EPA/ROD/R2004020001566
2004

EPA Superfund
Record of Decision:

SENECA ARMY DEPOT
EPA ID: NY0213820830
OU 12
ROMULUS, NY
09/28/2004

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October 15, 2004

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. Joseph White
New York State Department of Environmental Conservation (NYSDEC)
Bureau of Eastern Remedial Action
Division of Hazardous Waste Remediation
625 Broadway 11th Floor
Albany, NY 12233-7015

SUBJECT **Signed Final Record of Decision (ROD) for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas, Seneca Army Depot Activity; EPA Site ID: NY0213820830 - NY Site ID: 8-50-006;**

Dear Mr. Vazquez/Mr. White:

Enclosed, please find your copies of the signed Final Record of Decision (ROD) for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas at the Seneca Army Depot Activity (SEDA) located in Romulus, New York. Copies of this document are being provided to you in both hardcopy and electronic (Adobe Acrobat) formats.

Should you have any questions, please do not hesitate to call me at (617) 457-7905 to discuss them.

Sincerely,

Todd Heino, P.E.
Program Manager

Enclosure

cc: S. Absolom, SEDA
J. Fallo, USACE
K. Hoddinott, USACHPPM
E. Kashden, Gannett Fleming
C. Boes, AEC
S. Bradley, USACE, Huntsville
C. Bethoney, NYSDOH

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

SEP 28 2004

James R. Davidson, Director
U.S. Army Installation Support Management Activity
National Capital Region Field Office
5001 Eisenhower Avenue
Alexandria, VA 22333-0001

Re: Record of Decision for SEAD-27, 64A, and 66 Institutional Controls in the PID and Warehouse Area at the Seneca Army Depot Activity Superfund Site, Romulus, New York

Dear Mr. Davidson:

This is to inform you that after considering public comment on the Proposed Plan, Seneca Army Depot Activity's responsiveness summary to those comments, reviewing the draft Record of Decision and other supporting documents, the U.S. Environmental Protection Agency (EPA) concurs with the Record of Decision for the sites (SEAD-27, 64A, and 66) requiring Institutional Controls in the Planned Industrial/Office Development (PID) and Warehouse Area at the Seneca Army Depot Activity Superfund Site, Romulus, New York. Enclosed are two copies of the Record of Decision, which I have co-signed on behalf of EPA.

This Record of Decision addresses only the Institutional Controls Sites SEADs-27, 64A, 66, and its surrounding parcel known as the PID and Warehouse Area. Other Areas of Concern (AOC) are being addressed under separate decision documents.

If you have any questions regarding the subject of this letter, please contact me at (212) 637-4390 or have your staff call Julio Vazquez at (212) 637-4323.

Sincerely,

George Pavlou
Director
Emergency and Remedial Response Division

Enclosures

cc: Dale A. Desnoyers, Director
Division of Environmental Remediation
NYSDEC
A. Joseph White, NYSDEC

US Army, Engineering & Support Center
Huntsville, AL

Seneca Army Depot Activity
Romulus, NY

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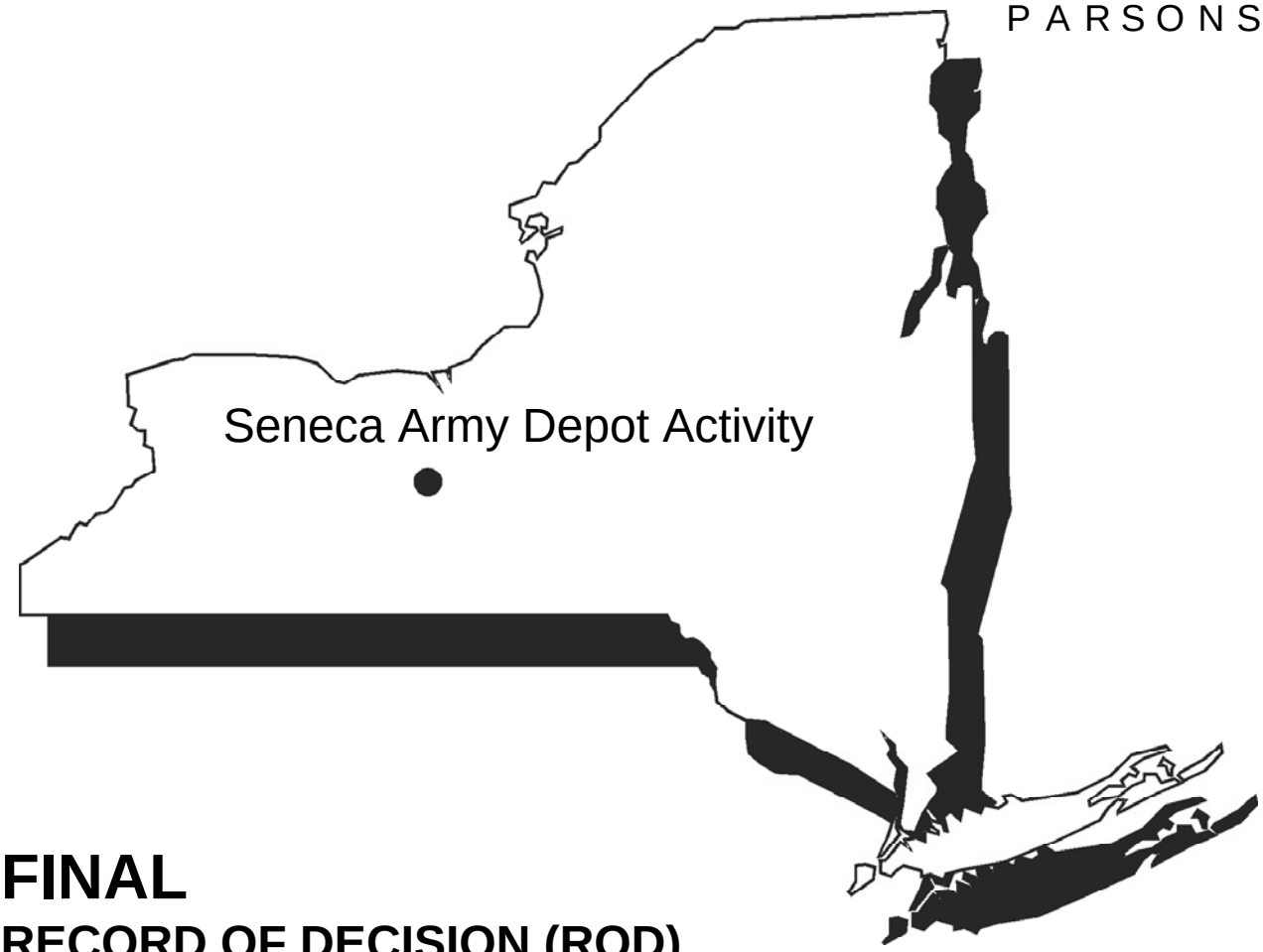

FINAL

RECORD OF DECISION (ROD)
SITES REQUIRING INSTITUTIONAL CONTROLS IN THE PLANNED INDUSTRIAL/OFFICE DEVELOPMENT OR WAREHOUSING AREAS

SENECA ARMY DEPOT ACTIVITY

EPA Site ID# NY0213820830
NY Site ID# 8-50-006
CONTRACT NO. DACA87-95-D-0031
DELIVERY ORDER NO. 0021

September 2004

FINAL

RECORD OF DECISION
FOR
SITES REQUIRING INSTITUTIONAL CONTROLS IN THE PLANNED INDUSTRIAL/OFFICE DEVELOPMENT OR WAREHOUSING AREAS
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

Prepared for:

SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

and

UNITED STATES ARMY ENGINEERING & SUPPORT CENTER
4820 UNIVERSITY SQUARE
HUNTSVILLE, ALABAMA

Prepared By:

Parsons
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Boston, Massachusetts

EPA Site ID No.: NY0213820830 **September 2004**
NY Site ID No.: 8-50-006
DACA87-95-D-0031, Delivery Order 21
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ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirement
AWQS	Ambient Water Quality Standard(s)
BRA	Baseline Risk Assessment
BRAC	Base Realignment and Closure
CERFA	Community Environmental Response Facilitation Act
CERCLA	Comprehensive Environmental Responsibility, Compensation and Liability Act
COC	Contaminant of Concern
COPC	Contaminant of Potential Concern
CRDL	Contract Required Detection Limit
CY	Cubic yards
DoD	Department of Defense
DQO	Data Quality Objective
EBS	Environmental Baseline Survey
EPC	Exposure Point Concentration
EQ	Ecological quotient
ES	Engineering Science, Inc.
ESI	Expanded Site Investigation
FFA	Federal Facilities Agreement
FS	Feasibility Study
GA	NYSDEC ground water classification for a source that is suitable for drinking water
HEAST	USEPA Health Effects Assessment Summary Table
HI	Hazard Index
IAG	Interagency Agreement
IC	Institutional Controls
IRM	Interim Remedial Measure
LRA	Seneca Army Depot Local Redevelopment Authority
LUC	Land Use Controls
LUC/IC	Land Use Controls/Institutional Controls
LUCIP	Land Use Control Implementation Plan
LUCAP	Land Use Control Assurance Plan
MCL	Maximum Contaminant Level
mg	milligrams
mg/L	milligrams per liter
mg/Kg	milligrams per kilogram
mL	milliliters
NA	Not Available
NCP	National Contingency Plan

ACRONYMS AND ABBREVIATIONS
(Continued)

NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operations and Maintenance
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PID	Planned Industrial Development
ppb	part(s) per billion
ppm	part(s) per million
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RfD	Reference Dose
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SEAD	Former acronym for the Seneca Army Depot used to designate SWMU numbers
SEDA	Seneca Army Depot Activity
SF	Slope Factor
SPDES	State Pollutant Discharge Elimination System
SVOC	Semivolatile Organic Compound
SWMU	Solid Waste Management Unit
TAGM	Technical and Administrative Guidance Memorandum
TBC	To be Considered
TCLP	Toxicity Characteristic Leaching Procedure
UCL	Upper Confidence Limit
µg/L	micrograms per liter
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VOCs	Volatile Organic Compounds

1.0 DECLARATION OF THE RECORD OF DECISION

Site Name and Location

Building 360 – Steam Cleaning Waste Tank (SEAD-27), the Garbage Disposal Area (SEAD-64A), and the Pesticide Storage Area Near Building 5 and 6 (SEAD-66).

Seneca Army Depot Activity (SEDA)
CERCLIS ID# NY0213820830
NY State ID# 8-50-006
Romulus, Seneca County, New York

Statement of Basis and Purpose

This decision document presents the U.S. Army's and EPA's selected remedy for Building 360 – Steam Cleaning Waste Tank (SEAD-27), the Garbage Disposal Area (SEAD-64A), and the Pesticide Storage Area Near Building 5 and 6 (SEAD-66), located at the Seneca Army Depot Activity (SEDA) near Romulus, New York. The decision was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended, 42 United States Code (USC) §9601 et seq. and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. The Base Realignment and Closure (BRAC) Environmental Coordinator; the Director, National Capital Region Field Office; and the U.S. Environmental Protection Agency (USEPA) Region II have been delegated the authority to approve this Record of Decision (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, Building 123, Romulus, NY. The Administrative Record Index identifies each of the items considered during the selection of the remedial action. This index is included in **Appendix A**.

The State of New York, through NYSDEC and the New York State Department of Health (NYSDOH), has concurred with the Selected Remedy. The NYSDEC Declaration of Concurrence is provided in **Appendix B** of this ROD.

Site Assessment

The response action selected in this ROD is necessary to protect the public 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 from this site that may present an imminent and substantial endangerment to public health or welfare.

Description of the Selected Remedy

The Army recommends establishing institutional controls (ICs) in the form of land use controls (LUCs) at SEADs 27, 64A, and 66. The LUCs will be applied area wide. A map showing the location of SEADs 27, 64A, and 66 and the LUC boundary is provided at **Figure 1-1.** Five year reviews of this remedy will be conducted in accordance with Section 120(c) of CERCLA.

Land Use Control Performance Objectives

The LUC performance objectives at these sites are as follows and will also be incorporated into deeds and/or leases for this property:

- Prevent residential housing, elementary and secondary schools, childcare facilities and playgrounds activities at the SEAD 27, 64a, and 66 sites.

- Prevent access to or use of the groundwater at the SEAD 27, 64a, and 66 sites until Class GA Groundwater Standards are met.

- Prevent unauthorized excavation at the SEAD 64a site.

The LUCs will continue until the concentration of hazardous substances in the soil and the groundwater beneath have been reduced to levels that allow for unlimited exposure and unrestricted use.

Land Use Control Remedial Design

In order to implement the Army's remedy, which includes the imposition of land use controls, a LUC Remedial Design for the Sites Requiring Institutional Controls in the Planned Industrial/Office or Warehousing Area ("PID Area"), will be prepared which satisfies the applicable requirements of Paragraphs (a) and (c), Environmental Conservation Law (ECL) Article 27, Section 1318: Institutional and Engineering Controls. In addition, the Army will prepare an environmental easement for the PID Area, consistent with Section 27-1318(b) and Article 71, Title 36 of ECL, in favor of the State of New York and the Army, which will be recorded at the time of the property's transfer from federal ownership.

A schedule for completion of the draft Institutional Control Remedial Design Plan will be completed within 21 days of the ROD signature consistent with Section 14.4 of the Federal Facilities Agreement (FFA).

The Army shall be responsible for implementing, inspecting, reporting on and enforcing the LUCs described in this ROD in accordance with the approved LUC remedial design. Although the Army may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Army shall retain ultimate responsibility for remedy integrity.

Should the Army transfer these procedural responsibilities, the Army shall provide timely written notice to the regulators of the transferee, which shall include the entity's name, address, and general remedial responsibility.

PID Area-wide Land Use Control Implementation

The Army recommends that the no residential and no use of groundwater LUC performance objectives be imposed and maintained on all the property within the PID Area, as defined in the "Reuse Plan and Implementation Strategy for the Seneca Army Depot Activity" (RKG Associates, Inc., 1996). The proposed boundary for the PID Area-wide LUC performance objectives is shown on **Figure 1-2**.

The Army's proposed establishment of an area-wide set of land use restrictions is consistent with the planned reuse of the property by the Seneca County Industrial Development Authority (SCIDA) and will simplify IC implementation by having a single set of land use restrictions for the entire PID Area. Additionally, the area where the Army proposes to implement the PID Area-wide institutional controls is defined by historic and existing security fence lines and roadways that exist at the site. This provides a high degree of visibility, and thus certainty, as to the extent of the proposed boundary without necessitating the installation of new identification markers. Finally, with respect to recommended groundwater use/access restriction, the PID Area is connected to the public water system so that a site-wide groundwater use restriction will have a minimal adverse impact on the future land use.

The PID Area includes sites ("NA/NFA Sites") that have been closed out under the CERCLA process as No Action/No Further Action sites. The NA/NFA ROD (Parsons, 2003) identified sites at which either no remediation is required or no further remediation is required. The NA sites located in the PID Area include SEADs 9, 10, 20, 22, 33, 36, 37, 42, 47, 49, 55, and 68. The NFA sites located in the PID Area include SEADs 28, 30, 31, and 34. These sites are shown on **Figure 1-2**. The sites listed in the NA/NFA ROD will continue to be subject to PID Area site-wide land use restrictions. However, upon request by a future property owner, the Army, USEPA, and NYSDEC will evaluate requested variance for land use restrictions in a designated area on a site-by-site basis. A copy of the NA/NFA ROD is available at the Information Repository at SEDA.

Site Delineation

The Army acknowledges that portions, but not all, of the PID Area for which it is recommending that ICs be implemented as a remedial measure contain sites where hazardous wastes and materials have been used, stored, and treated or disposed. In response to this acknowledgement, the Army, under conditions of regulatory oversight, review, and approval/acceptance, has implemented numerous investigations and studies to identify areas where potential risks from exposure to environmental contaminants continue to exist. Further, as potential sites have been investigated and assessed, the Army has, and will continue to, propose and implement necessary remedial actions to eliminate,

lessen or control contaminants found. Finally, in accordance with requirements delineated under CERCLA Section 120(h)(3), transfers of certain property by deed will include a covenant by the United States of America through the Secretary of the Army that all remedial action necessary to protect human health and the environment has been taken prior to transfer, a covenant by the United States of America through the Secretary of the Army to undertake any further remedial action found to be necessary after transfer, and a clause granting access to the transferred property in case remedial action or corrective action is found to be necessary after transfer. Data and information used to support the proposed boundary definition have been collected from existing reports that have been prepared for the encompassed and neighboring sites at the Depot. Once Seneca Army Depot was listed on the NPL, the Army, USEPA, and NYSDEC identified a list enumerating 57 solid waste management units (SWMUs) where historic data or information suggested, or evidence existed to support, that hazardous materials or hazardous wastes had been handled and may have possibly been released and migrated into the environment. Each of these sites was identified in the Federal Facilities Agreement (FFA) (USEPA, NYSDEC, Army, 1993) signed by the three parties, and this list subsequently expanded to include 72 sites when the Army completed the "SWMU Classification Report, *Final*" (Parsons, 1994), which was required under the terms of the FFA. Subsequently, when SEDA was approved for closure under BRAC 1995, the Army commissioned an Environmental Baseline Survey (EBS) of the entire Depot, where all property and facilities were evaluated, assessed, and classified in accordance with requirements of the Community Environmental Response Facilitation Act [CERFA 42 USC §9620(h)(4), (5)]. As a result of this work, additional sites within, and near, the area where the ICs are proposed have been investigated and analytical data are available. These data have been reviewed and the Army believes that they support the proposed boundary for the area where the ICs will be imposed.

A primary criterion used by the Army to define the proposed boundary of the area where the proposed ICs will be applied is the review of data from previous sampling events from SWMUs or EBS sites identified within and near the bounded area. Specifically, existing analytical data and information from SEADs 2, 9, 17, 25, 26, 49, 50/54, 55, 66, 67, 68, 121B, 121C, 121D, 121E, 121F, 121G, and 121I support the Army's recommendation of the identified boundary. Specific details of the data evaluation criteria used during the definition of the boundary for the area to be subject to the institutional controls are provided in **Appendix C**.

In all cases, the SEADs either define the limit of area requiring land use controls or are sufficiently close to defining the limits given the large buffer area between the outermost sampling points and the nearest boundary. Thus, the Army contends that the proposed boundary for the area where ICs will be implemented is sufficient to ensure that the surrounding areas are suitable for their intended future use. Further, the proposed extent of the area within the bounded area encompasses a number of sites that the Army currently plans to retain pending the completion of ongoing or scheduled investigations and remedial actions. These sites, the "Retained Sites," include: SEADs 1, 2, 5, 16, 17, 25, 26, 39, 40, 50, 54, 59, 67, 71, 121C, 121I, and 121J. Each of these sites is shown on **Figure 1-2**, highlighted in a dark brown color.

The Army defined the extent of each of the "Retained Sites" based on a review and assessment of existing analytical data from soil, groundwater and sediment samples that were collected in, or immediately around, the "Retained Sites" as part of site investigations. In many cases, these data show that many contaminants are not present. In other cases, the available data indicates that contaminants are present but they are present at concentrations that are either: less than established federal or state criteria levels [e.g., less than Maximum Contaminant Levels (MCLs) in water or recommended soil cleanup objective levels]; present at higher concentrations that do not pose an unacceptable risk to future residential users of the site; or are present at higher levels that may exceed criteria levels for unrestricted use but are associated with natural or other non-CERCLA regulated activities (e.g., vehicular or railroad traffic or operating releases). A full description of the protocol used to evaluate the existing analytical data for the extent of the "Retained Sites" is provided in **Appendix D**.

The boundary of the area where the Army will implement land use restrictions is shown in **Figure 1-3** and is approximately defined by:

1. Northeast Boundary – The former Depot's perimeter security fence line; this segment is supported by data from SEAD-9.

2. East Central Boundary – The inner fence line that separated the former Depot's Administration Area from the area that is designated as the property of the Elliot Acres Family Housing Area to the east; this segment supported by data from SEADs 121G, 121F, 25, and 68.

3. Southeast Boundary – The former Depot's perimeter security fence line to the southeast; this segment supported by data from SEAD-50/54 and SEADs 49 and 55.

4. South Boundary – Equivalent to the northern boundary of the land that was subject of a federal agency to federal agency transfer where the Loran Transmitter is located to the southeast and the boundary that separated the proposed PID Area from the land transferred to New York for the construction of the Five Points Correctional Facility; this boundary supported by data from SEAD-49, 55 and 26.

5. Southwestern and West Central Boundary – An internal security fence that separates the former warehousing, industrial and administration area from the former Munitions Storage Area to the southwest and along 3rd Street in the west central portion of the site; this boundary supported by data from SEADs 26, 64A, 121I, 121B, 121C and 17.

6. Northwestern Boundary – Along the eastern side of Fayette Road from the west central portion of the site and extending towards the northwest until Fayette Road intersects with West Romulus Road; this portion of the boundary is supported by data from SEADs 2 and 66.

7. Northern Boundary – Along the southern edge of West Romulus Road from the intersection with Fayette Road to the perimeter security fence; this portion of the boundary is supported by data from SEAD-20 and 67.

Additional information substantiating the Army's proposed boundary for the LUCs is provided in **Appendix C**.

Risk Exposure Assumptions

These land use restrictions are based on the results of the SEAD-27, SEAD-64A, and SEAD-66 mini risk assessments that are documented in the Completion Report "Decision Document, Mini Risk Assessment SEADs 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B, Seneca Army Depot Activity, *Final*" (Parsons, 2002), and which are summarized below. The risk assessments suggest that restricting residential activities and access/use of groundwater at SEADs 27, 64A, and 66 will ensure protection of human health and the environment by reducing the hazard indices and cancer risk to within an acceptable range.

State Concurrence

NYSDOH forwarded a letter of concurrence regarding the selection of a remedial action to NYSDEC, and NYSDEC, in turn, forwarded to USEPA a letter of concurrence regarding the selection of a remedial action. This letter of concurrence has been placed in **Appendix B**.

Declaration

CERCLA and the NCP requires each Preferred Remedy to be protective of human health and the environment, be cost effective, comply with other statutory laws; and use permanent solutions, alternative treatment technologies, and resource recovery options to the maximum extent possible. CERCLA also includes a statute indicating a preference for treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

The Selected Remedy is consistent with CERCLA and is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions and alternative technologies to the maximum extent practicable.

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 JUN 24 2004

STEPHEN M. ABSOLOM Date

BRAC Environmental Coordinator

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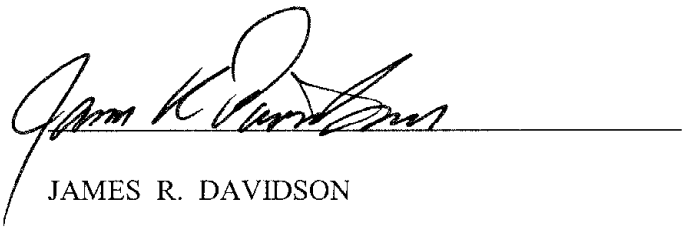
The foregoing represents the selection of a remedial action by the U.S. Department of the Army and the U.S. Environmental Protection Agency, with the concurrence of the New York State Department of Environmental Conservation.

Concur and recommend for immediate implementation:



13 July 2004

JAMES R. DAVIDSON Date

Director, National Capital Region Field Office

U.S. Army Installation Support Management Activity

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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:

William J. Cole 9-22-04

GEORGE PAVLOU Date

Director, Emergency and Remedial Response Division

U.S. Environmental Protection Agency, Region 2

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2.0 SITE NAME, LOCATION AND DESCRIPTION

SEDA is a 10,634-acre former military facility located in Seneca County near Romulus, New York, which has been owned by the United States Government and operated by the Department of the Army since 1941. A location map for SEDA is provided as **Figure 2-1**. As shown in **Figure 2-1**, SEDA is located between Seneca Lake and Cayuga Lake. **Figure 2-1** also shows that SEDA is bordered by New York State Highway 96 on the east, New York State Highway 96A on the west, and sparsely populated farmland on the north and south.

2.1 SEAD-27 – STEAM CLEANING WASTE TANK IN BUILDING 360

Building 360 is located in the eastern-central portion of the Depot (see **Figure 1-1**) and is a building where old equipment was refurbished and reconstructed. Lathes, presses, metal-working machines were degreased with steam, high-pressure water and detergents in the cleaning area. No solvent materials were ever used in the cleaning operation. After steam cleaning, the equipment was moved to other portions of Building 360 for rehabilitation.

SEAD-27, the Steam Cleaning Waste Tank, is located within a high bay area of Building 360 that is located near the north end of the building and is separated from the remainder of the building by cinder block walls. The overall size of the cleaning area is 38 feet-6 inches long by 20 feet-6 inches wide. The Steam Cleaning Waste Tank, also known as the Steam Jenny Accumulation Pit, is a belowground, concrete tank above which track-mounted cars loaded with equipment requiring cleaning can be positioned and steam cleaned. The track-mounted cars are rolled into and out of the cleaning area via permanently installed tracks that extend through roll-up doors and out of the building. Equipment requiring cleaning can also be placed directly above the tank on the floor. An overhead and two cross-sectional views (looking north and west) of the Steam Cleaning Waste Tank are provided as **Figures 2-2**, **2-3**, and **2-4**, respectively.

The floor surrounding and overlying the waste tank slopes towards the tank to channel all condensate and over spray back towards the tracks and collection grates. Under the metal grating is a trench system which slopes from a depth of 2 feet-0 inches at the west end of the overall cleaning area to a depth of 2 feet-10 inches toward the east end. Condensate and wastewater flowed through the trench system and fall into the Steam Cleaning Accumulation Pit, which is located at the east end of the overall cleaning area. The dimensions of the accumulation pit are 10 feet-6 inches wide by 3 feet long by 3 feet-4 inches deep. The maximum capacity of the Steam Cleaning Waste Tank is approximately 5,000 gallons when filled to near the top or 1,100 gallons to the 2-foot freeboard mark. This tank is no longer in use by the Army.

Use of the Steam Cleaning Waste Tank (i.e., Steam Jenny Accumulation Pit) began in 1976. After cleaning operations ceased on January 2, 1990, SEDA periodically monitored the depth of water in the accumulation pit to determine if water levels in the pit are affected by varying groundwater levels.

SEDA reports that there was never any evidence that groundwater was entering the Steam Cleaning Waste Tank. A closure investigation was performed under the RCRA program in July of 1995 and the determination was made that the accumulation pit in Building 360 satisfied the RCRA requirements for clean closure (International Technology Corporation, 1995). Monitoring of the water elevation in the waste tank and the removal of accumulated water (if present) ceased once RCRA closure was completed and certified. The NYSDEC's approval of RCRA Closure for SEAD-27 is documented in a letter dated November 1995 (NYSDEC, Nov. 1995).

2.2 SEAD-64A – GARBAGE DISPOSAL AREA

SEAD-64A is located in the east-central portion of SEDA. The site is bounded to the north by a square storage pad, to the east by the SEDA railroad tracks beyond which is the elevated fire-training pad (SEAD-26), and to the south and west by undeveloped grassland. This SWMU is located on land that is designated for warehouse use. The approximate location of this SWMU is shown on **Figure 1-1**.

SEAD-64A was used during the period from 1974 to 1979 when the on-site solid waste incinerator was not in operation. The types of wastes disposed at the site are suspected to be primarily household items, although according to the SWMU Classification Report (Parsons, 1994), metal drums and other industrial items were reportedly disposed at this site. Test pitting was conducted as part of the ESI, and no evidence of metal drums or industrial waste was found. All materials identified in the test pit log were inert construction debris, such as reinforced concrete slabs, asphalt pieces, and Constantine wire, which are exempt from regulation under New York State Solid Waste Regulations, 6 NYCRR Section 360-7.1 (b)(i). SEDA personnel also reported the operation of small burning pits within this area when it was being landfilled. Debris (asphalt, wooden boards, concrete slabs, and corrugated drain pipe) was visible on the surface, though the site is mostly covered with dense vegetation.

2.3 SEAD-66 – PESTICIDE STORAGE AREA NEAR BUILDINGS 5 AND 6

It has been reported that pesticides were stored in a structure located in the vicinity of Buildings 5 and 6. The Pesticide Storage Area near Buildings 5 and 6 is located in the east-central portion of SEDA (**Figure 1-1**). Building 5 is located approximately 100 feet north of Building 6. Building 5 is an elongated building, approximately 350 feet long and 45 feet wide. It is located on the Bundle Ammunition Pack Road and has three driveway areas between the road and the loading docks. The exact location of the pesticide storage area is unknown. The metal shed, which is suspected to be the former pesticide storage area, is adjacent to Building 5 on the south side. Building 6 is much smaller, approximately 50 feet by 50 feet. A concrete pad, which may have also been used as a former pesticide storage area, is located adjacent to Building 6 on the south side. Both buildings are located approximately 40 to 50 feet from the road. North-south trending railroad tracks are located approximately 20 feet to the west of the two buildings.

