8E-08
Aluminum	1.0E+00	N/A	1E-03	1.6E+04	8.90E-05		9E-05		5.83E-04		0.001		
Antimony	6E-05	N/A	1E-03	7.4E+00	4.05E-08		7E-04		2.65E-07		0.004		
Arsenic	3E-04	1.5E+00	3.0E-02	8.6E+00	1.42E-06	4.85E-07	5E-03	7E-07	9.27E-06	7.95E-07	0.031	1E-06	2E-06
Iron	3E-01	N/A	1E-03	2.8E+04	1.55E-04		5E-04		1.02E-03		0.003		
Manganese	9E-04	N/A	1E-03	5.6E+02	3.08E-06		3E-03		2.01E-05		0.022		
Thallium	6E-04	N/A	1E-03	1.2E+01	6.68E-08		1E-04		4.37E-07		0.001		
Vanadium	3E-05	N/A	1E-03	2.6E+01	1.40E-07		5E-03		9.18E-07		0.035		
Total Hazard Quotient and Cancer Risk:							**1E-02**	**1E-06**			**0.097**	**2E-06**	**3E-06**

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

Note: Cells in this table were intentionally left blank due to a lack of toxicity data.
N/A= Information not available.
Absorption factors from Exhibit 3-4 of USEPA (2004) Supplemental Guidance for Dermal Risk Assessment, Part E of Risk Assessment Guidance for Superfund, Human Health Evaluation Ma
Absorption factors for metals other than arsenic were assumed to be 0.001 in accordance with the USEPA Region 4 (2000)
Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins (http://www.epa.gov/region4/waste/ots/healtbul.htm).

APPENDIX F

LIST OF ARARs

APPENDIX F

LIST OF ARARs

There are currently no promulgated Federal standards for hazardous substance levels in soils, and risk-based decisions are used to determine if cleanup is warranted or necessary. New York has recently published Remedial Program Requirements, which include numeric soil cleanup objectives for five categories of future land use (i.e., Unrestricted, Residential, Restricted-Residential, Commercial, and Industrial), as well as procedures for proposing alternative cleanup objectives, for waste sites located within its bounds and these were considered during the development of this Record of Decision to represent "to be considered" (TBC) values and procedures.

New York designates all groundwater as a possible source of drinking water. Further, New York has promulgated standards for groundwater that is designated as GA. The groundwater at SEDA is designated as GA, and thus New York's groundwater standards are ARARs. The potential use of groundwater that is classified as GA in New York is as drinking water. As a potential supply of drinking water, the maximum contaminant levels (MCLs) established under the Safe Drinking Water Act are ARARs for GA groundwater.

Exceedances of the MCLs were observed in groundwater samples collected from SEAD-5, and no groundwater data was collected from SEAD-1 and SEAD-2. The shallow aquifer that underlies the PID Area and the a majority of the overall Depot is subject to large seasonal elevation variations and is poor yielding due to the low permeability glacial till, clay and silt formation that defines the shallow overburden. The PID Area of SEDA is serviced by a municipal water supply that derives its raw water from a non-groundwater source. The presence of the alternative potable water source and supply makes the future use of the poor yielding, shallow groundwater aquifer that underlies portions of the PID Area non-essential and probably not necessary. Finally, the generally poor quality of the PID Area-wide groundwater has already been identified and acknowledged, and access to and use of the groundwater in the greater PID Area, exclusive of Army retained properties, has been restricted in a separate ROD that was finalized in 2004 [Final ROD for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas (Parsons, 2004).

There are no permanent surface bodies within four of the five SWMUs (SEADs 1, 2, 5, and 24) discussed in this Record of Decision. Silver Creek does transect a portion of SEAD-48. Surface water at each of these AOCs is found occasionally in man-made drainage ditches that abut the AOCs along their sides and along bisecting roadways, and in localized puddles that evaporate into the air or infiltrate into the soil. . Storm-event water falls on all of the AOCs and then runs off towards the abutting drainage ditches. The surface water captured in the drainage ditches has not been classified by NYSDEC since these ditches are not recognized as an established stream or creek. However, because the drainage ditches in SEADs 1, 2, 5, and 24 form the headwaters for Kendaia Creek and those in SEAD-48 form the headwaters of Silver Creek, the lower portions of which are designated as Class C surface water by NYSDEC, the Class C surface water ambient water quality criteria were used to provide a basis of comparison for the on-site

chemical data. The Class C standards are not strictly applicable to the surface water in the drainage ditches found on the sites and thus are treated as TBCs.

The sediment found in the drainage ditches at SEDA results from overland flow and the erosion and subsequent accumulation native soil, debris and dead vegetation. The man-made drainage ditches located throughout the Depot were subject to a periodic inspection and maintenance (i.e., dredging) program during the active days of the military operation. Drainage ditches found around both of these AOCs are generally void of fish and aquatic animal life. As such, sediment at both of these AOCs has been evaluated as "ditch soil" and compared to the New York State soil cleanup objectives presented in Title 6 NYCRR Subpart 375-6.