Aside from the paved road and driveways, the ground surrounding the buildings is covered with grass. There is little topographic relief in the area, and no surface water bodies are known to exist at the site.

SEAD-66 is located near the divide between the Reeder Creek watershed and the Kendig Creek watershed. Run-off from the site is directed into the Kendig Creek watershed by roadside drainage ditches. Run-off is directed from SEAD-66 into the feeder creek for the Duck Pond, a large surface water body located approximately 1 mile to the north of SEAD-66.

3.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

3.1 LAND USE AND RESPONSE HISTORY

Prior to construction of SEDA in 1941, much of the land was used for farming. Since construction, SEDA has been owned by the United States Government and operated by the Department of the Army. SEDA's primary mission was the receipt, storage, maintenance, and supply of military items.

As part of the requirements of RCRA, the Depot identified 72 Solid Waste Management Units (SWMUs). In 1990, the Depot was included in the federal section of the National Priorities List (NPL). As a federal facility listed on the NPL, provisions of CERCLA (42 USC § 9620e) required that the US Army investigate the sites known to exist at the Depot and complete all necessary remedial investigations and actions at the facility. In accordance with this stipulation, the Army, USEPA, and NYSDEC negotiated and finalized a Federal Facility Agreement (FFA) that outlines the administrative process and the procedures that will be followed to comply with CERCLA.

Following the initial identification of sites, the Army ranked each site for investigation based upon that site's projected risk. The goal of the initial categorization of SWMUs was to prioritize the pending investigations and remedial actions so that those sites with the greatest risk would be addressed first. The assigned rankings divided the 72 identified SWMUs into 5 groups (i.e., No Further Action, High Priority, Moderate Priority, Moderately Low Priority, and Low Priority SWMUs). Subsequent to the US Army's proposal of the priority rankings, all parties met to review and discuss the available information for the identified SWMUs, and to finalize priority-ranking assignments. The consensus of all parties was to mount necessary investigations and possible actions at those SWMUs of concern and identify the SWMUs for which no investigations would be required.

In 1995, SEDA was designated for closure under the Department of Defense's (DoD's) Base Realignment and Closure (BRAC) process. 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 (RKG Associates, Inc., 1996). The Seneca County Board of Supervisors subsequently approved this *Reuse Plan* on October 22, 1996. **Figure 1-1** depicts the intended future land uses for SEDA, as proposed by the LRA. With SEDA's inclusion on the BRAC list, the US Army's emphasis expanded from expediting necessary investigations and remedial actions at the High and Moderately High Priority sites. It was changed to include the release and reuse of non-affected portions of the depot to the surrounding community for non-military (i.e., industrial, municipal and residential) purposes. Thus, BRAC sites may be released for non-military use.

As part of the BRAC process, the Army commissioned an Environmental Baseline Survey (EBS) of the Depot. Under the EBS, all of the property identified as subject to transfer or lease at the facility is classified into one of the seven standard environmental conditions of property area types as defined by the Community Environmental Response Facilitation Act (CERFA) guidance and the Department of Defense (DoD) BRAC Cleanup Plan Guidebook. This is achieved by identifying, characterizing, and documenting the obviousness of the presence or likely presence of a release or a threatened release of a hazardous substance or petroleum product associated with the historical and current use of Seneca Army Depot Activity. Areas that are designated as Category 1, 2, 3, or 4 under the CERFA process are suitable for transfer or lease, subject to consideration of the qualifiers. Areas that are designated as Category 5, 6, or 7 are not suitable for transfer, pending further investigation and remediation, as may be needed. The complete details of the EBS are summarized in the document *U.S. Army Base Realignment and Closure 95 Program; Environmental Baseline Survey Report,* Seneca Army Depot Activity, New York (Woodward-Clyde Federal Services, 1997).

At the completion of the EBS, 113 BRAC parcels of land were identified and classified within the 10,634 acre Depot. Of the total area, approximately 8,690 acres were found to be suitable for lease or transfer (as designated by Categories 1 through 4), while the remaining area (approximately 1,945 acres) were designated as Categories 5 through 7 and were not deemed suitable for immediate transfer for reuse.

Data developed under the EBS process were shared with the Seneca Army Depot Local Redevelopment Authority (LRA) and served as part of the basis for their recommendations for the proposed future uses of land within the Depot. As a result of the LRA's efforts, the proposed future uses of various portions of the Depot are shown on **Figure 1-1**. **Table 3-1** summarizes the size of the areas proposed for each of the seven categories identified. Details of the LRA's recommended plan are described in full in the document entitled *Reuse Plan and Implementation Strategy for the Seneca Army Depot* (RKG Associates, Inc., 1996).

SEAD-27 and SEAD-66 are located in the area designated by the LRA as Planned Industrial/Office Development, and SEAD-64A is located in the area designated by the LRA as the Warehouse Area, shown in **Figure 1-1**. A significant factor that contributed to the identification of the border designated by the LRA for these areas was the identification and classification of land within and surrounding these areas as defined under CERFA. Generally, historic land use within each LRA defined zone was similar, while the land use beyond the defined boundary was different. A list of the 33 SWMUs contained within the "PID Area" (i.e., Planned Industrial/Office Development and Warehouse Areas) and their assigned designation under the CERFA process are presented in **Table 3-2**.

It should be noted that at present, some of the historic SWMUs encompassed by the PID Area will be retained by the Army pending the completion of ongoing investigations or remediation at sites within the area. In addition, three new sites, designated as SEAD-121J, SEAD-121C, and SEAD-121I, are

still the subjects of ongoing site investigations based on the classification assigned under the CERFA process. Thus, the following sites located in the PID Area, shown in **Figure 1-2**, will be retained by the Army:

SEAD-5	SEAD-16	SEAD-17	SEAD-25	SEAD-26
SEAD-39	SEAD-40	SEAD-50	SEAD-54	SEAD-59
SEAD-67	SEAD-71	SEAD-121C	SEAD-121I	SEAD-121J

In addition, SEAD-1 and SEAD-2 are currently subject to closure under provisions of RCRA and are excluded from these discussions.

The Army will be completing the CERCLA process for the Retained Areas, and after the ongoing investigations and remedial actions are complete, the sites will continue to be subject to the area-wide restrictions.

There are also SWMUs that are located in the PID Area and are currently discussed in a No Action/No Further Action Record of Decision. The NA/NFA ROD identifies sites at which no remediation or no further remediation is required. The following sites within the PID Area are considered NA or NFA:

SEAD-9	SEAD-10	SEAD-20	SEAD-22	SEAD-28
SEAD-30	SEAD-31	SEAD-33	SEAD-34	SEAD-36
SEAD-37	SEAD-42	SEAD-47	SEAD-49	SEAD-55
SEAD-68				

3.2 ENFORCEMENT HISTORY

SEDA was proposed for the National Priorities List (NPL) in July 1989. In August 1990, SEDA was finalized and listed in Group 14 on the Federal Section of the NPL. The USEPA, NYSDEC, and the Army entered into an agreement, called the Federal Facility Agreement (FFA), also known as the Interagency Agreement (IAG). This agreement determined that future investigations were to be based on CERCLA guidelines and RCRA was considered to be an Applicable or Relevant and Appropriate Requirement (ARAR) pursuant to Section 121 of CERCLA. In October 1995, SEDA was designated as a facility to be closed under the provisions of the BRAC process. SEADs 27, 64A, and 66 were included in Final Decision Document for Various "No Action" Sites Mini Risk Assessments SEAD 9, 27, 28, 32, 33, 34, 43, 44 (A, B), 52, 56, 58, 62, 64 (A, B, C and D), 66, 68, 69, 70, 120B (Parsons, 2002).

4.0 COMMUNITY PARTICIPATION

The U.S. Army relies on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, the Proposed Plan and supporting documentation have been made available to the public for a public comment period, which began on August 31, 2003 and concluded on September 30, 2003. Copies of the Decision Document/Mini-Risk Assessment report, the Proposed Plan, the Record of Decision, and supporting documentation are available at the following repository:

Seneca Army Depot Activity
Building 123, P.O. Box 9
Romulus, NY 14541
(607) 869-1309
Hours are Mon-Thurs. 8:30 am to 2:30 pm

A public meeting was held during the public comment period at the Seneca County Office Building on September 16, 2003 at 7 PM to present the conclusions of the Decision Document/Mini-Risk Assessment, to elaborate further on the reasons for recommending the preferred remedial option, and to receive public comments. Comments received at the public meeting, as well as written comments, are documented in the Responsiveness Summary Section of the Record of Decision (ROD), **Appendix E**.

In addition, coordination with Native American stakeholders is consistent with the programmatic agreements between the State Historic Preservation Office, recognized Native American Tribes, and the Advisory Council for Historic Preservation.

The primary responsibility assigned to the Local Redevelopment Authority (LRA) was the preparation of a plan for the redevelopment of the Depot. During the BRAC process, monthly presentations have been given to the LRA. In addition, the SEDA Restoration Advisory Board (RAB) was established to facilitate the exchange of information between SEDA and the community. RAB members include the representatives from the Army, USEPA, state regulatory agencies, 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.

5.0 SCOPE AND ROLE

As with many sites, the environmental issues at SEDA are complex. This ROD covers the following areas within the Depot:

- SEAD-27 –Steam Cleaning Waste Tank at Building 360;
- SEAD-64A – Garbage Disposal Area; and
- SEAD-66 – the Pesticide Storage Area Near Building 5 and 6.

The Army intends to place institutional controls in the form of land use restrictions on these areas. Specifically, for SEAD-27, SEAD-64A and SEAD-66, the Army intends to impose the following restrictions:

- Prohibit the development and use of property for residential housing, elementary and secondary schools, childcare facilities and playgrounds.
- Prevent access to or use of groundwater until the Class GA Groundwater Standards are met.
- In addition, at SEAD-64A only, a land use control prohibiting digging within the bounds of the site will be established.

SEAD-27, SEAD-64A, and SEAD-66 are all located within the east-central portion of the former Depot, in an area that previously was used extensively by the Army for administrative, industrial, and warehousing, and storage purposes associated with the Depot's former mission. As such, these three sites are surrounded by a number of other historic sites where environmental investigations or remedial measures have been implemented. Some of these other investigations and remedial actions have been completed and have resulted in the determination that either No Action or No Further Action is warranted at specific sites within the PID Area. Documentation associated with site investigations and remedial actions for these sites is contained in the Depot's Administrative Record and the final determination for these sites was recorded in the Final Record of Decision, Twenty No Action SWMUs and Eight No Further Action SWMUs (Parsons, 2003).

Several sites within PID Area, in proximity to SEAD- 27, SEAD-64A, and SEAD-66 are subject to ongoing investigations and remediation, and will be retained by the Army pending completion of the CERCLA process. These sites are shown in dark brown on **Figure 1-2** and are listed below.

- SEAD-5 – Sewage Sludge Waste Piles;
- SEAD-16 – Abandoned Deactivation Furnace;
- SEAD-17 – Active Deactivation Furnace;

- SEAD-25 – Fire Training and Demonstration Pad;
- SEAD-26 – Fire Training Pit and Are;
- SEAD-39 – Boiler Blowdown Leach Pit Near Building 121;
- SEAD-40 – Boiler Blowdown Leach Pit Near Building 319;
- SEAD-50 – Tank Farm;
- SEAD-54 – Tank Farm;
- SEAD-59 – Fill Area West of Building 135;
- SEAD-67 - Dump Site East of Sewage Treatment Plant No. 4;
- SEAD-71 – Alleged Paint Disposal Area;
- SEAD-121C – DRMO Yard;
- SEAD-121I – Rumored Cosmoline Oil Disposal Areas; and
- SEAD-121J – Mounds Area, Site 109(7).

Once investigations or remedial actions in these areas are complete, the Army will assess and evaluate the needs for land use restrictions in each of these areas on a site-by-site basis. In the meantime, however, the presence of these sites, in conjunction with the recorded findings for SEAD-27, SEAD-64A, and SEAD-66, provide the basis for the Army's recommendation to impose two of its recommended land use restrictions (i.e., Prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds; and prevent access or use of the groundwater until cleanup levels are met.) on all areas within the bounded PID Area.

The selected remedies are discussed in greater detail in **Section 9.0**.

6.0 SITE CHARACTERISTICS

This section provides an overview of the site impacts and also identifies the actual and potential routes of exposure posed by the conditions at the site for SEAD-27, SEAD-64A, and SEAD-66. A complete description of the site characteristics is included in Section 2.0 of the Final Decision Document – Mini Risk Assessment (Parsons, 2002).

6.1 SEAD-27 – STEAM CLEANING WASTE TANK IN BUILDING 360

Field activities were performed at SEAD-27 as part of the July 1995 Building 360 Closure Investigation (International Technology Corporation, 1995). They are as follows:

- Accumulation pit liquid waste characterization;
- Concrete coring and removal;
- Closure sampling (concrete and soil);
- Drilling and surveying;
- Groundwater monitoring and well installation;
- Closure sampling (monitoring wells and T-sump);
- Pressure washing of metal grating and interior building surfaces; and
- Ongoing periodic post-closure groundwater sampling (monitoring wells and T-sump).

More details of these activities can be found in International Technology Corporation's *Final Report – Volume I, Building 360 Closure, Seneca Army Depot, Romulus, New York.*

The results of the chemical analyses can be found in the Final Decision Document – Mini Risk Assessment (Appendix B, Tables B-1 and B-2) for soil and groundwater, respectively. Although samples of water were collected from the T-sump during the period of February to May 1995 and were presented in the RCRA closure report in 1995, these results were not used in the risk assessment. The conclusion was that contaminants found in the water contained in the T-sump were derived from the DRMO Yard (SEAD-121C), which contained a TCE storage tank. The closure report did not find any evidence of contamination in core samples or soil samples collected at the Steam Cleaning Waste Tank.. Available information indicates that it does not leak, and it is therefore isolated from the surrounding environment.

The RCRA Closure Workplan required testing of all potential contaminants found at the site during the operation of the Steam Jenny Tank. Therefore, soil and groundwater samples were collected and analyzed for volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), cadmium, chromium, and lead. Groundwater samples were also analyzed for semivolatile organic compounds (SVOCs).

Soil

The four soil samples collected from SEAD-27 in 1995 were analyzed for VOCs, PCBs, cadmium, chromium, and lead. Of these compounds, only chromium and lead were detected. None of these detections exceeded recommended soil cleanup goals identified by NYSDEC in Technical and Guidance Memorandum (TAGM) #4046 "*Determination of Soil Cleanup Objectives and Cleanup Levels*" (NYSDEC, 1994).

Steam Cleaning Waste Tank Wastewater

One representative, composite sample of wastewater contained within the Steam Cleaning Waste Tank was collected and analyzed for VOCs, pesticides, herbicides, PCBs, metals, and various classical chemical parameters prior to the beginning of closure of SEAD-27. Resulting analytical data indicated that there were no detectable levels of VOCs, herbicides or PCBs within the sample. Total cresol, lindane, 4,4`-DDE, 10 metals and numerous classical parameters were detected in the wastewater (refer to **Table 6-1** for details), and this data was used as the basis for recommending disposal and treatment of the wastewater at the Depot's wastewater treatment plant.

Concrete Core Samples

Six inch diameter concrete core samples were also collected from three locations in the bottom of the Steam Cleaning Waste Tank pit and analyzed for PCBs and toxicity characteristic leaching procedure (TCLP) cadmium, lead, and chromium. Each of these samples was split into three fractions, yielding nine final samples delivered for analysis. The first sample from each core represented concrete from the top portion of the core, the second from the middle portion of the core, and the third from the bottom of the core where it met underlying soil. Resulting data showed that only two detection of chromium were seen in any of the samples, and these concentrations were 22 and 12 µg/L, respectively from the top and middle portions of core CC-3. Both of these values are well below the federal regulatory limit value of 5000 µg/L.

Groundwater

The groundwater samples collected from SEAD-27 in 1995 were analyzed for VOCs, SVOCs, PCBs, cadmium, chromium, and lead. There were three exceedances of NYSDEC's GA groundwater criteria for 1,1-dichloroethane, and one exceedance each for 1,1,2,2-tetrachloroethane and total xylene. All of the observed exceedances occurred in the final round of samples collected (May 1995). 1,1-Dichloroethane was detected in MW-2, the downgradient well, at approximately 7 times the GA standard level, and in the two other wells at levels roughly equivalent to, though higher than, the standard (i.e., 5 µg/L). The concentration of 1,1,2,2-tetrachloroethane measured was slightly greater than NYSDEC's GA standard concentration, while the concentration of total xylene detected was twice NYSDEC's GA criteria level. The sample collected from the upgradient well contained the noted exceedances for total xylene and 1,1,2,2-tetrachloroethane.

T-Sump Water Sample

Water samples were also collected from the T-sump during each of the groundwater sampling events that were conducted during 1995 as part of the RCRA Closure program at SEAD-27. Lead and 1,1,1-trichloroethane were detected in each of the five samples collected from the T-sump, while, bromodichloromethane, bromoform, and dibromochloromenthane were detected in the sample colleted from the T-sump during the second sampling event. Finally, chromium was detected in the first T-sump sample. All of the concentrations reported for 1,1,1-trichloroethane (i.e., 14, 18, 20, 16 and 18 µg/L, respectively) exceeded its GA groundwater standard (5 µg/L), while three values reported for lead (197 µg/L, 1st event; and 30.5 and 38.5 µg/L, second event and duplicate, respectively) exceeded its GA standard (25 µg/L). In the conclusions of the RCRA Closure Report for the Steam Cleaning Waste Tank, the author states "Data and historical operations of the 1,1,1,-trichloroethane sump and adjacent storage tank suggests the constituents present in the T-sump groundwater are likely not related to past operation of the steam jenny pit area [i.e., Steam Cleaning Waste Tank] but are inherent to the operations of the 1,1,1-trichloroethane storage tank." This conclusion is based on the determination no elevated levels of any of either of these two compounds was found in any of the soil or concrete core samples collected from the Steam Cleaning Waste Tank. Although, lead and chromium were detected in the wastewater removed from the Steam Cleaning Waste Tank at the time of closure, evidence of their migration through the concrete and into the underlying soils were not confirmed. Thus, the T-sump water samples are excluded from this analysis.

6.2 SEAD-64A – GARBAGE DISPOSAL AREA

A field investigation was conducted at SEAD-64A beginning in February 1994, as part of the Expanded Site Inspection for Seven Low Priority AOCs (Parsons, 1996). A geophysical survey was conducted. Twelve soil samples were collected and submitted for VOC, SVOC, pesticide, and metal analyses. Three groundwater samples were collected from SEAD-64A and were submitted for metals, pH, conductivity, temperature, and turbidity analyses.

Several PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene], phenol, and several metals (aluminum, arsenic, chromium, copper, lead, potassium, and zinc) were detected at levels that exceeded TAGMs in one or more soil samples.

During the ESI sampling, aluminum, iron, manganese, and thallium were detected in groundwater at levels that exceeded their respective comparative criteria levels. Results are summarized in **Table 6-2**.

6.3 SEAD-66 – PESTICIDE STORAGE AREA NEAR BUILDINGS 5 AND 6

A Limited Sampling Program was performed at SEAD-66 in December 1993. Surface soil samples collected from SEAD-66 were analyzed for Target Compound List (TCL) pesticides according to the

NYSDEC Contract Laboratory Program (CLP) Statement of Work (SOW). Results of the chemical analyses for soil can be found in the Final Decision Document – Mini Risk Assessment (Appendix Q, Table Q-1) (Parsons, 2002).

Of the nine soil samples taken from SEAD-66, two compounds were detected at levels exceeding TAGMs. 4,4'-DDE and 4,4'-DDT were both detected at elevated levels in sample SS66-8 that was taken from a depth of 0-0.2 ft. The soil data are presented in **Table 6-3**.

No groundwater samples were collected.

7.0 SUMMARY OF SITE RISKS

When data was collected in the initial investigation, a mini-risk assessment was conducted for those sites to estimate the risks associated with current and future site conditions. The mini-risk assessment estimated the human health and ecological risk that could result from the site if no remedial action were taken. Maximum site concentrations were used as the exposure point concentrations (EPCs) for each site.

Human Health Risk Assessment

The reasonable maximum human exposure was evaluated. The human health risk assessment methodology is shown in **Figure 7-1**. A four-step process was used for assessing site-related human health risks for a reasonable maximum exposure scenario:

- *Hazard Identification*--identified the COC 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 baseline risk assessment addressed the potential risks to human health by identifying several potential exposure pathways by which the public may be exposed to contaminant releases at the site under current and future land use scenarios. **Figure 7-2** shows the exposure pathways considered for the media of concern for the Planned Industrial/Office Development scenario. For the baseline risk assessment, the reasonable maximum exposure was evaluated.

The receptors used in the risk assessment depended on the intended future use. The potentially exposed populations for the industrial use scenario are as follows:

Planned Industrial Development:

1. Industrial worker,
2. Future on-site construction workers,
3. Future worker at on-site day care center, and

4. Future child at on-site day care center.

Warehouse:

1. Future warehouse worker,
2. Future on-site construction worker, and
3. Future trespasser (adult).

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

1. Inhalation of particulate matter in ambient air (all future receptors),
2. Ingestion and dermal contact to on-site surface soils (all future receptors),
3. Ingestion and dermal contact to on-site surface and subsurface soils (future on-site construction worker), and
4. Ingestion of groundwater (daily) (future industrial worker, day care center worker, and day care center child).

Under current USEPA guidelines, the likelihood of carcinogenic and non-carcinogenic effects due to exposure to site-related contaminants are considered separately. Non-carcinogenic risks were assessed by calculation of a Hazard Index (HI), which is an expression of the chronic daily intake of a contaminant 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, USEPA has established an acceptable cancer risk range of 10^{-4} to 10^{-6} (one-in-ten thousand to one-in-one million).

Ecological Risk Assessment

The reasonable maximum environmental exposure was also evaluated. A four-step process was used for assessing site-related ecological risks for a reasonable maximum exposure scenario:

- *Characterization of the Unit and the Ecological Communities it May Affect*—Includes ecological conditions observed at the unit, site habitat characterization, wildlife resources that are present in the area, and ecological resource values to wildlife and to humans;

- *Exposure Assessment*—Discusses COPCs, exposure point concentrations, and it presents exposure assessments. Chemical distribution of COPCs, and their uptake through various pathways are also discussed in this section. And daily intakes of COPCs through environmental media are quantified as well;

- *Toxicity Assessment*—Assesses ecological effects that potentially may result from receptor exposure to COPCs. Evaluates potential toxicity of each COPC in each medium and defines toxicity benchmark values that will be used to calculate the ecological quotient (EQ); and

- *Risk Characterization*—Integrates the results of the preceding elements of the assessment. It estimates risk with respect to the assessment endpoints, based on the predicted exposure to and toxicity of each COPC.

Ecological risk was then presented in terms of an EQ, which is derived from the results of the exposure quantification and the toxicity assessment for each COPC. The EQs are based on relevant measurement endpoints and are indicative of the potential for each chemical to pose an ecological risk to receptors. Step 2 of the screening-level exposure estimate and risk calculation in "Ecological risk Assessment Guidance for Superfund (ERAGS): Process for Designing and Conducting ecological Risk Assessments" (USEPA 1997) suggests that EQs less than or equal to 1 present no probable risk. EQs between 1 and 10 present a small potential for environmental effects, EQs between 10 and 100 present a significant potential that effects could result from greater exposure, and EQs greater than 100 indicate the highest potential for expected effects.

7.1 SEAD-27

The total cancer risk from all exposure routes is within the USEPA target range for all three receptors under the industrial scenario. The total non-cancer HI from all exposure routes exceeds one for day care center child (HI=3), but is less than one for the industrial worker (HI=0.7) and the day care center adult worker (HI=0.7). The elevated HI for the day care center child is due solely to ingestion of groundwater, with naphthalene, acetone and chromium being the significant risk contributors.

A risk assessment was also conducted for a residential scenario. The total cancer risk from all exposure routes is within or below the USEPA target range for both receptors (adult resident and child resident). The total non-cancer HI from all exposure routes exceeds one for the adult resident (HI=2) and the child resident (HI=7). The elevated HI for the adult is due solely to ingestion of groundwater and the elevated HI for the child is due to ingestion of groundwater and dermal contact of groundwater. Naphthalene and acetone are the significant risk contributors.

Significant concentrations of acetone were detected in one well in the second and third rounds of the four-month long groundwater sampling program. The fourth round showed that the acetone concentrations had decreased, though they were still present. Naphthalene was detected in the second well, though it was not detected until the fourth quarter of the sampling program. No additional samples have been collected to confirm the presence of naphthalene at the site. Neither of these two compounds has Class GA groundwater criteria, however, their hazard indices indicate that they contribute to risk due to ingestion of groundwater and to dermal contact of groundwater. Based on the current data, should SEAD-27 be used as a residential area, it would be necessary to place a Land Use Restriction on groundwater use. This would restrict the use of groundwater as a drinking water source, preventing exposure to groundwater. This restriction results in the non-cancer Hazard Indices being less than 1 for both child and adult receptors.

No compounds of concern were detected in SEAD-27 soils. Therefore, no HQs were calculated for this site.

7.2 SEAD-64A

A mini risk assessment was conducted for SEAD-64A based on the 1994 soil and groundwater data, and the results of total cancer risk and total non-cancer hazard index can be found in Table 3.5-10 of the Final Decision Document - Mini Risk Assessment, Seneca Army Depot Activity (Parsons, 2002). The total cancer risks are below or within the USEPA target ranges for all receptors under a warehouse land use scenario (i.e., warehouse worker, child trespasser, and construction worker). The total non-cancer hazard indices from all exposure routes are less than one for all receptors. The non-cancer hazard indices are overstated as the metal concentrations in groundwater were elevated due to the elevated turbidities in the groundwater samples.

In addition, risks to residential receptors (i.e., residential adult and residential child) have been evaluated based on the 1994 soil and groundwater data. The results of total cancer risk and total non-cancer hazard index can be found in Table V-3 of the Final Decision Document – Mini Risk Assessment, Seneca Army Depot Activity (Parsons, 2002). The total cancer risks are below or at the USEPA upper target limit for all receptors. The total non-cancer hazard indices from all exposure routes are equal to or greater than one for residential receptors. Groundwater ingestion is the only exposure route that would result in significant risk to residential receptors. The non-cancer hazard indices are overstated as the metal concentrations in groundwater were elevated due to the elevated turbidities in the groundwater samples.

A mini risk assessment was also conducted to evaluate potential risks to deer mice, short-tailed shrews, and American robins posed by the COPCs detected in surface soils at SEAD-64A. The HQs for all COPCs found in shallow soil were found less than one with the exception of benzo(a)pyrene, bis(2-ethylhexyl)phthalate, fluoranthene, and lead. The elevated risks driven by the above compounds were associated with one surface soil sample. The EQs based on the average concentrations of the other four samples were less than one or slightly above one (i.e., less than five). In addition, as a planned warehouse development, this site would most likely not support a balanced habitat. Based on the above discussion, it is concluded that SEAD-64A would not pose significant risk to potential ecological receptors. The mini risk assessment is presented and described in greater detail within the Final Decision Document – Mini Risk Assessment, Seneca Army Depot Activity (Parsons, 2002).

7.3 SEAD-66

The total cancer risk from all exposure routes is within the USEPA target range for all four receptors under the industrial scenario. Likewise, the total non-cancer HI from all exposure routes is less than one for all four industrial receptors.

A risk assessment was also conducted for a residential scenario. The total cancer risk from all exposure routes is within or below the USEPA target range for both receptors. The total non-cancer HI from all exposure routes exceeds one for the child resident (HI=1+). The elevated HI for this receptor is due solely to ingestion of soil with 4,4'-DDT being the significant risk contributor.

While 4,4'-DDT was detected in most samples (8 out of 9), only the maximum value exceeded the TAGM for 4,4'-DDT. The maximum value used as the Exposure Point Concentration (EPC) for this assessment ranges from 300 to 10,000 times all other measured concentrations. Based on the results of a Grubb's Test (analysis summarized in **Table 7-1**), the value used for the EPC in the risk assessment is an outlier. Furthermore, based on a review of the location from which the sample was collected [see Figure 2-16 of the Final Decision Document – Mini Risk Assessment, Seneca Army Depot Activity (Parsons, 2002)], the sample was collected at a location (SS66-8) that is surrounded by three other sampling locations where measured concentrations are between 200 and 6500 times lower. This suggests that the value is indicative of an isolated "hot spot" of contamination instead of a systematic release.

These results indicate that the actual average exposure to 4,4'-DDT would be much lower. It is unlikely that the child would be exposed to only soils in the corner of the site from which the maximum value was taken. For these reasons, 4,4'-DDT is not considered a COC in soil at this site for this exposure scenario.

An ecological risk assessment was conducted at SEAD-66, which is presented in Section 3.0 of the Decision Document (Parsons, 2002). No significant ecological risk was found.

8.0 REMEDIAL ACTION OBJECTIVES

Remedial action objectives have been developed that consist of media-specific objectives for the protection of 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. 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 comply with ARARs to the greatest extent possible. A list of ARARs is provided in **Appendix F**.

The objectives of the Army's recommended land use restrictions are as follows and will also be incorporated into deeds and/or leases for property within the PID Area:

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

- Prevent access or use of the groundwater within the PID Area until Class GA Groundwater Standards are met.

- At SEAD-64A only, prevent unauthorized excavation at the site to reduce and eliminate to the fullest extent possible, the potential exposure of surrounding populations and the environment to covered trash.

9.0 SELECTED REMEDY

Based on the results of the investigations and mini risk assessments completed for the three sites, area wide institutional controls (ICs) are proposed for SEAD-27, SEAD-64A, and SEAD-66. The objectives of ICs proposed for SEAD 27, 64A, and 66 ICs include the establishment of the following land use restrictions for the sites:

- Prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds.
- Prevent access to or use of the groundwater until the Class GA Groundwater Standards are met.
- In addition, at SEAD-64A only, a land use control prohibiting digging within the bounds of the site will be established.

The LUCs will continue until the concentration of hazardous substances in the soil and the groundwater beneath have been reduced to levels that allow for unlimited exposure and unrestricted use.

Land Use Control Remedial Design

In order to implement the Army's remedy, which includes the imposition of land use controls, a LUC Remedial Design for the Sites Requiring Institutional Controls in the Planned Industrial/Office or Warehousing Area ("PID Area"), will be prepared which satisfies the applicable requirements of Paragraphs (a) and (c), Environmental Conservation Law (ECL) Article 27, Section 1318: Institutional and Engineering Controls. In addition, the Army will prepare an environmental easement for the PID Area, consistent with Section 27-1318(b) and Article 71, Title 36 of ECL, in favor of the State of New York and the Army, which will be recorded at the time of the property's transfer from federal ownership.

A schedule for completion of the draft Institutional Control Remedial Design Plan will be completed within 21 days of the ROD signature consistent with Section 14.4 of the Federal Facilities Agreement (FFA).

The Army shall be responsible for implementing, inspecting, reporting on and enforcing the LUCs described in this ROD in accordance with the approved LUC remedial design. Although the Army may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Army shall retain ultimate responsibility for remedy integrity. Should the Army transfer these procedural responsibilities, the Army shall provide timely written notice to the regulators of the transferee, which shall include the entity's name, address, and general remedial responsibility.

These land use restrictions are based on the results of the SEAD-27, SEAD-64A, and SEAD-66 mini risk assessments that are documented in the Completion Report "Decision Document, Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B, Seneca Army Depot Activity, *Final*" (Parsons, 2002), and which are summarized above. The risk assessments suggest that restricting residential activities and access/use of groundwater at SEAD 27, 64A, and 66 will ensure protection of human health and the environment by reducing the hazard indices and cancer risk to within an acceptable range.

PID Area-wide Land Use Control Implementation

The Army recommends that the land use restrictions proposed for SEAD 27, 64A, and 66, exclusive of the proposed no digging restriction proposed for SEAD-64A alone, also be imposed and maintained on all the property within the PID Area, as defined in the "Reuse Plan and Implementation Strategy for the Seneca Army Depot Activity" (RKG Associates, Inc., 1996). The proposed boundary for the land use restrictions is shown on **Figure 1-2**.

The Army's proposed establishment of an area-wide set of land use restrictions is consistent with the planned reuse of the property by the Seneca County Industrial Development Authority (SCIDA) and will simplify IC implementation by having a single set of land use restrictions for the entire PID Area. Further, the extent of the proposed land use restrictions is consistent with the area that is within the bounds of a Township of Romulus, NY ordinance that requires future developers/owners to provide details of all construction/building/renovation projects that may be performed within this area to the Army and to the town managers for review and approval. Additionally, the Army contends that the proposed boundaries for the area of the proposed ICs are consistent with existing geographic, cultural, demographic, or other historic features and are supported, to the fullest extent possible, by the available analytical data collected at identified sites that are in proximity to the proposed boundary. Generally, the area where the Army proposes to implement the institutional controls is defined by historic and existing security fence lines and roadways that exist at the site. This provides a high degree of visibility, and thus certainty, as to the extent of the proposed boundary without necessitating the installation of new identification markers. Finally, with respect to recommended groundwater use/access restriction, the proposed bounds envelop an area of the former Depot where an ample public water supply is available so that a site-wide groundwater use restriction will have a minimal adverse impact on the future land use.

Site Delineation

The Army acknowledges that portions, but not all, of the PID Area for which it is recommending that ICs be implemented as a remedial measure contains sites where hazardous wastes and materials have been used, stored, and treated or disposed. In response to this acknowledgement, the Army, under conditions of regulatory oversight, review, and approval/acceptance, has implemented numerous investigations and studies to identify areas where potential risks from exposure to environmental contaminants continue to exist. Further, as potential sites have been investigated and assessed the

Army has, and will continue to, propose and implement necessary remedial actions to eliminate, lessen or control contaminants found. Finally, in accordance with requirements delineated under CERCLA section 120(h)(3), transfers of certain property by deed must also include a covenant by the United States of America through the Secretary of the Army that all remedial action necessary to protect human health and the environment has been taken prior to transfer, a covenant by the United States of America through the Secretary of the Army to undertake any further remedial action found to be necessary after transfer, and a clause granting access to the transferred property in case remedial action or corrective action is found to be necessary after transfer.

As has been mentioned earlier, the PID Area includes sites ("NA/NFA Sites") that have been closed out under the CERCLA process as No Action/No Further Action sites. The NA/NFA ROD (Parsons, 2003) identified sites at which either no remediation is required or no further remediation is required. The NA sites located in the PID Area include SEADs 9, 10, 20, 22, 33, 36, 37, 42, 47, 49, 55, and 68. The NFA sites located in the PID Area include SEADs 28, 30, 31, and 34. These sites are shown on **Figure 1-2**. The sites listed in the NA/NFA ROD will continue to be subject to PID Area site-wide land use restrictions. However, upon request by a future property owner, the Army, USEPA, and NYSDEC will evaluate requested variance for land use restrictions in a designated area on a site-by-site basis. A copy of the NA/NFA ROD is available at the Information Repository at SEDA.

Data and information used to support the proposed boundary definition have been collected from existing reports that have been prepared for the encompassed and neighboring sites at the Depot. Once Seneca Army Depot was listed on the NPL, the Army, USEPA, and NYSDEC identified a list enumerating 57 solid waste management units (SWMUs) where historic data or information suggested, or evidence existed to support, that hazardous materials or hazardous wastes had been handled and may have possibly been released and migrated into the environment. Each of these sites was identified in the Federal Facilities Agreement (FFA) (USEPA, NYSDEC, Army, 1993) signed by the three parties, and this list subsequently expanded to include 72 sites when the Army completed the "SWMU Classification Report, *Final*" (Parsons, 1994), which was required under the terms of the FFA. Subsequently, when SEDA was approved for closure under BRAC 1995, the Army commissioned an Environmental Baseline Survey (EBS) of the entire Depot, where all property and facilities were evaluated, assessed, and classified in accordance with requirements of the Community Environmental Response Facilitation Act [CERFA 42 USC §9620(h)(4), (5)]. As a result of this work, additional sites within, and near, the area where the ICs are proposed have been investigated and analytical data are available. These data have been reviewed and the Army believes that they support the proposed boundary for the area where the ICs will be imposed.

A primary criterion used by the Army to define the proposed boundary of the area where the proposed ICs will be applied is the review of data from previous sampling events from SWMUs or EBS sites identified within and near, the bounded area. Specifically, existing analytical data and information from SEADs 2, 9, 17, 25, 26, 49, 50/54, 55, 66, 67, 68, 121B, 121C, 121D, 121E, 121F, 121G, and 121I support the Army's recommendation of the identified boundary. In all cases, the

SEADs either define the limit of area requiring land use controls or are sufficiently close to defining the limits given the large buffer area between the outermost sampling points and the nearest boundary. Thus, the Army contends that the proposed boundary for the area where ICs will be implemented is sufficient to ensure that the surrounding areas are suitable for their intended future use. Further, the proposed extent of the area within the bounded area encompasses a number of sites that the Army currently plans to retain pending the completion of ongoing or scheduled investigations and remedial actions. These sites, the "Retained Sites," include: SEAD 1, 2, 5, 16, 17, 25, 26, 39, 40, 50, 54, 59, 67, 71, 121C, 121I, and 121J. Each of these sites is shown on **Figure 1-2**, highlighted in a dark brown color.

The boundary of the area where the Army is proposing to implement land use restrictions is shown in **Figure 1-3** and is approximately defined by:

1. Northeast Boundary – The former Depot's perimeter security fence line; this segment is supported by data from SEAD-9.

2. East Central Boundary – The inner fence line that separated the former Depot's Administration Area from the area that is designated as the property of the Elliot Acres Family Housing Area to the east; this segment supported by data from SEADs 121G, 121F, 25, and 68.

3. Southeast Boundary – The former Depot's perimeter security fence line to the southeast; this segment supported by data from SEAD-50/54 and SEADs 49 and 55.

4. South Boundary – Equivalent to the northern boundary of the land that was subject of a federal agency to federal agency transfer where the Loran Transmitter is located to the southeast and the boundary that separated the proposed PID Area from the land transferred to New York for the construction of the Five Points Correctional Facility; this boundary supported by data from SEAD-49, 55 and 26.

5. Southwestern and West Central Boundary – An internal security fence that separates the former warehousing, industrial and administration area from the former Munitions Storage Area to the southwest and along 3rd Street in the west central portion of the site; this boundary supported by data from SEADs 26, 64A, 121I, 121B, 121C and 17.

6. Northwestern Boundary – Along the eastern side of Fayette Road from the west central portion of the site and extending towards the northwest until Fayette Road intersects with West Romulus Road; this portion of the boundary is supported by data from SEADs 2 and 66.

7. Northern Boundary – Along the southern edge of West Romulus Road from the intersection with Fayette Road to the perimeter security fence; this portion of the boundary is supported by data from SEAD-20 and 67.

Additional information substantiating the Army's proposed boundary for the LUCs is provided in **Appendix C**.

The Army shall implement, maintain, monitor, report on, and enforce the land use restrictions according to the PID Area Remedial Design (RD) Plan. The PID Area RD Plan will include: a Site Description; the IC Land Use Restrictions, the IC Mechanism to ensure that the land use restrictions are not violated in the future, Reporting/Notification requirements. A copy of the PID Area RD Plan will be available at the Information Repository at SEDA.

10.0 DOCUMENTATION OF SIGNIFICANT CHANGES

(Reserved).

11.0 STATE ROLE

(Reserved).

TABLE 3-1
SENECA ARMY DEPOT ACTIVITY
RECORD OF DECISION FOR SITES REQUIRING INSTITUTIONAL CONTROLS
Acreage of Each Land Use Category

Environmental Condition Category Number	Approximate Acreage[1]
Conservation/Recreation	8,300
Housing	200
Institutional	200
Special events and Training	500
Planned Industrial Development (PID) Area	620
Warehouse	550
Fed to Fed Transfer	170

1. Based on "Reuse Plan and Implementation Strategy for the Seneca Army Depot" (RKG 1996).

TABLE 3-2
SENECA ARMY DEPOT ACTIVITY
RECORD OF DECISION FOR
SITES REQUIRING INSTITUTIONAL CONTROLS
SWMU List and CERFA Parcel Designation

SWMU Number	SWMU Description	CERFA Parcel Number and Label
SEAD-1	Building 307 – Hazardous Waste Container Storage Facility	19(3)HS/HR
SEAD-2	Building 301 – PCB Transformer Storage Facility	3-301Q-L(P)
SEAD-5	Sewage Sludge Waste Piles	81(6)HS/HR
SEAD-9	Old Scrap Wood Site	90(6)PR(P)/HR
SEAD-10	Present Scrap Wood Site	3(1)
SEAD-16	Building S-311 – Abandoned Deactivation Furnace	82(6)PS/PR/HS/HR
SEAD-17	Building 367 – Existing Deactivation Furnace	80(6)PS/HR
SEAD-20	Sewage Treatment Plant No. 4	94(6)HR
SEAD-22	Sewage Treatment Plant No. 314	136(4)PR
SEAD-25	Fire Training and Demonstration Pad	79(6)HR
SEAD-26	Fire Training Pit and Area	66(6)HR
SEAD-27	Building 360 – Steam Cleaning Waste Tanks	51(5)PS/PR/HS/HR(P)
SEAD-28	Building 360 – Underground Waste Oil Tanks	51(5)PS/PR/HS/HR(P)
SEAD-30	Building 118 – Underground Waste Oil Tank	24(3)PS/PR/HS
SEAD-31	Building 117 – Underground Waste Oil Tank	25(2)PS/HS
SEAD-33	Building 121 – Underground Waste Oil Tanks	87(6)PS/PR/HR(P)
SEAD-34	Building 319 – Underground Waste Oil Tank	50(5)PS/PR/HR(P)
SEAD-36	Building 121 – Waste Oil-Burning Boilers (2 units)	87(6)PS/PR/HR(P)
SEAD-37	Building 319 – Waste Oil-Burning Boilers (2 units)	50(5)PS/PR/HR(P)
SEAD-39	Building 121 – Boiler Plant Blowdown Leach Pit	87(6)PS/PR/HR(P)
SEAD-40	Building 319 – Boiler Plant Blowdown Leach Pit	50(5)PS/PR/HR(P)
SEAD-42	Building 106 – Preventative Medicine Laboratory	27(2)PS/HS
SEAD-47	Building 321 and 806 – Radiation Calibration Source Storage	3(1) AND 98(6)PS/PR/HS/HR
SEAD-49	Building 356 – Columbite Ore Storage	45(3)HS/HR
SEAD-50	Tank Farm	72(6)HS/HR
SEAD-54	Asbestos Storage	72(6)HS/HR
SEAD-55	Building 357 – Tannin Storage	3(1)
SEAD-59	Fill Area West of Building 135	85(6)PR/HR
SEAD-64A	Debris Landfill South of Storage Pad	64(6)HR
SEAD-66	Pesticide Storage Near Building 5 and 6	92(6)HS/HR(P)
SEAD-67	Dump Site East of Sewage Treatment Plant No. 4	64(6)HR
SEAD-68	Building S-335 – Old Pest Control Shop	108(7)HS(P)/HR(P)
SEAD-71	Alleged Paint Disposal Area	89(6)HR

TABLE 6-1
SENECA ARMY DEPOT ACTIVITY
RECORD OF DECISION FOR SITES REQUIRING INSTITUTIONAL CONTROLS
Summary of Steam Cleaning Waste Tank Wastewater Analytical Results

Parameter	Concentration	Units
Volatile Organic Compounds	Not Detected	µg/L
Herbicides	Not Detected	µg/L
PCBs	Not Detected	µg/L
Total Cresol	20	µg/L
Other Semivolatile Organics	Not Detected	µg/L
Lindane	0.1	µg/L
4,4`-DDE	0.25	µg/L
Other pesticides	Not Detected	µg/L
Arsenic	40.3	µg/L
Barium	56.8 J	µg/L
Cadmium	5.4	µg/L
Chromium	43	µg/L
Copper	155	µg/L
Lead	194	µg/L
Nickel	276	µg/L
Selenium	23.4	µg/L
Silver	8 J	µg/L
Zinc	2,590	µg/L
Other Metals	Not Detected	µg/L
Density	0.999	mg/L
Total Dissolved Solids	1500	mg/L
Total Suspended Solids	330	mg/L
Total Organic Carbon	110	mg/L
Total Organic Nitrogen	3.2	mg/L
Phenol	0.01 J	mg/L
Sulfide	1.4	mg/L
pH	8.7	Standard units

TABLE 6-2
GROUND WATER ANALYSIS RESULTS - SEAD-64A
Record of Decision for Sites Requiring Institutional Controls
Seneca Army Depot Activity

							SEAD	SEAD-64A	SEAD-64A	SEAD-64A
							LOCATION ID	MW64A-1	MW64A-2	MW64A-3
							MATRIX	GRND WTR	GRND WTR	GRND WTR
							SAMPLE NUMBER	MW64A-1	MW64A-2	MW64A-3
							SAMP_DEPTH_TOP	4	3.7	3.6
							SAMP_DEPTH_BOT	9.6	7.1	7.6
							SAMP_DATE	07/19/94	07/21/94	07/07/94
							SAMPLE TYPE	SA	SA	SA
COMPOUND	UNIT	MAXIMUM	FREQUENCY OF DETECTION	CRITERIA LEVELS	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES	Value (Q)	Value (Q)	Value (Q)
METALS										
Aluminum	UG/L	1710	100%	50 (a)	3	3	3	**398**	**1710**	**379**
Barium	UG/L	74.5	100%	1000 (b)	0	3	3	42 J	74.5 J	53.4 J
Calcium	UG/L	148000	100%	NA	0	3	3	109000	148000	143000
Chromium	UG/L	3.8	100%	50 (b)	0	3	3	0.49 J	3.8 J	0.46 J
Cobalt	UG/L	4.7	33%	NA	0	1	3	0.5 U	4.7 J	0.5 U
Copper	UG/L	1.4	100%	200 (b)	0	3	3	0.61 J	1.4 J	0.97 J
Iron	UG/L	3340	100%	300 (b)	3	3	3	**773** J	**3340** J	**539**
Magnesium	UG/L	23400	100%	NA	0	3	3	16800	23400	20700
Manganese	UG/L	2040	100%	50 (a)	1	3	3	28.3	**2040**	40.6
Mercury	UG/L	0.06	100%	0.7 (b)	0	3	3	0.04 J	0.06 J	0.04 J
Nickel	UG/L	9.6	100%	100 (b)	0	3	3	1 J	9.6 J	1.9 J
Potassium	UG/L	15000	100%	NA	0	3	3	1790 J	15000 J	2010 J
Sodium	UG/L	13000	100%	20000 (b)	0	3	3	2180 J	13000	10000
Thallium	UG/L	3.3	33%	2 (c)	1	1	3	1.9 U	**3.3** J	1.9 U
Vanadium	UG/L	3	100%	NA	0	3	3	1.3 J	3 J	0.65 J
Zinc	UG/L	16	100%	5000 (a)	0	3	3	3.9 J	16 J	5.8 J
OTHER ANALYSES										
pH	Standard Units							7.4	7.4	7
Conductivity	umhos/cm							500	950	620
Temperature	^{o}C							15	21.6	13.6
Turbidity	NTU							15	80	120

NOTES:

a) Secondary Drinking Water Regulations
b) NY State Class GA Groundwater Regulations
c) Maximum Contaminant Level
NA = Not Available

U = The compound was not detected at or above this concentration.
J = The reported value is an estimated concentration.
UJ = The compound may have been present above this concentration, but was not detected due to problems with the analysis.

TABLE 6-3
SENECA ARMY DEPOT ACTIVITY
RECORD OF DECISION FOR SITES REQUIRING INSTITUTIONAL CONTROLS
SOIL ANALYSIS RESULTS - SEAD-66

							SEAD	SEAD-66	SEAD-66	SEAD-66	SEAD-66
							LOCATION ID				
							MATRIX	SOIL	SOIL	SOIL	SOIL
							SAMPLE NUMBER	SS66-1	SS66-2	SS66-3RE	SS66-4
							SAMP_DEPTH_TOP	0-0.2	0-0.2	0-0.2	0-0.2
							SAMP_DEPTH_BOT	0-0.2	0-0.2	0-0.2	0-0.2
							SAMPLE DATE	12/17/93	12/17/93	12/17/93	12/17/93
							SAMPLE TYPE				
COMPOUND	UNIT	MAXIMUM	FREQUENCY OF DETECTION	TAGM	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES	Value (Q)	Value (Q)	Value (Q)	Value (Q)
PESTICIDES/PCBs											
4,4'-DDD	ug/Kg	560	33%	2900	0	3	9	3.5 U	4.4 U	4.1 UJ	11 J
4,4'-DDE	ug/Kg	8700	89%	2100	1	8	9	4.5 J	2.5 J	3.1 J	110 J
4,4'-DDT	ug/Kg	36000	89%	2100	1	8	9	3.5 J	4.4 U	5.5 J	170
Aldrin	ug/Kg	0	0%	41	0	0	9	1.8 U	2.3 U	2.1 UJ	11 U
alpha-BHC	ug/Kg	0	0%	110	0	0	9	1.8 U	2.3 U	2.1 UJ	11 U
alpha-Chlordane	ug/Kg	16	22%	NA	0	2	9	1.8 U	2.3 U	2.1 UJ	11 U
Aroclor-1016	ug/Kg	0	0%	1000	0	0	9	35 U	44 U	41 UJ	220 U
Aroclor-1221	ug/Kg	0	0%	1000	0	0	9	72 U	89 U	84 UJ	450 U
Aroclor-1232	ug/Kg	0	0%	1000	0	0	9	35 U	44 U	41 UJ	220 U
Aroclor-1242	ug/Kg	0	0%	1000	0	0	9	35 U	44 U	41 UJ	220 U
Aroclor-1248	ug/Kg	0	0%	1000	0	0	9	35 U	44 U	41 UJ	220 U
Aroclor-1254	ug/Kg	80	44%	1000	0	4	9	43	44 U	31 J	220 U
Aroclor-1260	ug/Kg	0	0%	1000	0	0	9	35 U	44 U	41 UJ	220 U
beta-BHC	ug/Kg	0	0%	200	0	0	9	1.8 U	2.3 U	2.1 UJ	11 U
delta-BHC	ug/Kg	0	0%	300	0	0	9	1.8 U	2.3 U	2.1 UJ	11 U
Dieldrin	ug/Kg	0	0%	44	0	0	9	3.5 U	4.4 U	4.1 UJ	22 U
Endosulfan I	ug/Kg	9.4	44%	900	0	4	9	3.2	4.3	9.4 J	11 U
Endosulfan II	ug/Kg	48	33%	900	0	3	9	3.5 U	4.4 U	4.1 UJ	22 U
Endosulfan sulfate	ug/Kg	0	0%	1000	0	0	9	3.5 U	4.4 U	4.1 UJ	22 U
Endrin	ug/Kg	0	0%	100	0	0	9	3.5 U	4.4 U	4.1 UJ	22 U
Endrin aldehyde	ug/Kg	0	0%	NA	0	0	9	3.5 U	4.4 U	4.1 UJ	22 U
Endrin ketone	ug/Kg	0	0%	NA	0	0	9	3.5 U	4.4 U	4.1 UJ	22 U
gamma-BHC (Lindane)	ug/Kg	39	11%	60	0	1	9	1.8 U	2.3 U	2.1 UJ	11 U
gamma-Chlordane	ug/Kg	0	0%	540	0	0	9	1.8 U	2.3 U	2.1 UJ	11 U
Heptachlor	ug/Kg	0	0%	100	0	0	9	1.8 U	2.3 U	2.1 UJ	11 U
Heptachlor epoxide	ug/Kg	0	0%	20	0	0	9	1.8 U	2.3 U	2.1 UJ	11 U
Methoxychlor	ug/Kg	0	0%	10,000	0	0	9	18 U	23 U	21 UJ	110 U
Toxaphene	ug/Kg	0	0%	NA	0	0	9	180 U	230 U	210 UJ	1100 U
OTHER ANALYSES											
Total Solids	%W/W	99	100%	NA	0	9	9	93	74.6	79.9	75.3

NOTES:

a) TAGM = Technical and Administrative Guidance Memorandum HWR-94-4046 (January 24, 1994)
b) The TAGM value for PCBs is 1000ug/kg for surface soils and 10,000 ug/kg for subsurface soils.
c) * = As per proposed TAGM, total VOCs < 10 ppm, total SVOs < 500 ppm, and individual SVOs < 50 ppm.
d) NA = Not Available.
e) U = The compound was not detected at or above this concentration.
f) J = The reported value is an estimated concentration.
g) UJ = The compound may have been present above this concentration, but was not detected due to problems with the analysis.
h) R = The data was rejected during the data validation process.
i) N = Benzo(b)fluoranthene and benzo(k)fluoranthene peaks could not be differentiated. Combined result is reported as benzo(b)fluoranthene.