Chemical-Specific ARARs, and other pertinent advisories or guidance to be considered (TBCs)

Soil

- Title 6 New York Code of Rules and Regulations Part 375-6 Remedial Program Soil Cleanup Objectives, Soil Cleanup Objectives, June 14, 2006 was considered during the development of this Record of Decision.
- U.S. EPA Regional Screening Levels, September 2008 were considered during the development of this Record of Decision. Source (http://www.epa.gov/region09/waste/sfund/prg/)
- U.S. EPA Region IX Preliminary Remedial Goals, October 2004 was considered during the development of this Record of Decision. Source (http://www.epa.gov/region09/waste/sfund/prg/)
- U.S. EPA Region III Risk Based Concentrations, October 2007 was considered during the development of this Record of Decision.
  Source: http://www.epa.gov/reg3hwmd/risk/human/rbc/RBCoct07.pdf

Groundwater

- Title 40 Code of Federal Regulations, Part 141 – National Primary Drinking Water Regulations.
- Title 6 New York Code of Rules and Regulations Part 703 Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations.
- Title 6 New York Code of Rules and Regulations Part 375-6 Remedial Program Soil Cleanup Objectives, Protection of Groundwater, June 14, 2006 was considered during the development of this Record of Decision.

Surface Water:

- Title 6 New York Code of Rules and Regulations Part 703 Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations was considered during the development of this Record of Decision.

Federal Location-Specific ARARs

- Executive Orders 11593, Floodplain Management (May 24, 1977), and 11990, Protection of Wetlands (May 24, 1977).

- National Historic Preservation Act (16 USC 470) Section 106 and 110(f), and the associated regulations (*i.e.,* 36 CFR part 800) (requires Federal agencies to identify all affected properties on or eligible for the National Register of Historic Places and consult with the State Historic Preservation Office and Advisory Council on Historic Presentation).
- RCRA Location and 100-year Floodplains Requirements (40 CFR 264.18(b)).
- Clean Water Act, section 404, and Rivers and Harbor Act, section 10 (requirements for dredge and fill activities) and the associated regulations (*i.e.,* 40 CFR part 230).
- Wetlands Construction and Management Procedures (40 CFR part 6, Appendix A).
- Endangered Species Act of 1973 (16 USC 1531 - 1544).
- Fish and Wildlife Coordination Act of 1934 (16 USC 661).
- Wilderness Act of 1964 (16 USC 1131 - 1136).

New York Location-Specific ARARs

- New York State Freshwater Wetlands Law (New York Environmental Conservation Law (ECL) articles 24 and 71).
- New York State Freshwater Wetlands Permit and Classification Requirements (6 NYCRR 663 and 664).
- New York State Floodplain Management Act, ECL, article 36, and Floodplain Management regulations (6 NYCRR Part 500).
- Endangered and Threatened Species of Fish and Wildlife, Species of Special Concern Requirements (6 NYCRR part 182).
- New York State Inactive Hazardous Waste Disposal Sites—Remedy Selection (6 NYCRR 375.10(b) ("goal of the program for a specific site is to restore that site to pre-disposal conditions, to the extent feasible and authorized by law.").
- New York State Flood Hazard Area Construction Standards.

Federal Action-Specific ARARs

- RCRA subtitle C, Hazardous Waste Treatment Facility Design and Operating Standards for Treatment and Disposal systems, (*i.e.,* landfill, incinerators, tanks, containers, etc.) (*i.e.,* 40 CFR part 264); RCRA section 3004(o), 42 USC 6924(o) (RCRA statutory minimum technology requirements.)
- RCRA, Closure and Post-Closure Standards (40 CFR 264, subpart G).
- RCRA Groundwater Monitoring and Protection Standards (40 CFR 264.92 and 264.97 – 264.99).
- RCRA Generator Requirements for Manifesting Waste for Off-site Disposal (40 CFR part 262, subpart B).
- RCRA Transporter Requirements for Off-Site Disposal (40 CFR part 263).
- RCRA, Subtitle D, Non-Hazardous Waste Management Standards (40 CFR part 257).
- RCRA Land Disposal Restrictions (40 CFR part 268) (on and off-site disposal of excavated soil).
- CWA--NPDES Permitting Requirements for Discharge of Treatment System Effluent (40 CFR parts 122-125).

- CWA--Effluent Guidelines for Organic Chemicals, Plastics and Synthetic Fibers (discharge limits) (40 CFR part 414).
- CWA--Discharge to POTW—general Pretreatment regulations (40 CFR part 403).
- DOT Rules for Hazardous Materials Transport (49 CFR part 107, and 171.1-171.500).
- OSHA Standards for Hazardous Waste Operations and Emergency Response, 29 CFR 1910.120, and procedures for General Construction Activities (29 CFR parts 1910 and 1926).
- RCRA Air Emission Standards for Process Vents, Equipment Leaks, and Tanks, Surface Impoundments, and Containers (40 CFR part 264, subparts AA, BB, and CC).

New York Action-Specific ARARs

- New York State Pollution Discharge Elimination System (SPDES) Permit Requirements (Standards for Stormwater Runoff, Surface Water, and Groundwater Discharges (6 NYCRR 750-757)).
- New York State Hazardous Waste Regulations—identification, generators, transportation, treatment/storage/disposal, land disposal restrictions, and minimum technology requirements (6 NYCRR 370-376)
- New York State Solid Waste Management and Siting Restrictions (6 NYCRR 360-361).
- New York State Hazardous Waste Generator and Transporter Requirements for Manifesting Waste for Off-Site Disposal (6 NYCRR 364 and 372).
- New York State Inactive Hazardous Waste Disposal Sites—Remedy Selection (6 NYCRR 375.10(b)("At a minimum, the remedy selected shall eliminate or mitigate all significant threats to the public health and to the environment presented by hazardous waste disposed at the site through the proper application of scientific and engineering principles.").
- New York State Inactive Hazardous Waste Disposal Sites--Interim Remedial Measures (IRMs) (6 NYCRR 375-1.3(n) and 375.1.11)