TABLE 6-3
SENECA ARMY DEPOT ACTIVITY
RECORD OF DECISION FOR SITES REQUIRING INSTITUTIONAL CONTROLS
SOIL ANALYSIS RESULTS - SEAD-66

						SEAD	SEAD-66	SEAD-66	SEAD-66	SEAD-66	SEAD-66
						LOCATION ID					
						MATRIX	SOIL	SOIL	SOIL	SOIL	SOIL
						SAMPLE NUMBER	SS66-5	SS66-6	SS66-7	SS66-8	SS66-9
						SAMP_DEPTH_TOP	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
						SAMP_DEPTH_BOT	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
						SAMPLE DATE	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93
						SAMPLE TYPE					(SS66-1DUP)
COMPOUND	UNIT	MAXIMUM	FREQUENCY OF DETECTION	TAGM	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
PESTICIDES/PCBs												
4,4'-DDD	ug/Kg	560	33%	2900	0	3	9	2.7 J	4 U	4 UJ	560 J	4 U
4,4'-DDE	ug/Kg	8700	89%	2100	1	8	9	4.7 J	4 U	4 J	**8700**	11 J
4,4'-DDT	ug/Kg	36000	89%	2100	1	8	9	9.4 J	2 J	25 J	**36000**	10 J
Aldrin	ug/Kg	0	0%	41	0	0	9	2.3 UJ	2.1 U	2 UJ	19 U	2.1 U
alpha-BHC	ug/Kg	0	0%	110	0	0	9	2.3 UJ	2.1 U	2 UJ	19 U	2.1 U
alpha-Chlordane	ug/Kg	16	22%	NA	0	2	9	2.3 UJ	2.1 U	1.3 J	16 J	2.1 U
Aroclor-1016	ug/Kg	0	0%	1000	0	0	9	45 UJ	40 U	40 UJ	370 U	40 U
Aroclor-1221	ug/Kg	0	0%	1000	0	0	9	92 UJ	82 U	81 UJ	740 U	82 U
Aroclor-1232	ug/Kg	0	0%	1000	0	0	9	45 UJ	40 U	40 UJ	370 U	40 U
Aroclor-1242	ug/Kg	0	0%	1000	0	0	9	45 UJ	40 U	40 UJ	370 U	40 U
Aroclor-1248	ug/Kg	0	0%	1000	0	0	9	45 UJ	40 U	40 UJ	370 U	40 U
Aroclor-1254	ug/Kg	80	44%	1000	0	4	9	45 UJ	40 U	24 J	370 U	80
Aroclor-1260	ug/Kg	0	0%	1000	0	0	9	45 UJ	40 U	40 UJ	370 U	40 U
beta-BHC	ug/Kg	0	0%	200	0	0	9	2.3 UJ	2.1 U	2 UJ	19 U	2.1 U
delta-BHC	ug/Kg	0	0%	300	0	0	9	2.3 UJ	2.1 U	2 UJ	19 U	2.1 U
Dieldrin	ug/Kg	0	0%	44	0	0	9	4.5 UJ	4 U	4 UJ	37 U	4 U
Endosulfan I	ug/Kg	9.4	44%	900	0	4	9	2.3 UJ	2.1 U	2 UJ	19 U	6
Endosulfan II	ug/Kg	48	33%	900	0	3	9	3.5 J	2.5 J	4 UJ	48 J	4 U
Endosulfan sulfate	ug/Kg	0	0%	1000	0	0	9	4.5 UJ	4 U	4 UJ	37 U	4 U
Endrin	ug/Kg	0	0%	100	0	0	9	4.5 UJ	4 U	4 UJ	37 U	4 U
Endrin aldehyde	ug/Kg	0	0%	NA	0	0	9	4.5 UJ	4 U	4 UJ	37 U	4 U
Endrin ketone	ug/Kg	0	0%	NA	0	0	9	4.5 UJ	4 U	4 UJ	37 U	4 U
gamma-BHC (Lindane)	ug/Kg	39	11%	60	0	1	9	2.3 UJ	2.1 U	2 UJ	39	2.1 U
gamma-Chlordane	ug/Kg	0	0%	540	0	0	9	2.3 UJ	2.1 U	2 UJ	19 U	2.1 U
Heptachlor	ug/Kg	0	0%	100	0	0	9	2.3 UJ	2.1 U	2 UJ	19 U	2.1 U
Heptachlor epoxide	ug/Kg	0	0%	20	0	0	9	2.3 UJ	2.1 U	2 UJ	19 U	2.1 U
Methoxychlor	ug/Kg	0	0%	10,000	0	0	9	23 UJ	21 U	20 UJ	190 U	21 U
Toxaphene	ug/Kg	0	0%	NA	0	0	9	230 UJ	210 U	200 UJ	1900 U	210 U
OTHER ANALYSES												
Total Solids	%W/W	99	100%	NA	0	9	9	73	82	82.6	99	82.3

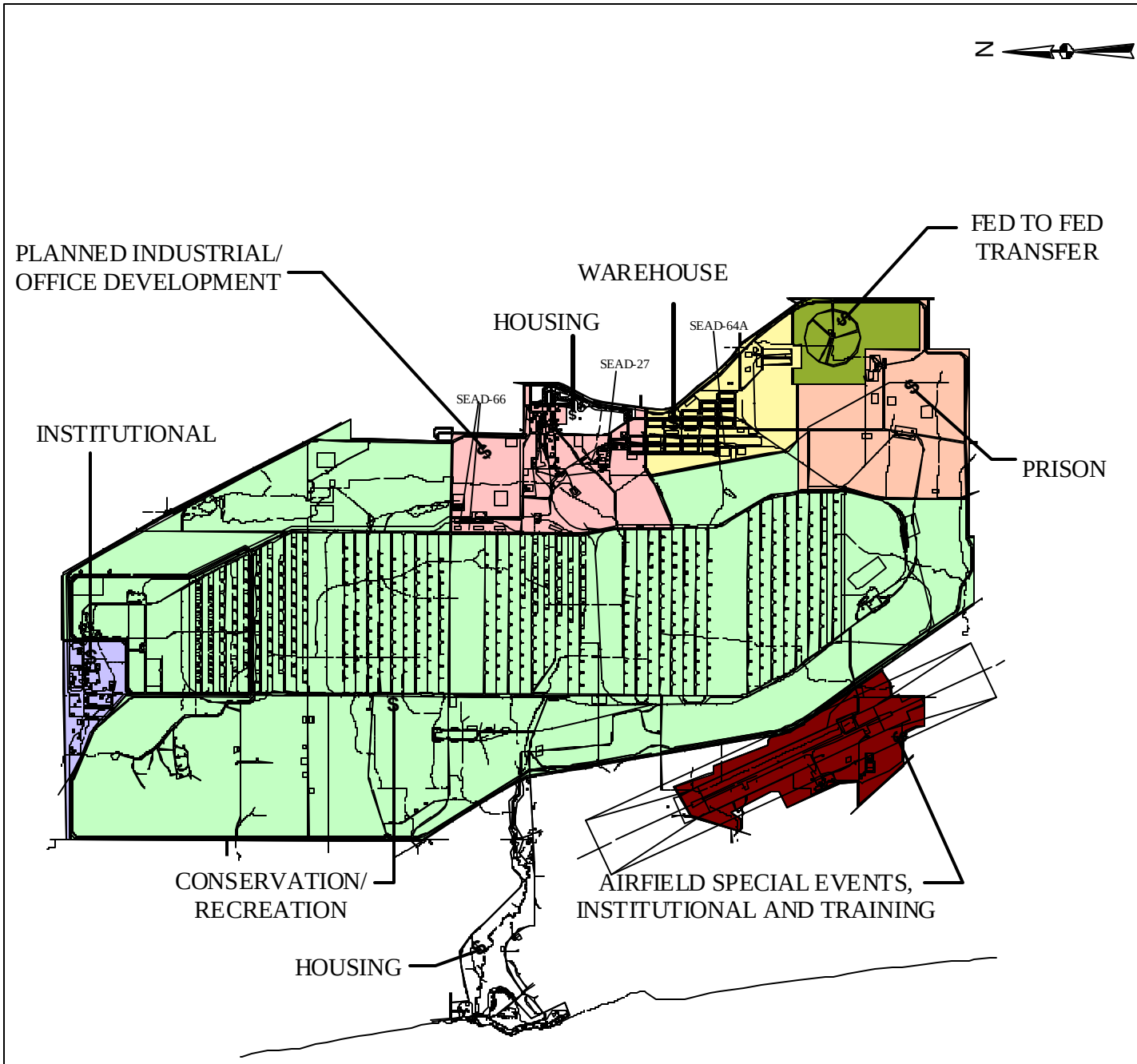
NOTES:

a) TAGM = Technical and Administrative Guidance Memorandum HWR-94-4046 (January 24, 1994)
b) The TAGM value for PCBs is 1000ug/kg for surface soils and 10,000 ug/kg for subsurface soils.
c) * = As per proposed TAGM, total VOCs < 10 ppm, total SVOs < 500 ppm, and individual SVOs < 50 ppm.
d) NA = Not Available.
e) U = The compound was not detected at or above this concentration.
f) J = The reported value is an estimated concentration.
g) UJ = The compound may have been present above this concentration, but was not detected due to problems with the analysis.
h) R = The data was rejected during the data validation process.
i) N = Benzo(b)fluoranthene and benzo(k)fluoranthene peaks could not be differentiated. Combined result is reported as benzo(b)fluoranthene.

Table 7-1
SENECA ARMY DEPOT ACTIVITY
RECORD OF DECISION FOR SITES REQUIRING INSTITUTIONAL CONTROLS
Summary of Grubb's Outlier Test
4,4`-DDT Soil Results from SEAD-66

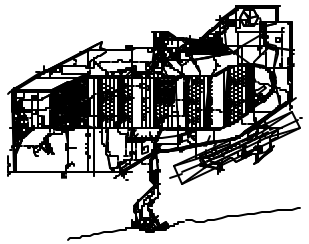
Original Sample Concentration	1.1 Data Qualifier	1.2 Substituted Value
3.5	J	3.5
4.4	U	2.2
5.5	J	5.5
170		170
9.4	J	9.4
2	J	2
25	J	25
36000		36000
10	J	10
	Mean	4023.177778
	Standard Deviation - SD (n-1)	11991.43
	Grubbs ' Test Value Z = (|mean – value|) / SD	(| 4023 – 36000|) / 11991 = 2.66666
	Critical Z Value	2.21

As the calculated Z value is greater than the critical Z value, there is less than a 5 percent chance (actually less than a 1 % chance) that the observed 36,000 ug/Kg value is anything but an outlier. Given this data analysis, the high concentration reported for 4,4`-DDT at location SS66-8 is an outlier of the data set. Additionally, as this sample location is bounded by three other locations where the measured concentrations are between 200 and 6500 times lower, it is presumed that this value is indicative of an isolated "hot spot."



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

Activities at SEADs 27, 64A, and 66 are restricted per Record of Decision.



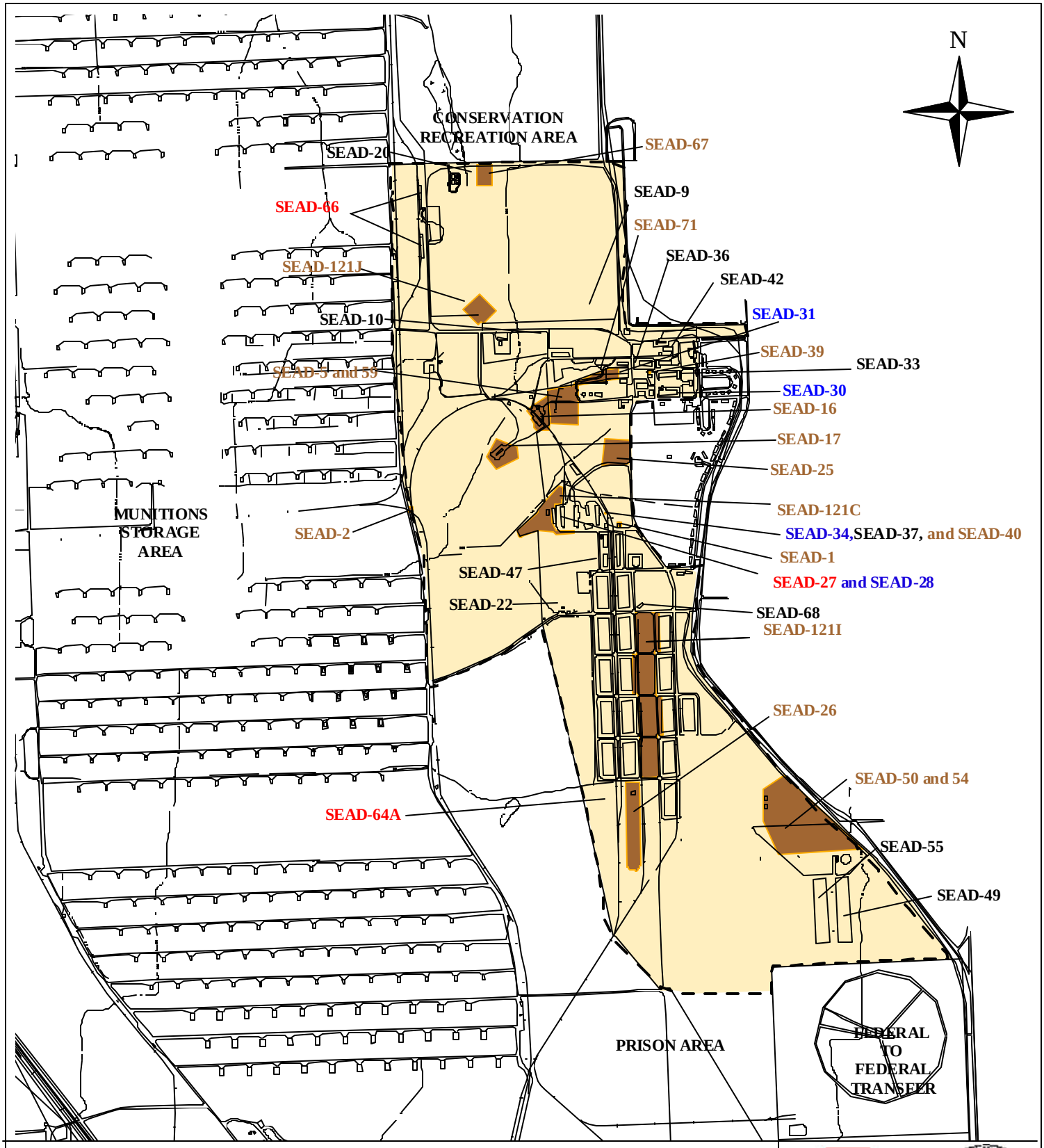
PARSONS

Seneca Army Depot Activity
Record of Decision - IC Sites

Figure 1-1
Future Land Use and
Location of IC Sites

Project: 736026-01001	March 2004

o:\seneca\noact\site map.apr\noc Sites fig1



LEGEND

Area Covered by Land Use Restriction
- No Residential Activity
- No Groundwater Use

Army Retained Property - No Unauthorized Access

SEAD-121I - Army Retained Site

SEAD-27 - Land Use Restriction Site

SEAD-55 - No Action Site

SEAD-28 - No Further Action Site

700 0 700 1400 2100 Feet

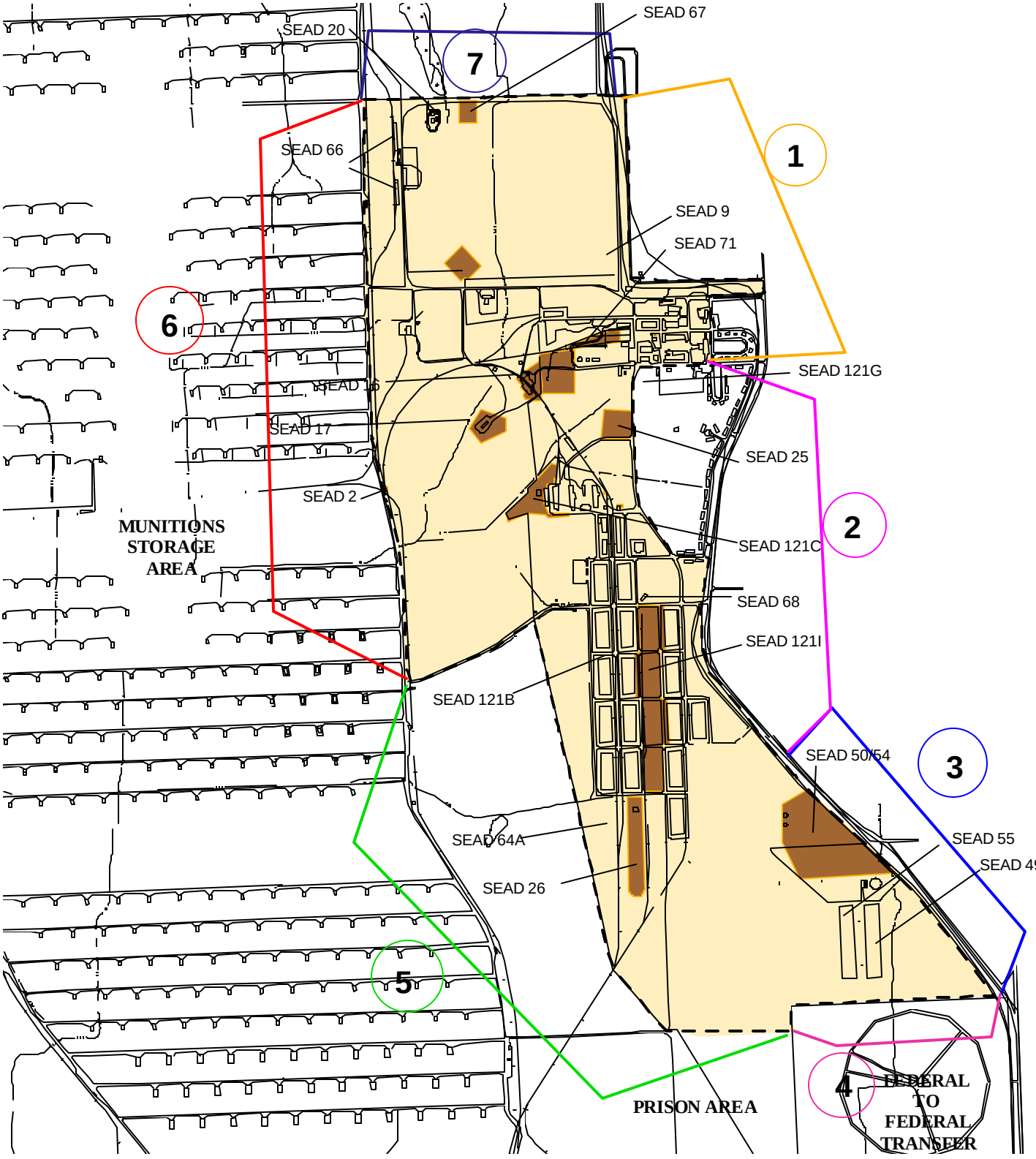
PARSONS

SENECA ARMY DEPOT ACTIVITY
Record of Decision - IC Sites

FIGURE 1-2
EXTENT OF PID AREA
LAND USE RESTRICTION

Job #: 736026-01002 | March 2004

o:\seneca\pid luc\seneca depot survey rod.apr\rod 1-2



LEGEND

N

1000 0 1000 2000 Feet

Area Covered by Restriction
- No Residential Activity
- No Groundwater Use

6 Boundary Segments Designated in Text

Army Retained Property - No Unauthorized Access

PARSONS

SENECA ARMY DEPOT ACTIVITY
Record of Decision - IC Sites

FIGURE 1-3
SITES PROVIDING BASIS OF PROPOSED LAND USE RESTRICTION

Job #: 736026-01002 | March 2004

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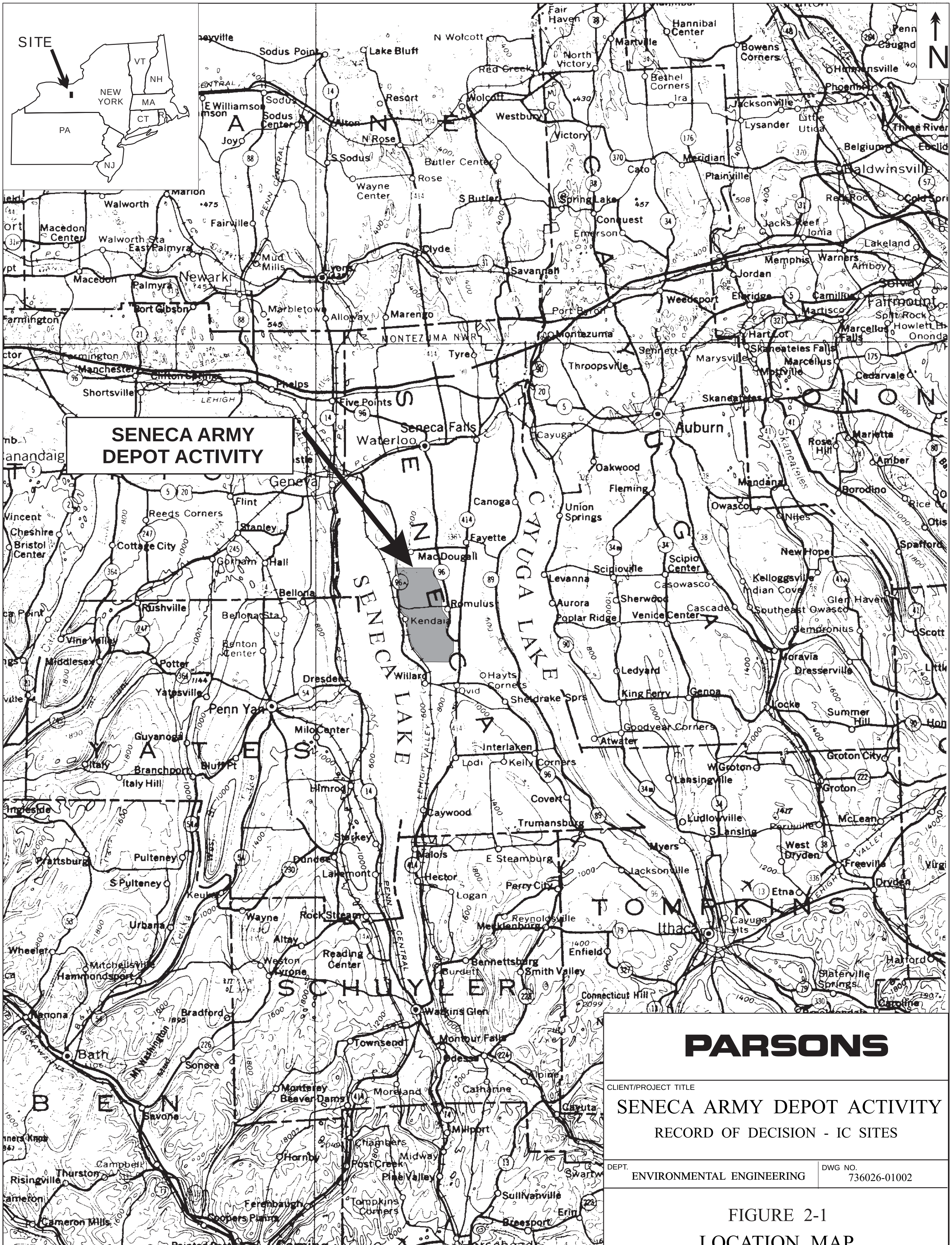


PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY

RECORD OF DECISION - IC SITES

DEPT.	DWG NO.
ENVIRONMENTAL ENGINEERING	736026-01002

FIGURE 2-1

LOCATION MAP

SCALE	DATE
1 INCH = 8 MILES, APPROX.	July 2004

P:\PIT\PROJECTS\SENECA\NO ACTION SITES - DO#21\LUC INDUS-ROD\FINAL\FIGURES\LOCMAP1.CDR

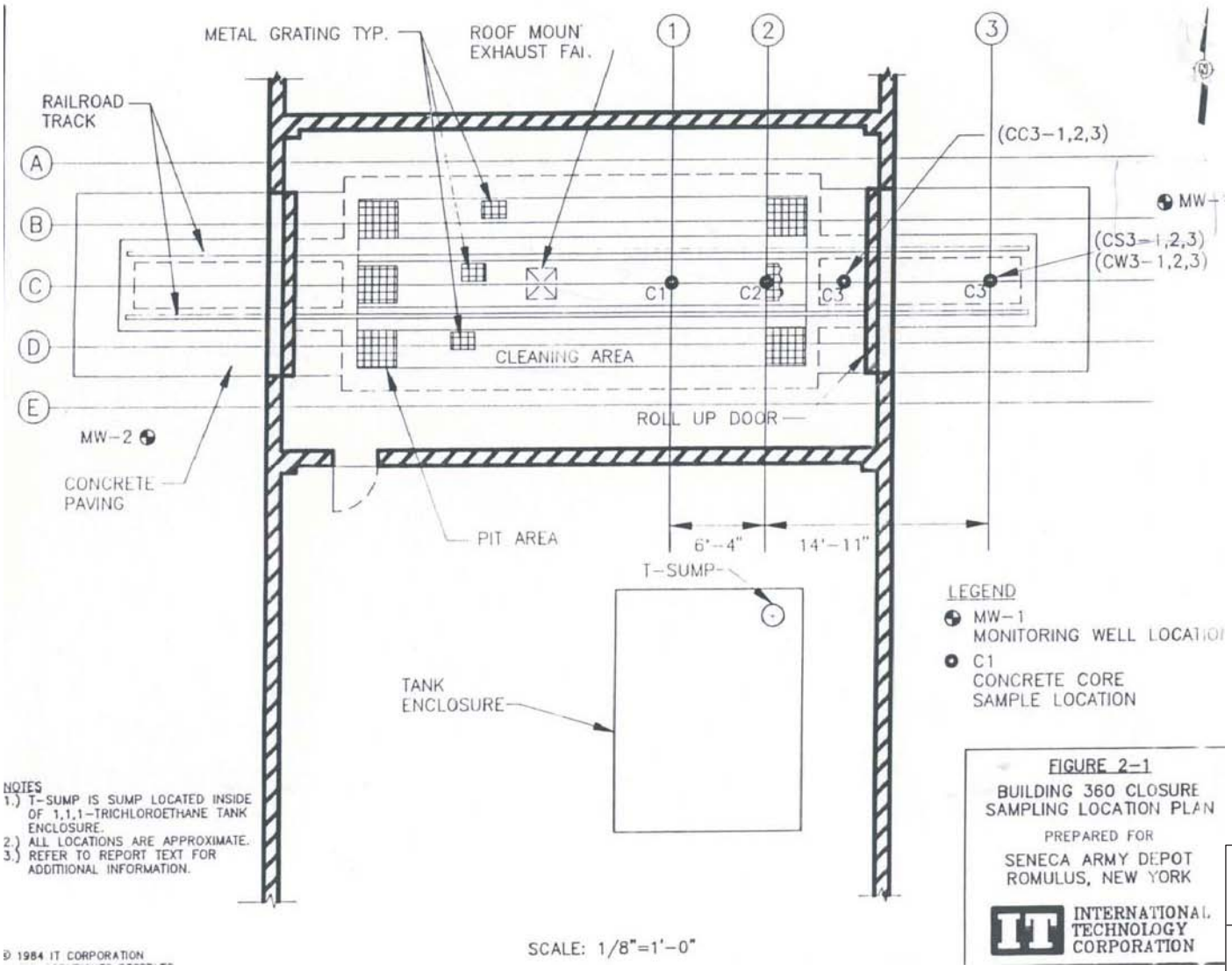


FIGURE 2-1
BUILDING 360 CLOSURE
SAMPLING LOCATION PLAN
PREPARED FOR
SENECA ARMY DEPOT
ROMULUS, NEW YORK

IT INTERNATIONAL TECHNOLOGY CORPORATION

PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

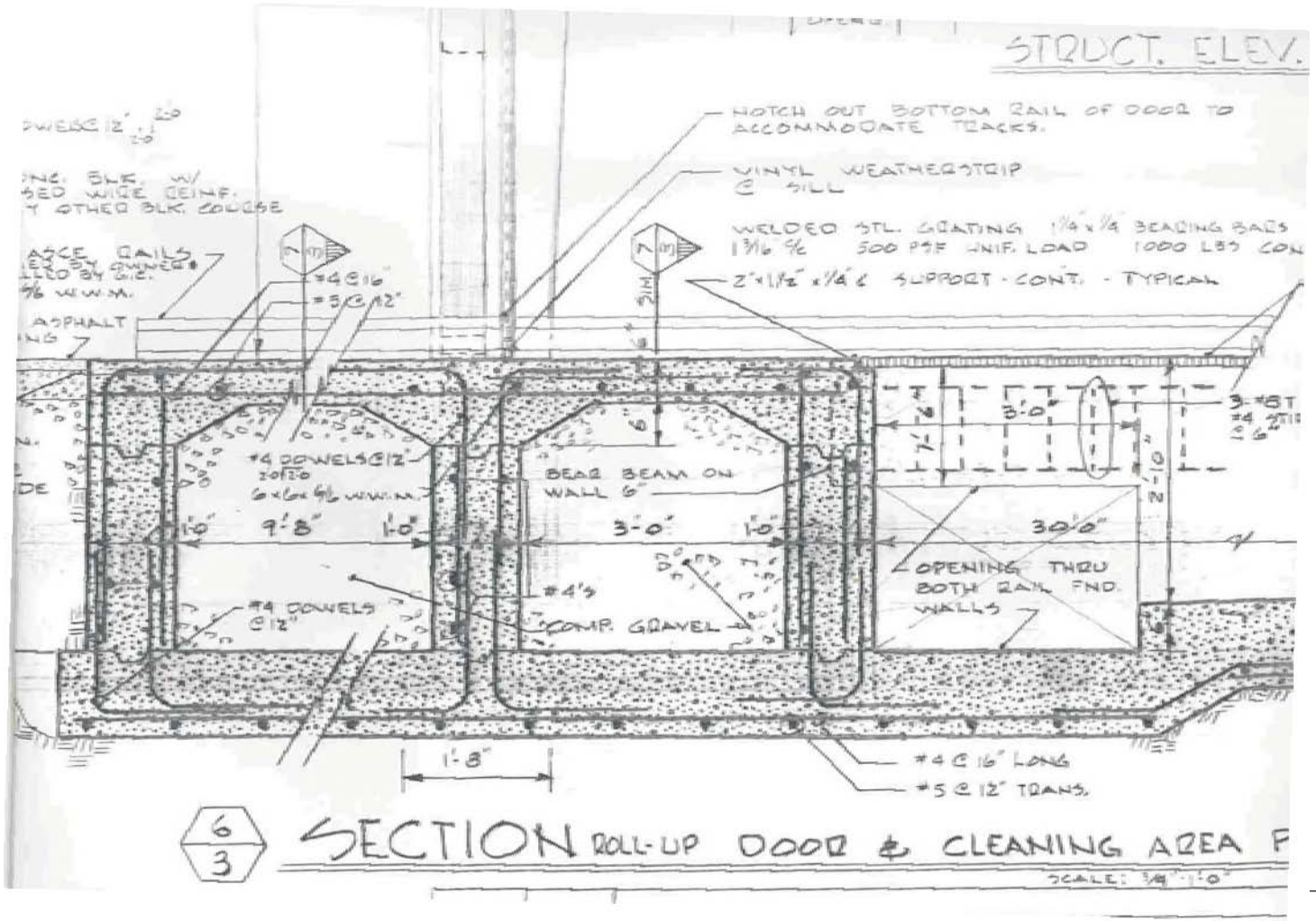
RECORD OF DECISION
SITES REQUIRING LAND USE CONTROLS

DEPT.	DWG NO.
ENVIRONMENTAL ENGINEERING	763026-01002

FIGURE 2-2

OVERHEAD VIEW
STEAM CLEANING WATER TANK
IN BUILDING 360

SCALE	DATE
NA	July 2004



PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

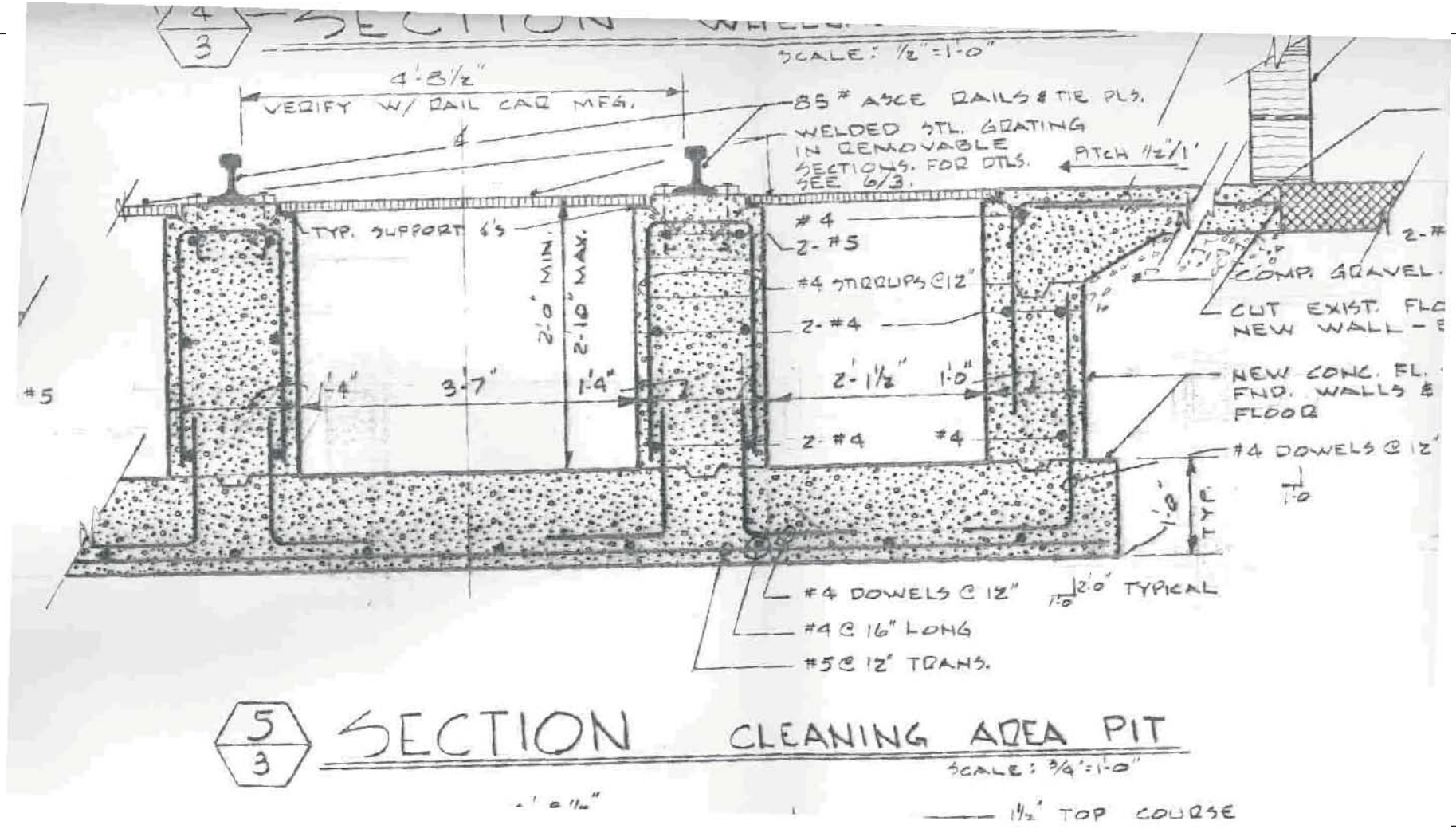
RECORD OF DECISION
SITES REQUIRING LAND USE CONTROLS

DEPT.	DWG NO.
ENVIRONMENTAL ENGINEERING	763026-01002

FIGURE 2-3

CROSS SECTIONAL VIEW
STEAM CLEANING WATER TANK
LOOKING NORTH

SCALE	DATE
NA	July 2004



PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

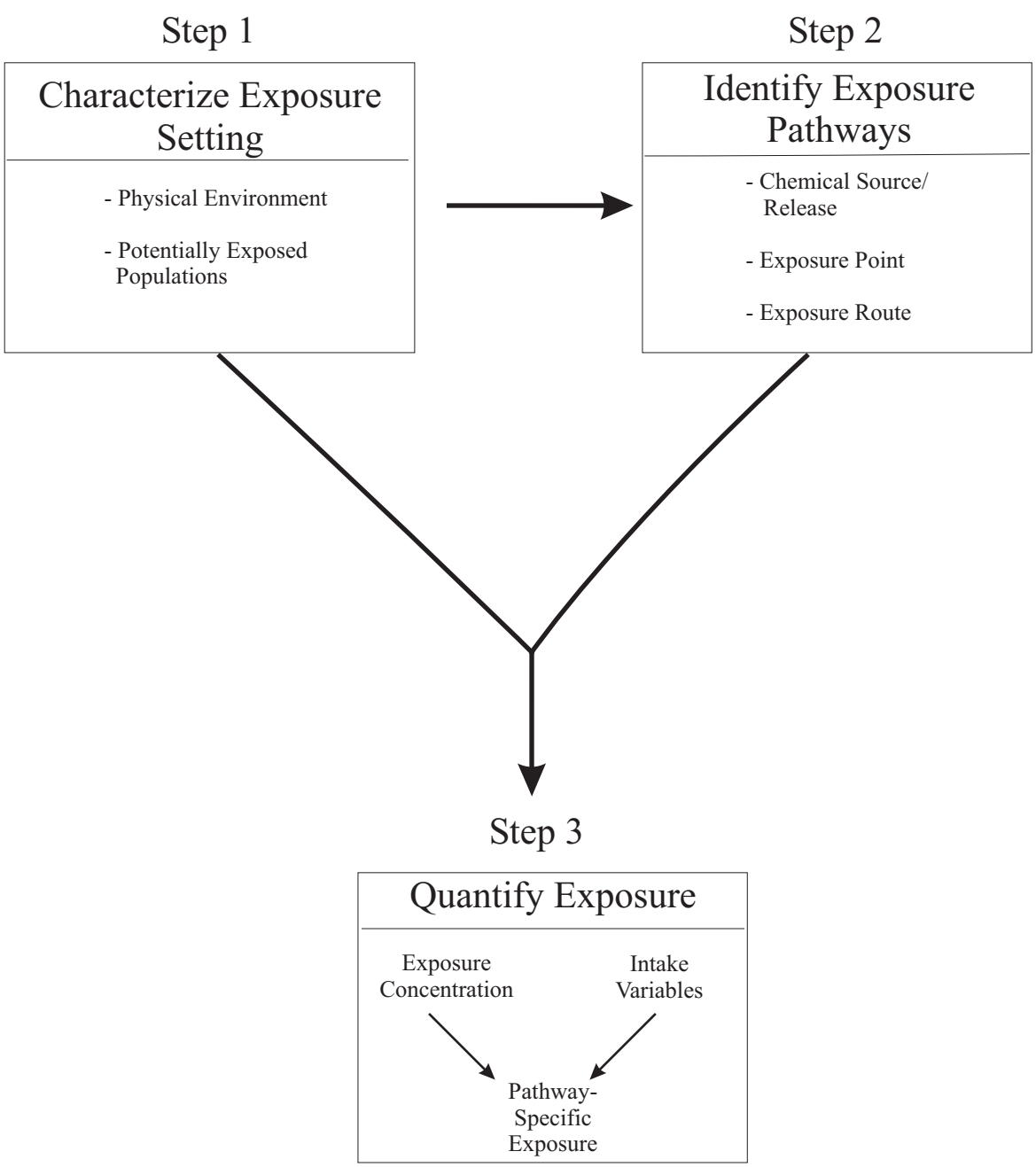
RECORD OF DECISION
SITES REQUIRING LAND USE CONTROLS

DEPT.	DWG NO.
ENVIRONMENTAL ENGINEERING	763026-01002

FIGURE 2-4

CROSS-SECTIONAL VIEW
STEAM CLEANING WASTE TANK
LOOKING WEST

SCALE	DATE
NA	July 2004



Source: US EPA 1989a

PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY

RECORD OF DECISION - IC Sites

ENVIRONMENTAL ENGINEERING	763026-01002

FIGURE 7-1

EXPOSURE ASSESSMENT PROCESS

SCALE	NA	July 2004

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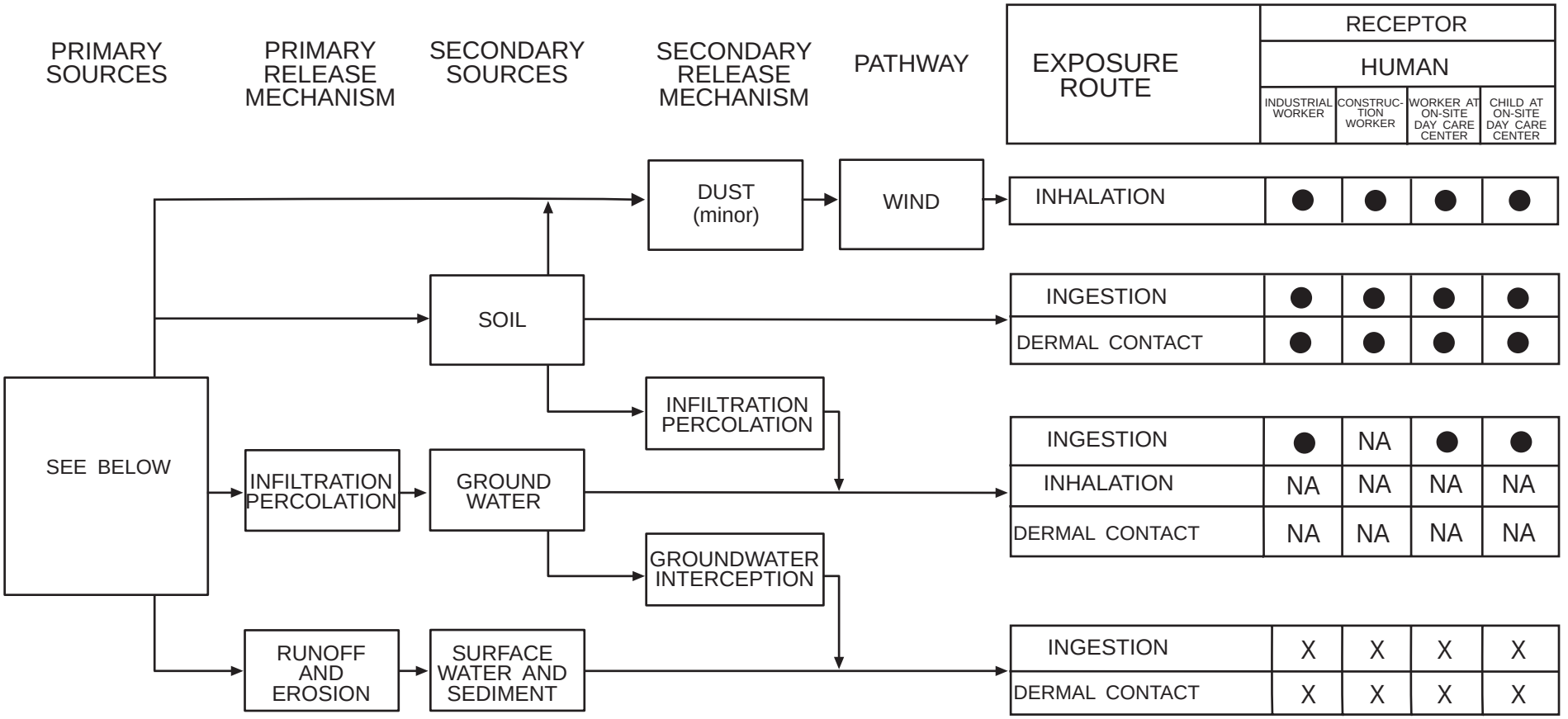

NOTE: EXPOSURE ROUTES APPLICABLE BASED ON PRESENCE OF MEDIA AT SITE AS SHOWN BELOW.

SEAD	PRIMARY SOURCE	SOIL	GW
27	STEAM CLEANING WASTE TANK	✓	✓
66	PESTICIDE STORAGE FACILITY	✓	NA

● PATHWAY CONSIDERED TO POSE POTENTIAL RISK

X PATHWAY NOT CONSIDERED

NA NOT APPLICABLE TO RECEPTOR

PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY

RECORD OF DECISION - IC Sites

DEPT. ENVIRONMENTAL ENGINEERING

DWG NO. 736026-01002

FIGURE 7-2

EXPOSURE PATHWAY SUMMARY FOR PLANNED INDUSTRIAL DEVELOPMENT SCENARIO

SCALE NA

DATE July 2004

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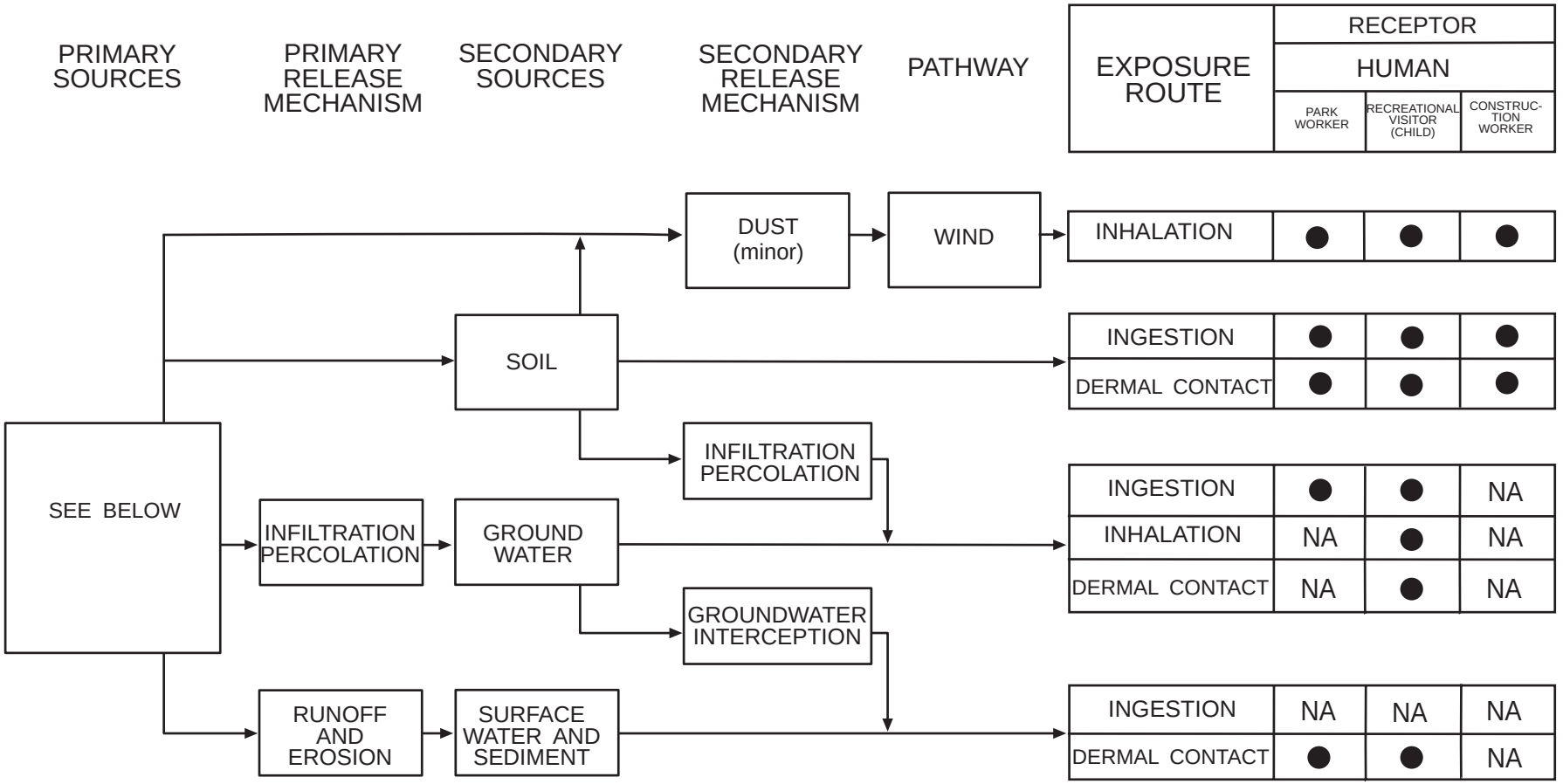

NOTE: EXPOSURE RATES APPLICABLE BASED ON PRESENCE OF MEDIA AT SITE AS SHOWN BELOW.

SEAD	PRIMARY SOURCE	SOIL	GW	SW	SED
64A	DISPOSED GARBAGE	✓	✓		

● PATHWAY CONSIDERED TO POSE POTENTIAL RISK

X PATHWAY NOT CONSIDERED

NA NOT APPLICABLE TO RECEPTOR

PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

RECORD OF DECISION
SITES REQUIRING LAND USE CONTROLS

DEPT. ENVIRONMENTAL ENGINEERING

DWG NO. 763026-01002

FIGURE 7-3

EXPOSURE PATHWAY SUMMARY FOR WAREHOUSE SCENARIO

SCALE NA

DATE July 2004

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Appendix A

Administrative Record

Site Requiring Institutional Controls in the Planned Industrial/Office Development and Warehousing Area

Seneca Army Depot Activity
Romulus, Seneca County, New York

ADMINISTRATIVE RECORD

International Technology Corporation, 1995 – Building 360 Closure, Seneca Army Depot Activity, Final - Volume I, July 1995.

NYSDEC, 2000 - Division of Water Technical and Operational Guidance Series 1.1.1 (TOGS 1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998 as amended January 1999 and April 2000.

NYSDEC, 1999 - Technical Guidance for Screening Contaminated Sediments, November 1993, as amended July 1994, March 1998, and January 1999.

NYSDEC, 1995 – letter to Mr. Stephen Absolom, Chief of Engineering/Environmental Management Division, Seneca Army Depot from Sev Chetty, Sector Supervisor, Division of Solid and Hazardous Materials, New York State Department of Environmental Conservation, dated November 10, 1995.

NYSDEC, 1994 - Technical and Administrative Guidance Memorandum #4046, Determination of Soil Cleanup Objectives and Cleanup Levels, Jan 24, 1994.

Parsons, 2002 - Decision Document, Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B, Seneca Army Depot Activity, Final, May 2002.

Parsons, 1996 - Expanded Site Inspection, Seven Low Priority AOCs, SEADs 60, 62, 63, 64(A, B, C, D), 67, 70, 71, Draft Final, April 1996

Parsons, 1995 - Expanded Site Inspection, Eight Moderately Low Priority AOCs, SEADs 5, 9, 12 (A and B), (43, 56, 69), 44(A and B), 50, 58, and 59, Seneca Army Depot Activity, Two Volumes, Draft Final, December 1995.

Parsons, 1994 - SWMU Classification Report, Seneca Army Depot Activity, Final, September 1994.

RKG Associates, Inc., 1996 – Reuse Plan and Implementation Strategy for the Seneca Army Depot Activity, December 1996.

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

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

Title 42 US Code Chapter 103, Comprehensive Environmental Response, Compensation, and Liability, Section 9620.

USACE, 1998 - US Army Corp of Engineers, St Louis District, U.S. Department of Defense Base Realignment and Closure Ordnance and Explosives Archive Search Report, Findings, Seneca Army Depot, Romulus, Seneca County, New York, Final, December 1998.

USATHAMA, 1988 - Update of the Initial Installation Assessment of Seneca Army Depot, NY, prepared by Environmental Science and Engineering Inc. (ESE), Report No. AMXTH-IR-A-157(U), August 1988.

USATHAMA, 1980 - Installation Assessment of Seneca Army Depot, Report No. 157, Aberdeen Proving Grounds, MD, January 1980.

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

USEPA, 2002 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Integrated Manual, NTIS-PB2002105715, EPA SW-846, 2002.

USEPA, 2001 - National Primary Drinking Water Standards, EPA 816-F-01-007, March 2001

USEPA, 1999 - A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents, EPA 540-R-98-031, OSWER 9200.1-23P, PB98-963241, July 1999.

USEPA, 1992 - Secondary Drinking Water Regulations, EPA 810/K-92-001, July 1992.

Woodward-Clyde Federal Services, 1997 – U.S. Army Base Realignment and Closure 95 Program, Environmental Baseline Survey Report, March 1997.

Appendix B

New York State Department of Environmental Conservation

Declaration of Concurrence

Site Requiring Institutional Controls in the Planned Industrial/Office Development and Warehousing Area

Seneca Army Depot Activity
Romulus, Seneca County, New York

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

Erin M. Crotty
Commissioner

MAR 3 1 2004

Mr. George Pavlou
Director
Emergency & Remedial Response Division
US Environmental Protection Agency
Floor 19 - #E38
290 Broadway
New York, New York 10007-1866

RE: Seneca Army Depot, Site 850006
Record of Decision
Planned Industrial / Office Development or Warehouse Areas

Dear Mr. Pavlou:

The New York State Department of Environmental Conservation and the New York State Department of Health have reviewed the above referenced ROD. The State concurs with this selected remedy as stated in the final ROD, dated March 23, 2004.

If you have any questions, please contact Dr. Chittibabu Vasudevan at (518) 402-9625.

Sincerely,

Dale A. Desnoyers
Director
Division of Environmental Remediation

cc: J. Vasquez, USEPA

bc: S. Ervolina

ecc: C. Vasudevan
J. Swartwout
J. White, Bureau A, Section C
B. Putzig, Region 8
F. Ricotta, Region 8
G. Litwin, NYSDOH
S. Bates, NYSDOH
C. Bethoney, NYSDOH
J. Vasquez, USEPA
S. Absolom, SEAD

Appendix C

Additional Data Supporting the Army's Recommended Bounds for the Area within the Planned Industrial/Office Development and Warehousing Area where Institutional Controls will be Imposed

Site Requiring Institutional Controls in the Planned Industrial/Office Development and Warehousing Area

Seneca Army Depot Activity
Romulus, Seneca County, New York

The Army recommends that the land use restrictions proposed for SEAD 27, 64A, and 66, exclusive of the proposed no digging restriction proposed for SEAD-64A alone, also be imposed and maintained on all the property within the Planned Industrial/Office Development and Warehousing Area (PID Area), as it is has been defined in the "Reuse Plan and Implementation Strategy for the Seneca Army Depot Activity" (RKG Associates, Inc., 1996). The proposed boundary for the land use restrictions for the PID Area at the Seneca Army Depot Activity (SEDA or Depot) is shown on **Figure C-1**.

The Army's proposed establishment of an area-wide set of land use restrictions is consistent with the planned reuse of the property by the Seneca County Industrial Development Authority (SCIDA) and will simplify IC implementation by having a single set of land use restrictions for the entire PID Area. Further, the extent of the proposed land use restrictions is consistent with the area that is within the bounds of a Township of Romulus, NY ordinance that requires future developers/owners to provide details of all construction/building/renovation projects that may be performed within this area to the Army and to the town managers for review and approval. Additionally, the Army contends that the proposed boundaries for the area of the proposed ICs are consistent with existing geographic, cultural, demographic, or other historic features and are supported, to the fullest extent possible, by the available analytical data collected at identified sites that are in proximity to the proposed boundary. Generally, the area where the Army proposes to implement the institutional controls is defined by historic and existing security fence lines and roadways that exist at the site. This provides a high degree of visibility, and thus certainty, as to the extent of the proposed boundary without necessitating the installation of new identification markers. Finally, with respect to recommended groundwater use/access restriction, the proposed bounds envelop an area of the former Depot where an ample public water supply is available so that a site-wide groundwater use restriction will have a minimal adverse impact on the future land use.

The Army acknowledges that portions, but not all, of the PID Area for which it is recommending that ICs be implemented as a remedial measure contains sites where hazardous wastes and materials have been used, stored, and treated or disposed. In response to this acknowledgement, the Army, under conditions of regulatory oversight, review, and approval/acceptance, has implemented numerous investigations and studies to identify areas where potential risks from exposure to environmental contaminants continue to exist. Further, as potential sites have been investigated and assessed the Army has, and will continue to, propose and implement necessary remedial actions to eliminate, lessen or control contaminants found. Finally, in accordance with requirements delineated under CERCLA Section 120(h)(3), transfers of certain property by deed will include a covenant by the United States that all remedial action necessary to protect human health and the environment has been taken prior to transfer, a covenant by the United States to undertake any further remedial action found to be necessary after transfer, and a clause granting access to the transferred property in case remedial action or corrective action is found to be necessary after transfer.

The PID Area includes No Action/No Further Action sites ("NA/NFA Sites") that have been closed out under the CERCLA process. The NA/NFA ROD (Parsons, 2003) identified sites at which either no remediation is required or no further remediation is required. The NA sites located in the PID Area include SEADs 9, 10, 20, 22, 33, 36, 37, 42, 47, 49, 55, and 68. The NFA sites located in the PID Area include SEADs 28, 30, 31, and 34. These sites are shown on **Figure C-1**. The sites listed in the NA/NFA ROD will continue to be subject to PID Area site-wide land use restrictions. However, upon request by a future property owner, the Army, USEPA, and NYSDEC will evaluate requested variance for land use restrictions in a designated area on a site-by-site basis. A copy of the NA/NFA ROD is available at the Information Repository at SEDA.

Data and information used to support the proposed boundary definition have been collected from existing reports that have been prepared for the encompassed and neighboring sites at the Depot. When the Seneca Army Depot Activity was listed on the National Priorities List (NPL), the Army, USEPA, and NYSDEC identified 57 solid waste management units (SWMUs) where historic data or information suggested, or evidence existed to support, that hazardous materials or hazardous wastes had been handled and may have possibly been released and migrated into the environment. Each of these sites was identified in the Federal Facilities Agreement (FFA) (USEPA, NYSDEC, Army, 1993) signed by the three parties, and this list subsequently expanded to include 72 sites when the Army completed the "SWMU Classification Report, *Final*" (Parsons, 1994), which was required under the terms of the FFA. Subsequently, when SEDA was approved for closure under BRAC 1995, the Army commissioned an Environmental Baseline Survey (EBS) of the entire Depot, where all property and facilities were evaluated, assessed, and classified in accordance with requirements of the Community Environmental Response Facilitation Act [CERFA 42 U.S.C. §9620(h)(4), (5)]. As a result of this work, additional sites within, and near, the area where the ICs are proposed have been investigated and analytical data are available. These data have been reviewed and the Army believes that they support the proposed boundary for the area where the ICs will be imposed.

A primary criterion used by the Army to define the proposed boundary of the area where the proposed ICs will be applied is the review of data from previous sampling events from SWMUs or EBS sites identified within and near, the bounded area. Specifically, existing analytical data and information from SEADs 2, 9, 17, 25, 26, 49, 50/54, 55, 66, 67, 68, 121B, 121C, 121D, 121E, 121F, 121G, and 121I support the Army's recommendation of the identified boundary. Data from these sites were used to define the placement of the proposed boundary for the area that would be subject to the proposed institutional controls for the PID Area. Additionally, data assessment competed via the defined protocol were used to specify proposed boundaries for sites within the PID Area that would be retained by the Army pending the completion of pending studies, investigations and remedial actions. Specific data evaluation criteria used are summarized below:

Soil and Sediment evaluation criteria:

1) All reported analytical results from the identified locations were assessed and found to be consistent with prevailing criteria for unrestricted use of the site; or
2) Human health risk assessments were completed on the site data, using maximum observed concentrations for the Mini risk assessment or RAGs assessment data. The risk assessment results indicated that the contamination identified at the site does not pose an unacceptable risk to potential future residential users of the site; or
3) Human health risk assessments were completed using the maximum concentration for contaminants identified at a site. The results indicated that there were potential risks to future residential occupants but the site data showed that the sample location(s) driving the calculated risk were bounded by other sample locations with concentrations that are acceptable for unrestricted use of the site; or
4) Identified levels of contaminants at the site exceeded the criteria for unrestricted use; however the levels were assessed and are considered to be associated with anthropogenic or other non-CERCLA regulated activities (e.g., vehicular or railroad traffic and operating releases, roofing operations, etc.). Typically, these areas are located near roads, railroad tracks, etc. where no known release occurred other than incidental contaminants from typical site activities.

Ground Water criteria:

1) If there was evidence that a ground water plume containing compounds other than metals (e.g., chlorinated volatile organic compounds in groundwater at SEADs 25, 26, and 121C) existed, the boundary was drawn outside the limits of this plume.
2) If there was a discernible contaminant plume containing non-metal contaminants present at a site, the boundary was drawn such that the existing monitoring network showed the concentrations would diminish to acceptable levels within the proposed bounded area where ICs were proposed.
3) At sites where metals were found in the groundwater, and only aluminum, iron, and manganese identified in the groundwater at levels that exceeded GA standards, we assessed whether the concentrations were indicative of regional groundwater and not releases from the site.
4) For sites where the metals aluminum, iron and manganese were found in the groundwater exceeding GA Standards, we assessed whether the concentrations were associated with elevated levels of turbidity. If yes, we determined that the concentrations were not indicative of dissolved contaminants in groundwater. If not, turbidity was not the cause of higher concentrations, we evaluated whether the concentrations were either similar upgradient of the site or simply associated with the overall geologic formation found at the Depot as opposed to specific activities conducted historically at the site.

In all cases, the SEADs either define the limit of area requiring land use controls or are sufficiently close to defining the limits given the large buffer area between the outermost sampling points and the nearest boundary. Thus, the Army contends that the proposed boundary for the area where ICs will be implemented is sufficient to ensure that the surrounding areas are suitable for their intended future use. Further, the proposed extent of the area within the bounded area encompasses a number of sites that the Army currently plans to retain pending the completion of ongoing or scheduled investigations and remedial actions. These sites, the "Retained Sites," include: SEAD 1, 2, 5, 16, 17, 25, 26, 39, 40, 50, 54, 59, 67, 71, 121C, 121I, and 121J. Each of these sites is shown on **Figure C-1**, highlighted in a dark brown color. Sites within the PID Area where groundwater data has been collected and evaluated in support of the definition of retained site and PID area boundaries are identified in **Figure C-2.**

The boundary of the area where the Army will implement land use restrictions is shown in **Figure C-3** and is approximately defined by:

1. **Northeast Boundary** (See segment 1 on **Figure C-3**)

The Army's proposed boundary line in the northeast portion of the PID Area is the former security fence line that separates the bounds of the former Depot from the surrounding community of Romulus to the east. This fence line was emplaced and patrolled by military personnel from the time of the Depot's initial construction until all military operations ceased in 2000.

The eastern edge of SEAD-9 is located approximately 100 feet west of the security fence line that separates the property of the former Depot from property in the neighboring Township of Romulus. Available soil data from SEAD-9, the Old Scrap Wood Site, support the definition of the proposed northeastern boundary for the area. SEAD-9 was investigated as part of the Expanded Site Inspection (ESI) for Eight Moderately Low Priority AOCs, beginning in 1994. As part of this effort, soil and groundwater samples were obtained and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), organochlorine pesticides and polychlorinated biphenyls (pest/PCBs), Target Analyte List (TAL) metals, cyanide and total petroleum hydrocarbons (TPH). Selected VOCs, SVOCs, pest/PCBs, metals, and TPH were detected in the soil, while metals and TPH were detected in the groundwater. The soil data are presented in **Table C-1**. The locations of the sampling points associated with SEAD-9 are shown in **Figure C-4**. Available data were used to perform a human health (industrial and residential scenario) risk assessment, and the results of this analysis were reported in the "Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B, *Final*" (Parsons, 2002). The results of the human health risk assessment showed that the total cancer risk under the five industrial exposure scenarios evaluated were within or below the USEPA's target range (1e-04 to 1e-06). Comparably, the non-cancer risk (hazard index or HI) was less than 1 for all 5 industrial receptor scenarios evaluated. Furthermore, and most importantly, the total cancer and non-cancer risk for adult and child residents were also found to be within or

below the USEPA target ranges for residential use. Therefore, this site supports the Army's proposed placement of the boundary for the sites requiring ICs. Additionally, there has been no evidence to indicate that industrial activities ever were conducted in the area between SEAD-9 and the northeast corner of the Depot. Groundwater at SEAD-9 was only found to contain metal constituents.

2. East Central Boundary (See segment 2 on **Figure C-3**)

The Army's proposed boundary line in the east central portion of the Depot is generally consistent with features that separate the Depot's former administrative, industrial, and warehousing areas from the property of the Elliot Acres Family Housing Area. The line runs along the southern side of South Street, up to the point where it intersects with Administration Avenue. From this point the proposed boundary runs along the eastern side of Administrative Avenue to the point where it intersects with 2nd Street. The boundary then runs along the southern side of 2nd Street and then along open space in a straight line until it again intersects with the perimeter security fence that lies east of the East Patrol Road. From this point, the proposed boundary continues southwardly, running along the perimeter security fence.

SEAD-121G, a rumored coal ash disposal site, is located south of Building 123 and approximately 100 feet east of the intersection of South Street and Administration Avenue. SEAD-121G was identified as a site that had not been evaluated during preparation of the EBS report (Woodward Clyde, 1996). SEAD-121G was subsequently investigated by the Army and the results of this investigation were presented in the report "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). The site investigation included the performance of geophysical surveys and the collection and analysis of four soil samples for metals and SVOCs. The location of the sampling points is shown in **Figure C-4**. A summary listing of the resulting analytical data is provided in **Table C-2**. Twenty-three SVOCs, primarily PAHs and phthalates, were detected in the recovered soil samples, but only six of the measured concentrations were found to exceed New York's recommended soil cleanup guidance levels. Specifically, one measured concentration for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and two results for dibenz(a)anthracene exceeded their respective cleanup guidance levels. The first five exceedances observed for the PAHs were collocated in a single surface soil sample where no evidence of coal ash was detected in the sample collected. Coal ash was observed in the lower sample where no PAHs were detected. Thus, no correlation of PAHs to coal ash exists, and the observed PAHs are a result from other anthropogenic sources that are located throughout the PID Area. Nine different metals were detected in the four soil samples, but only three of the measured levels (i.e., 2 for lead, and 1 for thallium) were above New York's recommended soil cleanup guidance values. Both of the lead levels were less that the recommended federal soil cleanup level for residential areas (i.e., 400 mg/Kg). The thallium concentration was similar to levels reported in blank samples collected during the program.

Based on these data, no further action or investigations were recommended for SEAD-121G, and thus this indicates that the proposed boundary in this portion of the Depot is appropriate.

SEAD-121F (Building 135) is located approximately 250 feet west of the intersection of South Street and Administration Avenue, immediately south of the westerly continuation of South Street, and 175 feet west of the IC boundary. SEAD-121F (Building 135) was identified as a site where hazardous substances had been released during preparation of the EBS report (Woodward Clyde, 1996). SEAD-121F was subsequently investigated by the Army and the results of this investigation were presented in the report "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). A summary listing of this data is provided in **Table C-3**. The location of the sampling points is displayed on **Figure C-4**. Three soil samples were collected from within the building, and each sample was analyzed for VOCs, SVOCs, TPH, and lead. Two VOCs, acetone and toluene (suspected laboratory artifacts), were detected in the soil; however, neither compound was found at a level that exceeded its respective recommended soil cleanup guidance value. Twenty-five SVOCs, primarily PAHs and phthalates, were detected in the recovered soil samples, but only three of the measured concentrations were found to exceed New York's recommended soil cleanup guidance levels. Specifically, measured concentrations of benzo(a)pyrene and dibenz(a)anthracene exceeded their respective cleanup guidance levels by less than a factor of two. TPH was also found in each of the collected samples, but the maximum concentration was 419 mg/Kg. There is no recommended federal or State of New York cleanup level for TPH, but residential regulatory cleanup levels specified in other neighboring states are all higher than 500 mg/Kg. Lead was also detected in each sample, but the maximum concentration found is less than the recommended federal soil cleanup for residential areas. Based on these data, no action or investigations were recommended for SEAD-121F.

Available data from SEAD-25, the Fire Training and Demonstration Pad, also supports the proposed east-central boundary definition. SEAD-25 is located immediately west of Administration Avenue across from the Elliot Acres Family Housing Area. No areas of concern were identified in the region between Administration Ave. and the housing area. An ESI was performed at SEAD-25 in 1993 and reported in "Expanded Site Inspection, Seven High Priority SWMUs, SEAD 4, 16, 17, 25, 26, and 45, *Final*" (Parsons, 1995). Components of the ESI included geophysical surveys, surface soil sampling, monitoring well installation and groundwater sampling. Subsequently, a RI was conducted at SEAD-25 in 1995 and the results of this work are documented in the "Remedial Investigation Report at SEAD-25 and SEAD-26, *Final*" (Parsons, 1998). The RI included soil gas and groundwater headspace surveys, surface and subsurface soil sampling, groundwater investigation in both overburden and bedrock aquifers, surface water sampling, and sediment sampling. Samples collected during the ESI and RI were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, herbicides, TAL metals and cyanide, nitrates, and Total Recoverable Petroleum Hydrocarbons (TRPH). Samples of each media were collected from locations along Administration Avenue on the east side of SEAD-25. A summarized version of the soil and sediment samples closest to the east

side of SEAD-25 is presented as **Table C-4**. Contaminants were found in the soils and sediment in the central and southern portion of SEAD-25 (approximately 300 feet from Administrative Ave.) and a VOC plume was identified within the SWMU, but the groundwater flow is towards the southwesterly direction, which is away from the proposed PID area boundary. The extent of the map plume in SEAD-25 is shown on **Figure C-5**. Results of an ecological and human health risk assessment completed for SEAD-25 indicate that contaminants found in the sediment and groundwater could pose a risk to human receptors, but these findings are the basis for pending proposed Remedial Actions at the site, as documented in the "Proposed Plan for SEAD-25 and SEAD-26, *Final*" (Parsons, 2002). As is seen from the review of the summarized data, these results indicate that no analytes were detected in any of the soil, groundwater, sediment, and surface water samples collected from locations along Administration Avenue, which substantiates the appropriateness of the boundary.

Available data from SEAD-68, Building S-335 Old Pest Control Shop, also supports the proposed east-central boundary definition. These data are presented in **Table C-5**. SEAD-68 was investigated as part of the EBS of Non-Evaluated Sites conducted in 1998. SEAD-68 was identified as a moderate priority site, and the investigation and data are presented in "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). These data were subsequently used in the "Decision Document – Mini Risk Assessment, SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 70, and 120B, *Final*" (Parsons, May 2002) to conduct residential and industrial scenario human health risk assessments. The results of the human health risk assessment showed that the total cancer risk for all industrial receptors were less than the USEPA target range (1e-04 to 1e-06). Comparably, the non-cancer risk (hazard index or HI) was less than 1 for all the industrial receptor scenarios evaluated. Furthermore, and most importantly, the total cancer and non-cancer risk for adult and child residents were also found to be within or below the USEPA target ranges for residential use. No other areas of concern have been identified to the east of SEAD-68, in the area between the SWMU and the boundary of the PID Area.

3. Southeastern Boundary (See segment 3 on **Figure C-3**)

SEAD-50/54, the Tank Farm, is located in the southeastern corner of the area where the Army has proposed ICs and extends up to the security fence line that separates the property within the former Depot from the properties in the neighboring Township of Romulus. An ESI of these sites was conducted in 1993, and included the collection and analysis of soil, groundwater, surface water, and sediment samples. Results from these samples were first presented in the report for the "Expanded Site Inspection of Eight Moderately Low Priority AOCs, SEADs 5, 9, 12 (A and B), (43, 56, 69), 44 (A and B), 50, 58, 59, *Draft Final*" (Parsons, 1995). Subsequently, these data were presented in the "Action Memorandum and Decision Document, Time-Critical Removal Actions, Four Metals Sites (SEADs 24, 50/54, & 67), *Final*" (Parsons, 2002). Based on these data, the Army recommended and

completed a Time-Critical Removal Action of soil and ditch soil contaminated by selected metals and PAH compounds in late 2002 and early 2003. As part of this effort, additional soil samples were collected and analyzed for metals and PAHs to confirm that the extent of the excavation was sufficient to eliminate any immediate threat identified at the sites. The sample locations along and closest to the southeast boundary are presented in **Figure C-6.** Data from these additional analyses were presented in the "Completion Report for the Time-Critical Removal Action at the Tank Farm (SEAD-50/54), *Final*" (Weston Solutions, Inc., 2003) and are summarized in **Table C-6**. The conclusion drawn from a review of the soil data indicated that identified concentrations of three key metal contaminants (i.e., arsenic, mercury, zinc) had been reduced throughout the site to levels that were consistent with New York's recommended soil cleanup criteria levels.

The location of the southeastern boundary is also supported by available data from SEADs 49 and 55 presented below.

4. Southern Boundary (See segment 4 on **Figure C-3**)

Available data from SEAD-49, Building 356 – Columbite Ore Storage Area, supports the proposed southern boundary definition. SEAD-49, which is located immediately north of the land that was included in the federal agency to federal agency transfer, stored Columbite ore. Once the ore was moved out of Building 356, the building was swept clean. In 1993, NYSDEC and NYSDOH performed a radiological survey of SEAD-49, which concluded that there were no residual levels of radiological activity above typical background levels. The results of the survey are presented in the "Decision Document, Twenty-Two No Further Action Sites, Seneca Army Depot activity, *Final*" (Parsons, 2002). SEAD-49 was first proposed as a No Action SWMU in the Final SWMU Classification Report (Parsons, 1994). The recommendation for No Action is the approved remedy for SEAD-49, as documented in the "Record of Decision, Twenty No Action SWMUs and Eight No Further Action SWMUs, *Final*" (Parsons, 2003).

Available data from SEAD-55, Building 357 – Tannin Storage, further supports the proposed southern boundary definition. SEAD-55, which is located next to SEAD-49 to its west, stored Columbite ore and Tannin. Once both the ore and Tannin were removed from Building 357, the building was swept clean and there was no evidence of a Tannin release. In 1993, NYSDEC and NYSDOH performed a radiological survey of SEAD-55, which concluded that there were no residual levels of radiological activity above typical background levels. The results of the survey are presented in the "Decision Document, Twenty-Two No Further Action Sites, Seneca Army Depot activity, *Final*" (Parsons, 2002). SEAD-55 was first proposed as a No Action SWMU in the Final SWMU Classification Report (Parsons, 1994). The recommendation for No Action is the approved remedy for SEAD-55, as documented in the "Record of Decision for Twenty No Action SWMUs and Eight No Further Action SWMUs, *Final*" (Parsons, 2003). No areas of concern have been identified in the region east of SEADs 49 and 55, between Buildings 356 and 357 and the SEDA security fence.

Available data from SEAD-26, the Fire Training Pit and Area, which is located near the south-central to southwestern border of the area where the Army has proposed that ICs will be imposed are presented in **Table C-7**, and also supports the placement of the recommended boundary. SEAD-26 is located within a distance of between 500 (west) and 1300 (south) feet of the varying segments of the proposed IC boundary. Based on the results of the RI performed in this area ["Remedial Investigation Report at the Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area, *Final*" (Parsons, 1998)], the Army has determined that the most significant impact to the soil results from SVOCs, including predominantly benzo- or "carcinogenic" PAHs, being present in the surface and subsurface soil. **Figure C-7** presents sample locations at SEAD 26 closet to the southern boundary. Other chemical constituents, including VOCs, metals, pesticides, PCBs and nitroaromatics, were also found in the surface and subsurface soil, but concentrations detected for these chemicals were all below New York recommended soil cleanup guidance levels. Chemical contaminants, principally including fuel-type constituents (e.g., benzene, toluene, xylene, naphthalene, etc.), were also detected in groundwater at SEAD-26 at concentrations that exceeded New York GA groundwater standards. However, the identified extent of the fuel-type constituents was very limited, restricted to a single well located near the middle of the SWMU. Data collected during the RI have been used to conduct industrial and residential scenario risk assessments for the site. The results of the baseline risk assessment at SEAD-26 indicate that the cancer risks for all of the receptors evaluated were within the USEPA target risk range. Table 7-4 within the "Record of Decision (ROD), The Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area (SEAD-26), *Draft Final*" (Parsons, 2003) provides the results for total carcinogenic and non-carcinogenic risks. With respect to noncarcinogenic risk, the child receptor under the future residential scenario had a HI that slightly exceeded the target value (1.3) due to dermal contact with groundwater and ingestion of site soils. The current site worker did not exhibit excess risk of cancer above the USEPA target range or a potential for adverse non-carcinogenic health threats. Based on this determination, the Army has recommended that a remedial action including the excavation of surface soils containing total carcinogenic PAH concentrations above 10 ppm be performed, and that semi-annual groundwater monitoring be performed to monitor whether there is any expansion of the isolated groundwater plume. The soil excavation is limited to an estimated 1050 cubic yards, and this soil is scheduled to be removed from four discrete areas within the SEAD; thus, each of these locations is at least 500 feet away from the nearest proposed boundary of the area to be covered by the proposed ICs within the PID Area.

A summary of the extent of the groundwater plume found in SEAD-26 is presented in **Figure C-8**.

The location of the proposed southern boundary is also supported by data from SEAD-50/54 summarized above.

5. Southwestern and West Central Boundary (See segment 5 on **Figure C-3**)

The Army's proposed boundary line in the southwestern and west central portion of the Depot runs along an fence line that separates the Depot's former industrial and warehousing areas from property that formerly was within the Depot's Munitions Storage Area. At the point where this fence crosses over 3rd Street, the proposed boundary runs along the southern edge of 3rd Street to the point where it intersects Fayette Road.

SEAD-64A is located west of SEAD-26, between it and part of the Army's proposed westerly border of the area where the proposed ICs will be implemented. As is discussed earlier in this document, contaminants identified in the soil at SEAD-64A do not pose a threat to residential populations, but the calculated non-cancer risk hazard index is driven by the concentration of manganese identified in the groundwater. The soil data are presented in **Table C-8**. However, due to the presence of a potable water distribution system within the PID Area, this concern does not affect the Army recommended location of the boundary for the imposition of the ICs. Further, the geological formation of silty clay glacial till restricts the migration of contaminants as evident by the adjacent site, SEAD-26. This further supports the proposed boundary for the IC.

Available data from SEAD-121I, the Rumored Cosmoline Oil Disposal Area, supports the proposed location of the IC area boundary lines on both the eastern and western sides of the PID Area, within the central portion of the PID Area. These data are presented in **Table C-9**. SEAD-121I was first investigated as part of the EBS of Non-Evaluated Sites conducted in 1998. The SWMU was identified as a low priority site, and the initial investigation and data are summarized in "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). Additional fieldwork was conducted at SEAD-121I in 2002-2003, which included surface soil, surface water, and ditch soil sampling. The data from the recent sampling activities are presented in "Field Sampling Report at Two EBS Sites in the Planned Industrial Development Area, *Draft*" (Parsons, 2003). Soil samples collected between SEAD-121I and the eastern boundary of the area where the Army proposes to implement ICs indicate the presence of many compounds, dominated by SVOCs and metals. Sample locations along the western boundary are presented in **Figure C-7**. The identified PAHs were present at concentrations in excess of New York's recommended soil cleanup criteria values, but at collected concentrations much lower than the 10 ppm combined threshold that has been proposed for the cleanup at SEAD-26 and below the levels that were found not to pose any risk to residents at SEAD-9 (summarized above). However, the random distribution of total PAHs within SEAD-121I and around the border of the identified SEAD suggests that there is not a focused definitive source of the identified PAHs, and that they most likely result for a combination of typical industrial/commercial operations (e.g., shipping, receiving, transportation, maintenance, roofing, paving, etc.) that have been performed within this area, and which continue to be conducted in this area. Similarly, with the exception of samples collected in the vicinity of railroad tracks, roadways, and identified strategic ore piles that

are staged in SEAD-121I, metals concentrations found are generally consistent throughout SEAD-121I and the area to the east and west of the site.

Soil samples were collected at three locations within the bottom of a man-made drainage ditch excavated to bedrock located approximately 700 feet west of the identified SEAD, and upgradient of the proposed IC area boundary and were found to contain few analytes at levels of interest (low levels of acetone, which is identified as an artifact of sampling, a few PAHs, and metals). All metals detected in the drainage ditch soil samples to the west of SEAD-121I were less than the concentrations found in samples collected from within the bounds of SEAD-121I, and at levels that are not different from the background levels determined at the Depot.

Data from SEAD-121B, the area to the north of Building 325 (PCB Oil Spill), are presented in **Table C-10**, and add further evidence to the definition of the western boundary of the PID Area, which is approximately 350 feet west of the SWMU. SEAD-121B is located along Avenue A in the southwestern portion of the PID Area. After the initial EBS report (Woodward Clyde, 1996) was completed in 1995, additional sites were selected for assessment of their environmental condition. SEAD-121B was investigated as part of the Environmental Baseline Survey of Non-Evaluated Sites conducted in 1998. SEAD-121B was identified as a low priority site, and the investigation and data are summarized in "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). As part of this effort, three surface soil samples and one subsurface soil sample were collected in the area (see **Figure C-7**), and each sample was analyzed for VOCs, SVOCs, PCBs, and TPH. Two VOCs, acetone and toluene, were detected in the soil; however, neither compound exceeded its respective New York recommended soil cleanup criteria value. The SVOCs detected in the soils samples included PAHs and five phthalate compounds. Seven PAHs were detected above their respective New York recommended soil cleanup criteria levels. The presence of PAHs is typical of light industrial activity. Only one PCB compound was detected, and this was found at a concentration below its recommended soil cleanup level. TPH was found in three samples with a maximum detection of 1360 mg/kg. There is no New York State soil cleanup criteria for TPH. Based on the data, the Army recommended no action for SEAD-121B.

SEAD-121C, the Defense Reutilization and Marketing Office (DRMO) Yard, is located in the central portion of the proposed area where ICs are recommended by the Army. The westernmost tip of SEAD-121C is located approximately 1400 feet east of the Army's proposed western boundary line for the PID IC area and the former Munitions Storage Area. Available sampling and analysis data from SEAD-121C support the proposed western boundary definition separating the PID Area from the Munitions Storage Area. These data are summarized in **Table C-11**. SEAD-121C was investigated as part of the Environmental Baseline Survey of Non-Evaluated Sites conducted in 1998, and the results of this work are summarized in "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). Additional

fieldwork was conducted at SEAD-121C in 2002-2003, including surface and subsurface soil, groundwater, surface water, and ditch soil sampling and analysis. The data from the recent sampling activities and the original EBS effort completed in 1998, are presented in "Field Sampling Report at Two EBS Sites in the Planned Industrial Development Area, *Draft*" (Parsons, 2003). The general results of this sampling indicate that surface and subsurface soils contain varying levels of TCL and TAL constituents, dominated by metals and PAH compounds. However, this data also indicates that the highest levels of identified PAH and metal (i.e., copper, lead, and zinc) contaminants are located within the defined bounds of SEAD-121C in a few isolated areas where heavy historic operations have been conducted. One exception to this is an anomalous level of PAHs, which is located to the south and east of the SEAD, which is away from the direction of the proposed boundary line.

Data collected for groundwater in the area of SEAD-121C are presented and summarized in **Figure C-9**.

SEAD-17 is located in the central portion of the area where the Army has recommended that ICs be imposed. The western edge of SEAD-17 is located approximately 1500 feet east of the west central portion of the proposed boundary for the area to be covered by the ICs (see **Figures C-1, C-2 and C-10**). SEAD-17 is one of the sites that the Army will retain pending completion of proposed remedial actions. Recently, the Army issued the "Proposed Plan for the Abandoned Deactivation Furnace (SEAD-16) and the Active Deactivation Furnace (SEAD-17), *Revised Final*" (Parsons, 2003) which identifies site conditions at SEAD-17 and presents the proposed plan for pending remedial action at the site. Within this document, the Army states "the primary COCs at the Active Deactivation Furnace (SEAD-17) are the metals antimony, arsenic, copper, lead, mercury, and zinc in soils. PAHs and pesticides found in sediments are also of significance. All of these contaminants are likely to have been released to the environment during the Active Deactivation Furnace's period of operation (approximately 1962 to 1989)."

Based on the data obtained from SEAD-17, the Army has delineated the area that it proposes to be subject to remedial action at SEAD-17, in order to eliminate the threat that has been identified. At present, the area requiring the proposed removal action is limited to an area that is more than 1000 feet east of the proposed boundary for the area where the ICs will be imposed. Furthermore, available data provided in the RI Report for SEAD-17, indicate that identified concentrations for the identified risk driving chemicals are decreasing as one moves from the site towards the Army's proposed boundary for the area where ICs will be imposed. Pertinent data are summarized in **Table C-12**. This is consistent with the supposition that the contamination is a result of surface deposition of the contamination resulting from fugitive emissions of the deactivation of ammunition through the furnace. An analysis of the prevailing winds demonstrate that the wind direction flows in the opposite direction from the proposed boundary, which adds further evidence supporting the Army position that the boundary proposed does not have contamination that would require restrictions.

The results of groundwater monitoring in the vicinity of SEAD-16 and SEAD-17 are presented and summarized in **Figure C-11**.

6. Northwestern Boundary (See segment 6 on **Figure C-3**)

Fayette Road is an existing man-made feature that separates the Planned Industrial/Office Development Area from the Conservation/Recreational Area to the west and northwest. Historically, Fayette Road represented the western most extent of the land that the Army previously used for industrial/commercial/institutional activities around the Main Gate of the former Depot operation.

SEAD-2, the Transformer Storage Building (Building 301), is located approximately 100 feet due east of a portion of the proposed western boundary line separating the area where ICs will be implemented and land that was recently transferred to the SCIDA for recreational/conservation use. SEAD-2 is another one of the sites that is being retained by the Army pending the completion of remedial actions, in this case, a final RCRA closure. Closure was performed in the second quarter of 2003, and the report, "RCRA Closure Report, Building 307, Hazardous Waste Container Storage Facility; Building 301, Transformer Storage Building, *Draft*" (Parsons, 2003), was submitted to NYSDEC for review/comment/approval in the third quarter of 2003. Summary data are presented in **Table C-13**. Within the report, the Army indicates that soil samples were collected and analyzed for VOCs, SVOCs, metals, and PCBs, and that no VOCs or PCBs were detected in materials surrounding the building at levels exceeding state recommended soil cleanup objectives. Thirteen SVOCs and six metals were detected at concentrations greater than recommended soil cleanup levels.

The report also indicates that:

> "The surface surrounding Building 301 was comprised of a tar/asphalt and gravel material on the north, east and west sides …. The south side surface was grassy. On the east side, the surface soil samples were collected within 7 feet of the railroad tracks … and sample location 07 and 08 were 3 feet and 1.5 feet from the railroad tracks, respectively. Additionally, all samples were collected from within 2 feet of the Building 301 wall, with the exception of sample 04, which was approximately 8 feet from the wall. Sample 04 was moved 8 feet from the wall to avoid a concrete pad so that native soils could be sampled."

> "The field crew removed the top cover of asphalt/tar and attempted to only sample the underling soil. Attempts were made to remove any asphalt/tar material before collecting the sample."

Given this additional information, the Army considers the identified contamination to be associated with anthropogenic conditions and not directly associated to any release within the identified SWMU. Regulatory review of this site is still pending.

SEAD-66, the Pesticide Storage Area near Building 5 and 6, is located approximately 400 feet east of Fayette Road and is the only identified SWMU within the immediate area. As is presented and

discussed earlier within this document, eight soil samples were collected and analyzed for pesticides from SEAD-66. **Figure C-10** presents the soil sample locations. The results of the residential scenario risk assessment indicate that there is a slightly elevated non-cancer hazard index for a child resident based on the inordinately high concentration of 4,4`-DDT reported from a single sample at the site. However, as is also discussed, the surrounding samples show considerably lower concentrations of the same compound, suggesting that this sample is an outlier of the data set and therefore, not representative of the conditions that exist throughout the area of SEAD-66. Given this discrepancy and the presence of the surrounding data, the use of Fayette Road as the proposed northwestern boundary of the area is appropriate and supported.

7. Northern Boundary (See segment 7 on **Figure C-3**)

West Romulus Road is an existing man-made feature that separates the Planned Industrial/Office Development Area from the Conservation/Recreational Area to the north. Historically, West Romulus Road represents the northern most extent of the land that the Army previously used for industrial/commercial/institutional activities around the Main Gate of the former Depot operation. The designation of West Romulus Road as the northern-most boundary is supported by existing information from two historic SWMUs (SEADs 20 and 67) that are located near this feature. SEAD-20, Sewage Treatment Plant No. 4, is located immediately south of West Romulus Road, near the center of this portion of the proposed boundary. SEAD-20 is no longer operated by the Army, and has been turned over to the county and continues to operate as a sewage treatment plant that is subject to regulation under the Clean Water Act. Previously, SEAD-20 was listed by the Army as a No Action Site in the Final SWMU Classification Report (Parsons, 1995). This designation was recently verified and reiterated in the "Record of Decision for Twenty No Action SWMUs and Eight No Further Action SWMUs, *Final*" (Parsons, 2003), as there was no evidence found that any releases have occurred from this facility that would indicate that hazardous materials or wastes had been released to the environment.

SEAD-67, the Dump Site East of Sewage Treatment Plant No. 4, is also located immediately south of West Romulus Road, just to the east of SEAD-20. SEAD-67 is comprised of five undocumented waste piles and two undocumented earthen berm structures that were found at this location. An ESI of these structures was conducted in 1993 and included the collection and analysis of soil, groundwater, surface water, and sediment samples (sample locations shown on **Figure C-10**). Results from these samples were first presented in the report for the "Expanded Site Inspection of Seven Low Priority AOCs (SEAD-60, 62, 63, 64 (A, B, C, and D), 67, 70 and 71" (Parsons 1996). Subsequently, these data were presented in the "Action Memorandum and Decision Document, Time-Critical Removal Actions, Four Metals Sites (SEADs 24, 50/54, & 67), *Final*" (Parsons, 2002), and they are again presented in **Tables C-15**, **C-16**, **C-17**, and **C-18** of this document. The available soil data suggested that the soil piles and berm structures contained trace levels of contaminants, most notably mercury, at levels above recommended soil cleanup guidance levels. Mercury was not

present in the native soil surrounding the piles and the berm structures. Additionally, there was an indication that slightly elevated levels of PAHs were also present in the materials contained in the piles, but not in the surrounding soils. Available data from the other environmental matrices indicate that the mercury observed in the soil piles has not migrated away from the piles and berm structures. Samples collected during the Site Investigation from the drainage ditch immediately north of the site are consistent with the upgradient / background soil sample taken at the site, which demonstrates that no migration of the contaminants from the piles has occurred. The use of West Romulus Road as the boundary of the IC is supported and appropriate as demonstrated by the findings at this site.

Only metals constituents were detected in the groundwater from SEAD-67.

The Army shall implement, maintain, monitor, report on, and enforce the land use restrictions according to the PID Area Remedial Design (RD) Plan. The PID Area RD Plan includes: a Site Description, the IC Land Use Restrictions, the IC Mechanism to ensure that the land use restrictions are not violated in the future, and Reporting/Notification requirements. A copy of the PID Area Remedial Design (RD) Plan will be available at the Information Repository at SEDA. The Army also provides the CERCLA covenant as shown here: "The Grantor hereby covenants that:

a. On those portions of the Property where there was the storage and release of hazardous substances, all remedial actions necessary to protect human health and the environment with respect to any such hazardous substances remaining on the Property has been taken before the date of conveyance hereunder; and

b. Any additional remedial, response or corrective action found to be necessary with regard to any hazardous substances remaining on the Property after the date of this Deed that resulted from past activities of the Grantor shall be conducted by the Grantor. This covenant shall not apply to the extent that such remedial, response or corrective actions are caused by activities of the Grantee, its successors, or assigns."

This covenant protects the future owner of the property should contamination be identified that is not currently known. This insures that the Army will remain involved should a decision made as part of this ROD be found to be in error. The Army contends that with the placement of the IC on the parcel with the boundaries as established is protective of human health and the environment. The rationale is supportive and the covenant is protective. The existing data and site evaluations support the appropriateness of these boundaries.

TABLE C-1
SEAD-9 - Summary of Soil Sample Results
Sites Requiring Institutional Controls
Seneca Army Depot Activity - Romulus, New York

LOC ID:						SB9-1	SB9-1	SB9-1	SB9-2	SB9-2	SB9-2	SB9-3	SB9-3	SB9-3	
SAMP ID:						SB9-1-00	SB9-1-03	SB9-1-05	SB9-2-00	SB9-2-03	SB9-2-05	SB9-3-00	SB9-3-03	SB9-3-04	
QC CODE:						SA	SA	SA	SA	SA	SA	SA	SA	SA	
STUDY ID:						SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	
DEPTH RANGE (FT.):						0-0.2	4-6	8-9	0-0.2	4-6	8-9	0-0.2	4-6	6-8	
MATRIX:						SB9-1-00	SB9-1-03	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
SAMP. DATE:						05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
VOLATILE ORGANICS															
Toluene	ug/Kg	1	22%	2	9	11 U	1 J	12 U	11 U	1 J	12 U	12 U	12 U	12 U	
Chlorobenzene	ug/Kg	2	11%	1	9	11 U	12 U	12 U	11 U	2 J	12 U	12 U	12 U	12 U	
Ethylbenzene	ug/Kg	1	11%	1	9	11 U	1 J	12 U	11 U	11 U	12 U	12 U	12 U	12 U	
Xylene (total)	ug/Kg	2	11%	1	9	11 U	2 J	12 U	11 U	11 U	12 U	12 U	12 U	12 U	
SEMIVOLATILE ORGANICS															
Naphthalene	ug/Kg	360	56%	5	9	23 J	360 J	380 U	32 J	20 J	410 U	31 J	400 U	370 U	
2-Methylnaphthalene	ug/Kg	140	33%	3	9	27 J	140 J	380 U	470 U	33 J	410 U	390 U	400 U	370 U	
Acenaphthylene	ug/Kg	40	44%	4	9	28 J	40 J	380 U	29 J	350 U	410 U	24 J	400 U	370 U	
Acenaphthene	ug/Kg	790	44%	4	9	90 J	790 J	380 U	130 J	350 U	410 U	87 J	400 U	370 U	
Dibenzofuran	ug/Kg	360	44%	4	9	39 J	360 J	380 U	39 J	350 U	410 U	36 J	400 U	370 U	
Fluorene	ug/Kg	610	44%	4	9	67 J	610 J	380 U	85 J	350 U	410 U	87 J	400 U	370 U	
Phenanthrene	ug/Kg	4300	67%	6	9	720	4300	380 U	1200	280 J	79 J	910	400 U	370 U	
Anthracene	ug/Kg	1100	56%	5	9	210 J	1100	380 U	260 J	88 J	410 U	220 J	400 U	370 U	
Carbazole	ug/Kg	860	44%	4	9	150 J	860	380 U	240 J	350 U	410 U	160 J	400 U	370 U	
Di-n-butylphthalate	ug/Kg	70	56%	5	9	55 J	70 J	380 U	470 U	350 U	65 J	56 J	43 J	370 U	
Fluoranthene	ug/Kg	6200	78%	7	9	1700	6200	380 U	2500	540	97 J	1200	25 J	370 U	
Pyrene	ug/Kg	5100	78%	7	9	1400	5100	380 U	2400	570	160 J	1400	39 J	370 U	
Benzo(a)anthracene	ug/Kg	2600	56%	5	9	680	2600	380 U	1200	380	410 U	670	400 U	370 U	
Chrysene	ug/Kg	2300	56%	5	9	720	2300	380 U	1200	440	410 U	680	400 U	370 U	
bis(2-Ethylhexyl)phthalate	ug/Kg	240	67%	6	9	88 J	240 J	20 J	84 J	350 U	410 U	95 J	400 U	60 J	
Benzo(b)fluoranthene(l)	ug/Kg	4700	125%	5	4	1600 JN	4700 JN	380 U	2400 JN	590 JN	410 U	1600 JN	400 U	370 U	
Benzo(a)pyrene	ug/Kg	2100	56%	5	9	670	2100	380 U	990	350 J	410 U	750	400 U	370 U	
Indeno(1,2,3-cd)pyrene	ug/Kg	1100	44%	4	9	430	1100	380 U	570	350 U	410 U	420	400 U	370 U	
Dibenz(a,h)anthracene	ug/Kg	670	44%	4	9	190 J	670 J	380 U	290 J	350 U	410 U	160 J	400 U	370 U	
Benzo(g,h,i)perylene	ug/Kg	760	44%	4	9	310 J	760 J	380 U	460 J	350 U	410 U	230 J	400 U	370 U	
PESTICIDES/PCBs															
delta-BHC	ug/Kg	0.94	11%	1	9	3.6 U	4.1 U	2 U	1.8 U	1.8 U	2.1 U	0.94 J	2 U	1.9 U	
gamma-BHC (Lindane)	ug/Kg	1.3	11%	1	9	3.6 U	4.1 U	2 U	1.8 U	1.3 J	2.1 U	2 U	2 U	1.9 U	
Heptachlor	ug/Kg	5.7	11%	1	9	3.6 U	4.1 U	2 U	1.8 U	5.7	2.1 U	2 U	2 U	1.9 U	
Aldrin	ug/Kg	2.4	11%	1	9	2.4 J	4.1 U	2 U	1.8 U	1.8 U	2.1 U	2 U	2 U	1.9 U	
Heptachlor epoxide	ug/Kg	1.1	11%	1	9	3.6 U	4.1 U	2 U	1.8 U	1.1 J	2.1 U	2 U	2 U	1.9 U	
Dieldrin	ug/Kg	3	11%	1	9	7 U	8 U	3.8 U	3.5 U	3.5 U	4.1 U	3 J	4 U	3.7 U	
4,4'-DDE	ug/Kg	55	67%	6	9	55	13 J	3.8 U	25	25	4 J	23	4 U	3.7 U	
4,4'-DDD	ug/Kg	16	67%	6	9	14 J	8.1 J	3.8 U	16	14	2.6 J	4.2 J	4 U	3.7 U	
4,4'-DDT	ug/Kg	73	67%	6	9	73 J	33 J	3.8 U	37	45 J	4 J	27	4 U	3.7 U	
alpha-Chlordane	ug/Kg	16	56%	5	9	8	4.7 J	2 U	1.8 U	16 J	1.2 J	1.9 J	2 U	1.9 U	
gamma-Chlordane	ug/Kg	19	33%	3	9	3.6 U	4.1 U	2 U	1.7 J	19	1.4 J	2 U	2 U	1.9 U	
Aroclor-1254	ug/Kg	140	11%	1	9	140 J	80 U	38 U	35 U	35 U	41 U	39 U	40 U	37 U	
METALS															
Aluminum	mg/Kg	15000	100%	9	9	12700	12600	13600	8130	5230	14600	14000	15000	13300	
Antimony	mg/Kg	0.71	56%	5	9	0.34 J	0.13 UJ	0.19 UJ	0.45 J	0.31 J	0.27 J	0.71 J	0.21 UJ	0.13 UJ	
Arsenic	mg/Kg	8.5	100%	9	9	5.7	5.4	5.9	8.5	3.9	6.9	5.4	5.3	4.6	

TABLE C-1
SEAD-9 - Summary of Soil Sample Results
Sites Requiring Institutional Controls
Seneca Army Depot Activity - Romulus, New York

LOC ID:						SB9-1	SB9-1	SB9-1	SB9-2	SB9-2	SB9-2	SB9-3	SB9-3	SB9-3	
SAMP ID:						SB9-1-00	SB9-1-03	SB9-1-05	SB9-2-00	SB9-2-03	SB9-2-05	SB9-3-00	SB9-3-03	SB9-3-04	
QC CODE:						SA	SA	SA	SA	SA	SA	SA	SA	SA	
STUDY ID:						SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	SEAD-9	
DEPTH RANGE (FT.):						0-0.2	4-6	8-9	0-0.2	4-6	8-9	0-0.2	4-6	6-8	
MATRIX:						SB9-1-00	SB9-1-03	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
SAMP. DATE:						05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	05/24/94	
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Barium	mg/Kg	101	100%	9	9	76.9	73.1	51.2	91.4	38.3	64.9	88.3	101	70.8	
Beryllium	mg/Kg	0.78	100%	9	9	0.61 J	0.6 J	0.62 J	0.46 J	0.34 J	0.62 J	0.67 J	0.78 J	0.65	
Cadmium	mg/Kg	1.1	100%	9	9	0.97	0.69	0.44 J	1.1	0.61 J	0.68 J	0.76 J	0.65 J	0.65	
Calcium	mg/Kg	217000	100%	9	9	63000	40900	2790	120000	217000	17100	20600	4780	19800	
Chromium	mg/Kg	22.8	100%	9	9	22.4	17.6	21.3	19.9	12.3	19.9	21	22.8	20.5	
Cobalt	mg/Kg	12	100%	9	9	12	10.2	7.8 J	10.5	5.8 J	10.4	11.4	12	11.5	
Copper	mg/Kg	33	100%	9	9	33	20.3	23.3	27.4	19.1	15.2	29.5	23.1	24.9	
Iron	mg/Kg	28600	100%	9	9	24200	22400	25400	16400	10200	27700	25800	28600	26100	
Lead	mg/Kg	85.1	100%	9	9	50.3 J	21.7 J	10.4 J	85.1 J	43 J	20.6 J	47.4 J	16.2 J	11.5 J	
Magnesium	mg/Kg	13000	100%	9	9	9240	8310	4140	13000	10900	4840	9360	4700	6860	
Manganese	mg/Kg	984	100%	9	9	524	635	313	984	320	467	710	681	472	
Mercury	mg/Kg	0.26	100%	9	9	0.05 J	0.08 J	0.26	0.1	0.07 J	0.07 J	0.06 J	0.09 J	0.08 J	
Nickel	mg/Kg	41.6	100%	9	9	35.1	25.1	35.7	41.6	15.6	21.4	24	28.4	23	
Potassium	mg/Kg	2140	100%	9	9	2140 J	1430 J	1730 J	1790 J	1490 J	1250 J	2070 J	1420 J	1300 J	
Selenium	mg/Kg	0.9	78%	7	9	0.58 J	0.23 J	0.9 J	0.25 U	0.31 U	0.62 J	0.76 J	0.52 J	0.42 J	
Sodium	mg/Kg	185	89%	8	9	115 J	65 J	64.7 J	139 J	166 J	185 J	29 U	48.2 J	65 J	
Vanadium	mg/Kg	26.8	100%	9	9	24.5	21.1	23.7	22.7	21.1	21.8	26.8	25.5	21.7	
Zinc	mg/Kg	126	100%	9	9	126	75.7	82.7	102	59.7	72	96.8	70.3	54.4	
OTHER ANALYSES															
Total Petroleum Hydrocarbons	mg/Kg	15900	89%	8	9	245	1170	30 U	580	15900	1520	145	47	33	
Total Solids	%W/W	93.9	1	9	9	93.9	83.1	85.8	93	93.4	80.2	84.7	83.4	88.2	

Table C-2
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-121G
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SB121G-1		SB121G-1		SB121G-1		SB121G-1	
SAMP ID:						EB214		EB215		EB216		EB217	
QC CODE:						SA		SA		SA		SA	
STUDY ID:						SEAD-121G		SEAD-121G		SEAD-121G		SEAD-121G	
SAMP. DEPTH TOP:						0		0.58		0		0.75	
SAMP. DEPTH BOT:						0.2		1.2		0.2		1.1	
MATRIX:						SOIL		SOIL		SOIL		SOIL	
SAMP. DATE:						7-Mar-98		7-Mar-98		7-Mar-98		7-Mar-98	
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
SEMIVOLATILE ORGANICS													
2-Methylnaphthalene	UG/KG	9.6	25.00%	1	4	76	U	85	U	9.6	J	80	U
Acenaphthene	UG/KG	63	25.00%	1	4	76	U	85	U	63	J	80	U
Acenaphthylene	UG/KG	15	25.00%	1	4	76	U	85	U	15	J	80	U
Anthracene	UG/KG	360	75.00%	3	4	7.7	J	4.8	J	360		80	U
Benzo[a]anthracene	UG/KG	1800	100.00%	4	4	54	J	24	J	1800	J	26	J
Benzo[a]pyrene	UG/KG	1500	100.00%	4	4	54	J	25	J	1500	J	26	J
Benzo[b]fluoranthene	UG/KG	1400	100.00%	4	4	69	J	25	J	1400	J	37	J
Benzo[ghi]perylene	UG/KG	830	100.00%	4	4	39	J	19	J	830		22	J
Benzo[k]fluoranthene	UG/KG	1400	100.00%	4	4	57	J	25	J	1400	J	29	J
Bis(2-Ethylhexyl)phthalate	UG/KG	15	50.00%	2	4	76	U	12	U	150	U	15	U
Carbazole	UG/KG	100	50.00%	2	4	6.9	J	85	U	100	J	80	U
Chrysene	UG/KG	1600	100.00%	4	4	74	J	28	J	1600	J	34	J
Di-n-butylphthalate	UG/KG	4.5	50.00%	2	4	4	J	85	U	150	U	4.5	J
Di-n-octylphthalate	UG/KG	33	75.00%	3	4	4.9	J	13	J	150	U	33	J
Dibenz[a,h]anthracene	UG/KG	430	100.00%	4	4	17	J	12	J	430		12	J
Dibenzofuran	UG/KG	32	25.00%	1	4	76	U	85	U	32	J	80	U
Diethyl phthalate	UG/KG	17	100.00%	4	4	11	J	17	J	9.3	J	7.7	J
Fluoranthene	UG/KG	3700	100.00%	4	4	140		50	J	3700	J	52	J
Fluorene	UG/KG	82	50.00%	2	4	6.4	J	85	U	82	J	80	U
Indeno[1,2,3-cd]pyrene	UG/KG	880	100.00%	4	4	42	J	18	J	880		20	J
Naphthalene	UG/KG	12	25.00%	1	4	76	U	85	U	12	J	80	U
Phenanthrene	UG/KG	1500	100.00%	4	4	83		25	J	1500	J	31	J
Pyrene	UG/KG	3200	100.00%	4	4	120		51	J	3200	J	61	J
METALS													
Aluminum	MG/KG	11500	100.00%	4	4	10900		832		11500		8660	
Antimony	MG/KG	0.9	100.00%	2	4	0.8	UJ	0.87	UJ	0.72	J	0.9	J
Arsenic	MG/KG	4.8	75.00%	3	4	4.1		0.9	U	4.3		4.8	
Barium	MG/KG	82	100.00%	4	4	81.4		17	B	82		68.4	
Beryllium	MG/KG	0.46	100.00%	4	4	0.42	B	0.08	B	0.46	B	0.34	B
Calcium	MG/KG	44800	100.00%	4	4	44800		801	B	23600		8950	
Chromium	MG/KG	17.8	133.33%	4	4	15.9	*	1.1	B*	17.8	*	12.8	*
Cobalt	MG/KG	8	100.00%	4	4	7.3	B	0.87	B	8	B	6	B
Copper	MG/KG	21.4	100.00%	4	4	19.3	*	6.6	*	21.4	*	19.2	*
Iron	MG/KG	20100	100.00%	4	4	17100		780		20100		13500	
Lead	MG/KG	45.9	100.00%	4	4	30.8		1.4		45.9		20.9	
Magnesium	MG/KG	5810	133.33%	4	4	4880	*	109	B*	5810	*	3210	*
Manganese	MG/KG	378	100.00%	4	4	354		31.5		378		284	
Mercury	MG/KG	0.06	50.00%	2	4	0.06	B	0.05	U	0.06	B	0.05	U
Nickel	MG/KG	23	133.33%	4	4	20.5	J	2.5	J	23	J	18.7	J
Potassium	MG/KG	1900	100.00%	4	4	1900		157	B	1470		1130	B
Thallium	MG/KG	1.6	25.00%	1	4	1.4	U	1.6	U	1.2	U	1.6	B
Vanadium	MG/KG	20.6	100.00%	4	4	19.5	J	3.2	J	20.6	J	16.2	J
Zinc	MG/KG	79.9	100.00%	4	4	74.2		5.4		79.9		50.2	

Table C-3
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-121F
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SS121F-1	SS121F-2	SS121F-3
SAMP ID:						EB273	EB274	EB275
QC CODE:						SA	SA	SA
STUDY ID:						SEAD-121F	SEAD-121F	SEAD-121F
SAMP. DEPTH TOP:						0	0	0
SAMP. DEPTH BOT:						0.2	0.2	0.2
MATRIX:						SOIL	SOIL	SOIL
SAMP. DATE:						18-Mar-98	18-Mar-98	18-Mar-98
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS								
Toluene	UG/KG	56	100.00%	3	3	56	56	32
SEMIVOLATILE ORGANICS								
2-Methylnaphthalene	UG/KG	36	100.00%	3	3	17 J	13 J	36 J
Acenaphthene	UG/KG	7.4	66.67%	2	3	7.4 J	69 U	6.4 J
Anthracene	UG/KG	13	66.67%	2	3	13 J	69 U	13 J
Benzo[a]anthracene	UG/KG	68	100.00%	3	3	56 J	14 J	68 J
Benzo[a]pyrene	UG/KG	71	100.00%	3	3	58 J	19 J	71 J
Benzo[b]fluoranthene	UG/KG	110	100.00%	3	3	100	21 J	110
Benzo[ghi]perylene	UG/KG	60	100.00%	3	3	60 J	30 J	58 J
Benzo[k]fluoranthene	UG/KG	72	100.00%	3	3	59 J	16 J	72 J
Bis(2-Ethylhexyl)phthalate	UG/KG	35	33.33%	1	3	43 U	13 U	35 J
Butylbenzylphthalate	UG/KG	22	66.67%	2	3	22 J	69 U	9.9 J
Carbazole	UG/KG	21	66.67%	2	3	21 J	69 U	15 J
Chrysene	UG/KG	94	100.00%	3	3	82	21 J	94
Di-n-butylphthalate	UG/KG	8.1	100.00%	3	3	8.1 J	4.8 J	4.6 J
Di-n-octylphthalate	UG/KG	7.5	33.33%	1	3	7.5 J	69 U	72 U
Dibenz[a,h]anthracene	UG/KG	23	66.67%	2	3	23 J	69 U	18 J
Dibenzofuran	UG/KG	10	66.67%	2	3	10 J	69 U	9 J
Diethyl phthalate	UG/KG	12	66.67%	2	3	12 J	8.5 J	72 U
Fluoranthene	UG/KG	140	100.00%	3	3	130	24 J	140
Fluorene	UG/KG	9.2	33.33%	1	3	9.2 J	69 U	72 U
Indeno[1,2,3-cd]pyrene	UG/KG	53	100.00%	3	3	53 J	17 J	48 J
Isophorone	UG/KG	91	66.67%	2	3	91	69 U	27 J
N-Nitrosodiphenylamine	UG/KG	6.2	33.33%	1	3	6.2 J	69 U	72 U
Naphthalene	UG/KG	14	100.00%	3	3	10 J	9 J	14 J
Phenanthrene	UG/KG	93	100.00%	3	3	75	21 J	93
Pyrene	UG/KG	230	100.00%	3	3	150	61 J	230
OTHER ANALYTES								
TPH	MG/KG	419	100.00%	3	3	395	419	290
METALS								
Lead	MG/KG	31.8	100.00%	3	3	31.8	11.1	24.3

TABLE C-4
SEAD-25 - Summary of Soil and Sediment Sample Results
Sites Requiring Institutional Controls
Seneca Army Depot Activity - Romulus, New York

LOC ID:						SB25-12	SB25-12	SB25-12	SB25-16	SB25-16	SB25-16	SB25-7	SB25-7
SAMP ID:						SB25-12-00	SB25-12-02	SB25-12-03	SB25-16-00	SB25-16-01	SB25-16-02	SB25-7-10	SB25-7-00
QC CODE:						SA	SA	SA	SA	SA	SA	DU	SA
STUDY ID:						PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1
DEPTH TOP:						0	2	4	0	0.17	2	0	0
DEPTH BOT:						0.17	4	6	0.17	2	4	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						16-Oct-95	16-Oct-95	16-Oct-95	23-Oct-95	23-Oct-95	23-Oct-95	25-Sep-95	25-Sep-95
Parameter	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS													
Acetone	UG/KG	130	36%	4	11	12 U			12 U			11 UJ	5 J
SEMIVOLATILE ORGANICS													
1,2,4-Trichlorobenzene	UG/KG	1600	100%	1	1			1600					
1,4-Dichlorobenzene	UG/KG	1700	100%	1	1			1700					
2,4-Dinitrotoluene	UG/KG	1600	100%	1	1			1600					
2-Chlorophenol	UG/KG	2600	100%	1	1			2600					
4-Chloro-3-methylphenol	UG/KG	2600	100%	1	1			2600					
4-Nitrophenol	UG/KG	1700	100%	1	1			1700					
Acenaphthene	UG/KG	2000	100%	4	4			2000					
Acenaphthylene	UG/KG	840	44%	4	9							380 U	380 U
Anthracene	UG/KG	3500	44%	4	9							380 U	380 U
Benzo(a)anthracene	UG/KG	3600	45%	5	11	420 U			78 J			380 U	380 U
Benzo(a)pyrene	UG/KG	1200	36%	4	11	420 U			87 J			380 U	380 U
Benzo(b)fluoranthene	UG/KG	1500	45%	5	11	420 U			86 J			380 U	380 U
Benzo(g,h,i)perylene	UG/KG	6300	27%	3	11	420 U			61 J			380 UJ	380 U
Benzo(k)fluoranthene	UG/KG	270	36%	4	11	420 U			96 J			380 U	380 U
Carbazole	UG/KG	4900	44%	4	9							380 U	380 U
Chrysene	UG/KG	1200	50%	6	12	420 U			110 J	19 J		380 U	380 U
Dibenz(a,h)anthracene	UG/KG	7300	36%	4	11	420 U			20 J			380 U	380 U
Fluoranthene	UG/KG	570	58%	7	12	74 J			200 J	34 J		380 U	380 U
Fluorene	UG/KG	2500	44%	4	9							380 U	380 U
Indeno(1,2,3-cd)pyrene	UG/KG	3800	45%	5	11	420 U			51 J			380 UJ	380 U
N-Nitroso-di-n-propylamine	UG/KG	1900	100%	1	1			1900					
Pentachlorophenol	UG/KG	2300	100%	1	1			2300					
Phenanthrene	UG/KG	9000	38%	5	13	420 U			130 J	23 J		380 U	380 U
Phenol	UG/KG	2400	50%	1	2			2400					
Pyrene	UG/KG	2000	54%	7	13	62 J		2000	170 J	32 J		380 U	380 U
PESTICIDES/PCBS													
4,4'-DDD	UG/KG	19	100%	3	3								
4,4'-DDE	UG/KG	34	67%	2	3								
4,4`-DDT	UG/KG	6	33%	3	9							3.8 U	3.8 U
Aldrin	UG/KG	3.6	33%	1	3								
Aroclor-1232	UG/KG	36	17%	1	6							38 U	38 U
Endosulfan sulfate	UG/KG	14	67%	2	3								
Endrin aldehyde	UG/KG	8.4	67%	2	3	2.3 J			8.4 J			3.8 U	
Endrin ketone	UG/KG	1.9	33%	1	3								
Heptachlor epoxide	UG/KG	2	33%	1	3								
alpha-Chlordane	UG/KG	2.2	67%	2	3								
beta-BHC	UG/KG	15600	100%	3	3								

TABLE C-4
SEAD-25 - Summary of Soil and Sediment Sample Results
Sites Requiring Institutional Controls
Seneca Army Depot Activity - Romulus, New York

LOC ID:						SB25-12	SB25-12	SB25-12	SB25-16	SB25-16	SB25-16	SB25-7	SB25-7
SAMP ID:						SB25-12-00	SB25-12-02	SB25-12-03	SB25-16-00	SB25-16-01	SB25-16-02	SB25-7-10	SB25-7-00
QC CODE:						SA	SA	SA	SA	SA	SA	DU	SA
STUDY ID:						PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1
DEPTH TOP:						0	2	4	0	0.17	2	0	0
DEPTH BOT:						0.17	4	6	0.17	2	4	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						16-Oct-95	16-Oct-95	16-Oct-95	23-Oct-95	23-Oct-95	23-Oct-95	25-Sep-95	25-Sep-95
Parameter	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
METALS													
Aluminum	MG/KG	18400	100%	15	15	17100	9510	9380	18400	13900	9510	12500	12500
Antimony	MG/KG	7.7	67%	10	15	0.64 J	0.5 J	0.58 J	0.44 J	0.76 J	0.47	0.4 UJ	0.4
Arsenic	MG/KG	85.7	100%	15	15	5.8 J	4	5.6 J	6.3 J	4.4 J	4	4.3	4.3
Barium	MG/KG	101	100%	15	15	101	72.2	86.5	75.4	66.8	60.5	71.3	71.3
Beryllium	MG/KG	89100	100%	15	15	0.8	0.45	0.46	0.92	0.66	0.46	0.56	0.56
Calcium	MG/KG	133000	100%	15	15	2840	104000	79600	3350	62300	57800	47400 J	47400 J
Chromium	MG/KG	25.8	90%	9	10	22.6 R			25.8 J	20.3 J	14.8	16.9 J	16.9 J
Cobalt	MG/KG	35.6	100%	15	15	11.6	7.4	9.8	9.4	8.3	9.2	8	8
Copper	MG/KG	33200	100%	15	15	17.7	17.4	24.2	25.8	23.6	21	15.7	15.7
Iron	MG/KG	30300	100%	15	15	25600	18100	21000	30300	22100	18300	20500	20500
Lead	MG/KG	12300	100%	15	15	29.6	6.5	9.2	15.9 J	8.6 J	7.9	11.1	11.1
Magnesium	MG/KG	22800	100%	15	15	4100	17600	17200	4980	13000	11200	11700	11700
Manganese	MG/KG	859	93%	13	14	859	415	447	308 R		395	452	452
Mercury	MG/KG	40.9	93%	14	15	0.08	0.02	0.04	0.01	0.03	0.01	0.03	0.03
Nickel	MG/KG	1920	100%	15	15	25.4 J	22.8 J	25.5 J	31.3	28.3	26.3	22.3	22.3
Potassium	MG/KG	2230	100%	15	15	1620 J	1780 J	1440 J	1940 J	2230 J	1460	1110	1110
Selenium	MG/KG	587	54%	7	13	0.85 J	0.79 J	0.72 J	0.68 U			0.66 U	0.63 U
Sodium	MG/KG	269	87%	13	15	45.8 U	104	79.2	124	81.2	129	57.5	59.9
Thallium	MG/KG	28	62%	8	13	0.69 U			1.1		0.63	1.2	1.2
Vanadium	MG/KG	102	100%	15	15	29	16.6	16.4	32.7	23.9	15.7	21	21
Zinc	MG/KG	579	100%	15	15	76.7	49	60.9	84.8	87.4	62.3	54.1	54.1
OTHER ANALYSES													
Total Petroleum Hydrocarbons	MG/KG	62	25%	1	4	37 U			62			31 U	32 U

TABLE C-4
SEAD-25 - Summary of Soil and Sediment Sample Results
Sites Requiring Institutional Controls
Seneca Army Depot Activity - Romulus, New York

LOC ID:						SB25-6	SB25-6	SB25-7	SB25-7	SD25-1	SD25-2	SD25-3
SAMP ID:						SB25-6-01	SB25-6-02	SB25-7-03	SB25-7-04	SD25-1	SD25-2	SD25-3
QC CODE:						SA	SA	SA	SA	SA	SA	SA
STUDY ID:						ESI	ESI	RI ROUND1	RI ROUND1	PHASE 1	PHASE 1	PHASE 1
DEPTH TOP:						0	2	4	6	0	0	0
DEPTH BOT:						2	4	6	8	0.25	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
SAMP. DATE:						12/3/1993	12/3/1993	9/25/1995	9/25/1995	06-Oct-95	06-Oct-95	22-Oct-95
Parameter	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS												
Acetone	UG/KG	130	36%	4	11	11 U	7 J	4 J	11 UJ	130 J	460 U	440 U
SEMIVOLATILE ORGANICS												
1,2,4-Trichlorobenzene	UG/KG	1600	100%	1	1							
1,4-Dichlorobenzene	UG/KG	1700	100%	1	1							
2,4-Dinitrotoluene	UG/KG	1600	100%	1	1							
2-Chlorophenol	UG/KG	2600	100%	1	1							
4-Chloro-3-methylphenol	UG/KG	2600	100%	1	1							
4-Nitrophenol	UG/KG	1700	100%	1	1							
Acenaphthene	UG/KG	2000	100%	4	4					610 J	90 J	440 J
Acenaphthylene	UG/KG	840	44%	4	9	32 J	360 U	350 U	360 U	840 J	180 J	47 J
Anthracene	UG/KG	3500	44%	4	9	42 J	360 U	350 U	360 U	3500	600	220 J
Benzo(a)anthracene	UG/KG	3600	45%	5	11	230 J	360 U	350 U	360 U	3600	770	300 J
Benzo(a)pyrene	UG/KG	1200	36%	4	11	250 J	360 U	350 U	360 U	1700 U	1200	240 J
Benzo(b)fluoranthene	UG/KG	1500	45%	5	11	240 J	360 U	350 U	360 U	1500 J	550	260 J
Benzo(g,h,i)perylene	UG/KG	6300	27%	3	11	200 J	360 U	350 U	360 UJ	6300	460 U	400 U
Benzo(k)fluoranthene	UG/KG	270	36%	4	11	260 J	360 U	350 U	360 U	270 J	230 J	440 UJ
Carbazole	UG/KG	4900	44%	4	9	26 J	360 U	350 U	360 U	4900	970	370 J
Chrysene	UG/KG	1200	50%	6	12	350 J	360 U	350 U	360 U	1200 J	400 J	120
Dibenz(a,h)anthracene	UG/KG	7300	36%	4	11	72 J	360 U	350 U	360 U	7300	1700	610 U
Fluoranthene	UG/KG	570	58%	7	12	570	360 U	350 U	360 U	340 J	87 J	440 J
Fluorene	UG/KG	2500	44%	4	9	28 J	360 U	350 U	360 U	2500	570	240 J
Indeno(1,2,3-cd)pyrene	UG/KG	3800	45%	5	11	170 J	360 U	350 U	360 UJ	3800	950	310
N-Nitroso-di-n-propylamine	UG/KG	1900	100%	1	1							
Pentachlorophenol	UG/KG	2300	100%	1	1							
Phenanthrene	UG/KG	9000	38%	5	13	370	360 U	350 U	360 U	9000	1500	520 U
Phenol	UG/KG	2400	50%	1	2							
Pyrene	UG/KG	2000	54%	7	13	560	360 U	350 U	360 U	16 J	4.6 U	4.4 J
PESTICIDES/PCBS												
4,4'-DDD	UG/KG	19	100%	3	3					19 J	14 J	3 J
4,4'-DDE	UG/KG	34	67%	2	3					34	18	4.2 U
4,4`-DDT	UG/KG	6	33%	3	9	4.3	3.6 U	3.5 U	3.6 U	6 J	2.1 J	2.2 U
Aldrin	UG/KG	3.6	33%	1	3					3.6 J	4.6 U	4.4 U
Aroclor-1232	UG/KG	36	17%	1	6	37 U	36	35 U	36 U			
Endosulfan sulfate	UG/KG	14	67%	2	3					14 J	4.2 J	4.4 U
Endrin aldehyde	UG/KG	8.4	67%	2	3							
Endrin ketone	UG/KG	1.9	33%	1	3					1.9 J	2.4 U	2.2 U
Heptachlor epoxide	UG/KG	2	33%	1	3					2 J	2.4 U	2.2 U
alpha-Chlordane	UG/KG	2.2	67%	2	3					1.7 J	2.4 U	2.2
beta-BHC	UG/KG	15600	100%	3	3					10000	9560	15600 J

TABLE C-4
SEAD-25 - Summary of Soil and Sediment Sample Results
Sites Requiring Institutional Controls
Seneca Army Depot Activity - Romulus, New York

LOC ID:						SB25-6	SB25-6	SB25-7	SB25-7	SD25-1	SD25-2	SD25-3
SAMP ID:						SB25-6-01	SB25-6-02	SB25-7-03	SB25-7-04	SD25-1	SD25-2	SD25-3
QC CODE:						SA	SA	SA	SA	SA	SA	SA
STUDY ID:						ESI	ESI	RI ROUND1	RI ROUND1	PHASE 1	PHASE 1	PHASE 1
DEPTH TOP:						0	2	4	6	0	0	0
DEPTH BOT:						2	4	6	8	0.25	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
SAMP. DATE:						12/3/1993	12/3/1993	9/25/1995	9/25/1995	06-Oct-95	06-Oct-95	22-Oct-95
Parameter	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
METALS												
Aluminum	MG/KG	18400	100%	15	15	10600	7070	8020	7550	0.87	0.55	0.66 J
Antimony	MG/KG	7.7	67%	10	15	4.2 U	3 U	0.42 UJ	0.44 U	5.7	4.4	7.7
Arsenic	MG/KG	85.7	100%	15	15	8.3	4.8	4.1	3.4	58.5	51.8	85.7
Barium	MG/KG	101	100%	15	15	59.1	35	58	52	0.55	0.47	0.8
Beryllium	MG/KG	89100	100%	15	15	0.48 J	0.35 J	0.43	0.39	89100 J	51300 J	16800
Calcium	MG/KG	133000	100%	15	15	82500	122000	120000 J	133000 J	8.4	7.4	15.3 J
Chromium	MG/KG	25.8	90%	9	10	16.9	11.3	13.7 J	12.4 J			
Cobalt	MG/KG	35.6	100%	15	15	11.2	6.6 J	8.2	6.9	28.1	20.8	35.6
Copper	MG/KG	33200	100%	15	15	20.2 J	12 J	17.7	16.4	17200	17100	33200
Iron	MG/KG	30300	100%	15	15	21400	15800	18900	15400	94.8	47.7	24.5
Lead	MG/KG	12300	100%	15	15	9.5	13.8	7	6.5	11500	12300	6490
Magnesium	MG/KG	22800	100%	15	15	19600	22800	17400	20700	389	394	711
Manganese	MG/KG	859	93%	13	14	722 J	610 J	735	402	0.04	0.05	0.12
Mercury	MG/KG	40.9	93%	14	15	0.03 J	0.04 U	0.02	0.01	24.3	22.2	40.9 J
Nickel	MG/KG	1920	100%	15	15	26.8	18	26.4	22.4	1920	1430	1870 J
Potassium	MG/KG	2230	100%	15	15	1480	1060	1280	1430	0.73 J	0.61 J	0.78
Selenium	MG/KG	587	54%	7	13	0.97 J	0.63 J	0.7 U	0.74 U	587	254	631 U
Sodium	MG/KG	269	87%	13	15	269 J	186 J	89.1	110	0.98	0.45 U	0.54
Thallium	MG/KG	28	62%	8	13	0.24 UJ	0.21 UJ	1.1	0.6 U	28	19.2	27.9
Vanadium	MG/KG	102	100%	15	15	18.5	12	13.4	13.7	101	80.8	102
Zinc	MG/KG	579	100%	15	15	71.6 J	40.6 J	64.9	65.1	579	142	92
OTHER ANALYSES												
Total Petroleum Hydrocarbons	MG/KG	62	25%	1	4							

Table C-5
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-68
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SB68-1	SB68-1	SB68-2	SB68-2	SS68-1
SAMP ID:						EB250	EB251	EB248	EB249	EB142
QC CODE:						SA	SA	SA	SA	SA
STUDY ID:						SEAD-68	SEAD-68	SEAD-68	SEAD-68	SEAD-68
SAMP. DEPTH TOP:						0	4.5	0	4	0
SAMP. DEPTH BOT:						0.3	4.8	0.2	4.4	0.2
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						03/16/98	03/16/98	03/16/98	03/16/98	03/10/98
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS										
Benzene	UG/KG	3	11.11%	1	9	11 U	11 U	11 U	3 J	11 U
Chloroform	UG/KG	4	11.11%	1	9	11 U	4 J	11 U	10 U	11 U
Tetrachloroethene	UG/KG	8	11.11%	1	9	11 U	11 U	11 U	10 U	8 J
Toluene	UG/KG	87	66.67%	6	9	9 J	21	30	87	11 U
Total Xylenes	UG/KG	6	22.22%	2	9	11 U	11 U	2 J	6 J	11 U
Trichloroethene	UG/KG	4	11.11%	1	9	11 U	11 U	11 U	4 J	11 U
SEMIVOLATILE ORGANICS										
2-Methylnaphthalene	UG/KG	310	44.44%	4	9	69 U	69 U	4.9 J	69 U	8.7 J
Acenaphthene	UG/KG	49	44.44%	4	9	69 U	69 U	71 U	69 U	34 J
Anthracene	UG/KG	97	66.67%	6	9	69 U	69 U	6 J	69 U	53 J
Benzo(a)anthracene	UG/KG	900	88.89%	8	9	69 U	7.2 J	46 J	9.6 J	360
Benzo(a)pyrene	UG/KG	770	88.89%	8	9	69 U	6.7 J	50 J	9 J	350
Benzo(b)fluoranthene	UG/KG	940	88.89%	8	9	69 U	7.4 J	68 J	10 J	380
Benzo(ghi)perylene	UG/KG	420	88.89%	8	9	69 U	7.1 J	47 J	12 J	280
Benzo(k)fluoranthene	UG/KG	830	88.89%	8	9	69 U	8.2 J	58 J	12 J	460
Bis(2-Ethylhexyl)phthalate	UG/KG	150	11.11%	1	9	69 U	69 U	71 U	69 U	140 U
Butylbenzylphthalate	UG/KG	18	55.56%	5	9	4.9 J	69 U	6.5 J	69 U	15 J
Carbazole	UG/KG	80	66.67%	6	9	69 U	69 U	9.3 J	69 U	67 J
Chrysene	UG/KG	1000	100.00%	9	9	4 J	8.8 J	60 J	14 J	430
Di-n-butylphthalate	UG/KG	4.2	11.11%	1	9	69 U	4.2 J	71 U	69 U	140 U
Di-n-octylphthalate	UG/KG	18	11.11%	1	9	69 U	69 U	71 U	69 U	140 U
Dibenz(a,h)anthracene	UG/KG	220	88.89%	8	9	69 U	5 J	17 J	4.8 J	110 J
Dibenzofuran	UG/KG	43	44.44%	4	9	69 U	69 U	71 U	69 U	13 J
Fluoranthene	UG/KG	1500	100.00%	9	9	6.1 J	14 J	120	23 J	700
Fluorene	UG/KG	34	44.44%	4	9	69 U	69 U	71 U	69 U	22 J
Indeno(1,2,3-cd)pyrene	UG/KG	400	88.89%	8	9	69 U	6.6 J	44 J	7.6 J	260
Naphthalene	UG/KG	78	22.22%	2	9	69 U	69 U	71 U	69 U	140 U
Pentachlorophenol	UG/KG	24	11.11%	1	9	18 UJ	18 UJ	18 UJ	18 UJ	19 UJ
Phenanthrene	UG/KG	480	77.78%	7	9	69 U	69 U	42 J	11 J	350
Pyrene	UG/KG	1500	100.00%	9	9	4.3 J	11 J	94	16 J	840
PESTICIDES/PCBS										
4,4'-DDE	UG/KG	260	77.78%	7	9	3.5 U	3.5 U	19	4.2	77 J
4,4'-DDT	UG/KG	130	44.44%	4	9	3.5 U	3.5 U	22	3.5 U	28
Alpha-Chlordane	UG/KG	21	33.33%	3	9	1.8 U	1.8 U	19 U	1.8 U	21 J
Gamma-Chlordane	UG/KG	23	44.44%	4	9	1.8 U	1.8 U	7.5	4.4	23
Heptachlor epoxide	UG/KG	4	44.44%	4	9	1.8 U	1.8 U	1.6 J	1.8 U	4 J
HERBICIDES										
2,4,5-T	UG/KG	25	11.11%	1	9	5 U	5 U	5.1 U	5 U	5.3 U
2,4-DB	UG/KG	90	11.11%	1	9	50 U	50 U	51 U	50 U	53 U
METALS										
Arsenic	MG/KG	11.3	100.00%	9	9	5.2 J	4.7 J	3.9 J	6 J	8.3 J

Table C-5
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-68
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SS68-2	SS68-3	SS68-4	SS68-5
SAMP ID:						EB143	EB144	EB145	EB146
QC CODE:						SA	SA	SA	SA
STUDY ID:						SEAD-68	SEAD-68	SEAD-68	SEAD-68
SAMP. DEPTH TOP:						0	0	0	0
SAMP. DEPTH BOT:						0.2	0.2	0.2	0.2
MATRIX:						SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						03/10/98	03/10/98	03/10/98	03/10/98
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS									
Benzene	UG/KG	3	11.11%	1	9	12 U	12 U	13 U	11 U
Chloroform	UG/KG	4	11.11%	1	9	12 U	12 U	13 U	11 U
Tetrachloroethene	UG/KG	8	11.11%	1	9	12 U	12 U	13 U	11 U
Toluene	UG/KG	87	66.67%	6	9	12 U	12 U	4 J	2 J
Total Xylenes	UG/KG	6	22.22%	2	9	12 U	12 U	13 U	11 U
Trichloroethene	UG/KG	4	11.11%	1	9	12 U	12 U	13 U	11 U
SEMIVOLATILE ORGANICS									
2-Methylnaphthalene	UG/KG	310	44.44%	4	9	76 U	310 U	310 J	7.9 J
Acenaphthene	UG/KG	49	44.44%	4	9	4.8 J	49 J	410 U	14 J
Anthracene	UG/KG	97	66.67%	6	9	7.5 J	97 J	31 J	23 J
Benzo(a)anthracene	UG/KG	900	88.89%	8	9	66 J	900	100 J	130
Benzo(a)pyrene	UG/KG	770	88.89%	8	9	77	770	120 J	130 J
Benzo(b)fluoranthene	UG/KG	940	88.89%	8	9	110	940 J	130 J	170 J
Benzo(ghi)perylene	UG/KG	420	88.89%	8	9	64 J	420 J	110 J	100 J
Benzo(k)fluoranthene	UG/KG	830	88.89%	8	9	100	830 J	150 J	180 J
Bis(2-Ethylhexyl)phthalate	UG/KG	150	11.11%	1	9	76 U	310 U	410 U	150 J
Butylbenzylphthalate	UG/KG	18	55.56%	5	9	76 U	18 J	410 U	8.7 J
Carbazole	UG/KG	80	66.67%	6	9	13 J	80 J	46 J	36 J
Chrysene	UG/KG	1000	100.00%	9	9	94	1000	150 J	160
Di-n-butylphthalate	UG/KG	4.2	11.11%	1	9	76 U	310 U	410 U	77 U
Di-n-octylphthalate	UG/KG	18	11.11%	1	9	76 U	18 J	410 U	77 UJ
Dibenz(a,h)anthracene	UG/KG	220	88.89%	8	9	26 J	220 J	50 J	40 J
Dibenzofuran	UG/KG	43	44.44%	4	9	76 U	18 J	43 J	6.6 J
Fluoranthene	UG/KG	1500	100.00%	9	9	150	1500	220 J	320
Fluorene	UG/KG	34	44.44%	4	9	76 U	34 J	27 J	12 J
Indeno(1,2,3-cd)pyrene	UG/KG	400	88.89%	8	9	61 J	400	96 J	98
Naphthalene	UG/KG	78	22.22%	2	9	76 U	310 U	78 J	6.5 J
Pentachlorophenol	UG/KG	24	11.11%	1	9	24 J	19 UJ	23 UJ	19 UJ
Phenanthrene	UG/KG	480	77.78%	7	9	54 J	480	210 J	150
Pyrene	UG/KG	1500	100.00%	9	9	150	1500	260 J	310
PESTICIDES/PCBS									
4,4'-DDE	UG/KG	260	77.78%	7	9	81 J	26	260	36
4,4'-DDT	UG/KG	130	44.44%	4	9	1.9 U	23	21 U	130 J
Alpha-Chlordane	UG/KG	21	33.33%	3	9	1.9 U	1.9 U	19 J	1.6 J
Gamma-Chlordane	UG/KG	23	44.44%	4	9	1.9 U	1.9 U	18 J	1.2 U
Heptachlor epoxide	UG/KG	4	44.44%	4	9	1.3 J	3.6	21 U	1.9 U
HERBICIDES									
2,4,5-T	UG/KG	25	11.11%	1	9	5.5 U	5.4 U	25 J	5.3 U
2,4-DB	UG/KG	90	11.11%	1	9	55 U	54 U	90 J	53 U
METALS									
Arsenic	MG/KG	11.3	100.00%	9	9	3.8 J	7.7 J	11.3 J	6.6 J

Table C-6
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-50/54
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID / SAMP ID:						FX-A7-SS-001-FS	FX-A7-SS-002-FS	FX-A7-SS-003-FS	FX-A7-SS-004-FS	FX-A7-SS-005-FS	FX-A7-SS-006-FS	FX-A7-SS-007-FS	FX-A7-SS-008-FS
STUDY ID:						SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54
SAMP. DEPTH (IN)						6	6	6	6	6	6	6	6
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
SEMIVOLATILE ORGANICS													
Acenaphthylene	ug/Kg	18	40%	2	5				18 J				16 U
Anthracene	ug/Kg	17	40%	2	5				17 J				18 U
Benzo(a)anthracene	ug/Kg	65	50%	3	6				65 J				24 J
Benzo(a)pyrene	ug/Kg	85	50%	3	6				85 J				31 J
Benzo(b)fluoranthene	ug/Kg	74	133%	4	3				74 J				56 U
Benzo(ghi)perylene	ug/Kg	65	60%	3	5				65 J				25 U
Benzo(k)fluoranthene	ug/Kg	110	133%	4	3				110 J				57 U
Chrysene	ug/Kg	91	67%	4	6				91 J				33 J
Dibenzo(a,h)anthracene	ug/Kg	24	17%	1	6				24 J				26 U
Fluoranthene	ug/Kg	170	67%	4	6				170 J				48 J
Fluorene	ug/Kg	26	20%	1	5				26 UM				29 U
Indeno(1,2,3-cd)pyrene	ug/Kg	57	33%	2	6				57 J				26 U
Naphthalene	ug/Kg	42	50%	2	4				42 UM				47 U
Phenanthrene	ug/Kg	82	50%	3	6				82 J				35 U
Pyrene	ug/Kg	150	83%	5	6				150 J				47 J
METALS													
Aluminum	mg/Kg	19200	100%	6	6				19200				16900
Antimony	mg/Kg	162	17%	1	6				1.1 UN				0.98 UN
Arsenic	mg/Kg	8.7	123%	32	32	5.1	5.3	6.6	6.7 B	5.2 *	5.6 *	5.9	6.5 BN
Barium	mg/Kg	129	100%	6	6				129				129
Beryllium	mg/Kg	0.93	100%	6	6				0.86 B				0.93 B
Cadmium	mg/Kg	1.1	20%	1	5				0.89 UN				1.1 BN
Calcium	mg/Kg	36000	100%	6	6				4280 *				5340 *
Chromium	mg/Kg	28.4	100%	6	6				26.8				23.5
Cobalt	mg/Kg	14.7	100%	6	6				11.2				11.2
Copper	mg/Kg	33.2	100%	6	6				26.5				27.6
Iron	mg/Kg	31600	100%	6	6				30100				27300
Lead	mg/Kg	47.1	100%	6	6				20				20.1
Magnesium	mg/Kg	11300	100%	6	6				5020				4540
Manganese	mg/Kg	580	100%	6	6				555 *				516
Mercury	mg/Kg	0.082	75%	24	32	0.062 B	0.062 B	0.045 B	0.055 B	0.052 B	0.059 B	0.071 B	0.061 B
Nickel	mg/Kg	47.7	100%	6	6				33				31.8
Potassium	mg/Kg	2720	100%	6	6				2720 E				2430 E
Silver	mg/Kg	0.33	20%	1	5				0.27 U				0.25 U
Sodium	mg/Kg	173	100%	6	6				158				151
Vanadium	mg/Kg	31.3	100%	6	6				31.3				26.9
Zinc	mg/Kg	887	107%	32	32	89	79.9	84.8	84.6	81 *N	83.9 *N	79.9	97.8

Table C-6
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-50/54
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID / SAMP ID:						FX-A7-SS-009-FS	FX-A7-SS-010-FS	FX-A7-SS-001-FS	FX-A7-SS-002-FS	FX-A5-SS-01-FS	FX-A5-SS-06-FS	FX-A5-SS-09-FS	FX-A5-SS-10-FS
STUDY ID:						SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54
SAMP. DEPTH (IN)						6	6	6	6	6	6	6	6
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
SEMIVOLATILE ORGANICS													
Acenaphthylene	ug/Kg	18	40%	2	5				14 UM				
Anthracene	ug/Kg	17	40%	2	5				15 U				
Benzo(a)anthracene	ug/Kg	65	50%	3	6				35 J				
Benzo(a)pyrene	ug/Kg	85	50%	3	6				53 J				
Benzo(b)fluoranthene	ug/Kg	74	133%	4	3				54 JM				
Benzo(ghi)perylene	ug/Kg	65	60%	3	5				32 J				
Benzo(k)fluoranthene	ug/Kg	110	133%	4	3				49 UM				
Chrysene	ug/Kg	91	67%	4	6				50 J				
Dibenzo(a,h)anthracene	ug/Kg	24	17%	1	6				22 U				
Fluoranthene	ug/Kg	170	67%	4	6				63 J				
Fluorene	ug/Kg	26	20%	1	5				25 U				
Indeno(1,2,3-cd)pyrene	ug/Kg	57	33%	2	6				29 J				
Naphthalene	ug/Kg	42	50%	2	4				40 U				
Phenanthrene	ug/Kg	82	50%	3	6				35 J				
Pyrene	ug/Kg	150	83%	5	6				76 J				
METALS													
Aluminum	mg/Kg	19200	100%	6	6				15300				
Antimony	mg/Kg	162	17%	1	6				1.5 UN				
Arsenic	mg/Kg	8.7	123%	32	32	5.8	6.2	5 B	6.1 B*	4.4 B	4.8	4.7 B	4.8
Barium	mg/Kg	129	100%	6	6				94.3 *				
Beryllium	mg/Kg	0.93	100%	6	6				0.75 B				
Cadmium	mg/Kg	1.1	20%	1	5				1.3 U				
Calcium	mg/Kg	36000	100%	6	6				3930 *				
Chromium	mg/Kg	28.4	100%	6	6				25.5				
Cobalt	mg/Kg	14.7	100%	6	6				10.9				
Copper	mg/Kg	33.2	100%	6	6				26.6				
Iron	mg/Kg	31600	100%	6	6				29600 *				
Lead	mg/Kg	47.1	100%	6	6				14 *				
Magnesium	mg/Kg	11300	100%	6	6				5470				
Manganese	mg/Kg	580	100%	6	6				384				
Mercury	mg/Kg	0.082	75%	24	32	0.077 B	0.068 B	0.053 B	0.039 U	0.068 B	0.065 B	0.06 B	0.079
Nickel	mg/Kg	47.7	100%	6	6				36.9 *				
Potassium	mg/Kg	2720	100%	6	6				2120				
Silver	mg/Kg	0.33	20%	1	5				0.38 U				
Sodium	mg/Kg	173	100%	6	6				173				
Vanadium	mg/Kg	31.3	100%	6	6				24.9 *				
Zinc	mg/Kg	887	107%	32	32	88.1	68	75.3	95.9	76.2	96.1	61.7	58.3

Table C-6
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-50/54
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID / SAMP ID:						FX-A5-SS-21-FS	FX-A5-SS-22-FS	FX-A5-SS-23-FS	FX-A5-SS-24-FS	FX-A5-SS-25-FS	PX-A5-SS-01-FS	PX-A5-SS-01-FS2	PX-A5-SS-08-FS
STUDY ID:						SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54
SAMP. DEPTH (IN)						6	6	6	6	6	6	6	6
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
SEMIVOLATILE ORGANICS													
Acenaphthylene	ug/Kg	18	40%	2	5			13 U					12 U
Anthracene	ug/Kg	17	40%	2	5			14 U					13 UM
Benzo(a)anthracene	ug/Kg	65	50%	3	6			18 U					17 U
Benzo(a)pyrene	ug/Kg	85	50%	3	6			19 U					18 U
Benzo(b)fluoranthene	ug/Kg	74	133%	4	3			46 U					43 UM
Benzo(ghi)perylene	ug/Kg	65	60%	3	5			20 U					19 UM
Benzo(k)fluoranthene	ug/Kg	110	133%	4	3			47 U					44 UM
Chrysene	ug/Kg	91	67%	4	6			20 U					21 J
Dibenzo(a,h)anthracene	ug/Kg	24	17%	1	6			22 U					20 U
Fluoranthene	ug/Kg	170	67%	4	6			26 U					30 J
Fluorene	ug/Kg	26	20%	1	5			24 U					22 U
Indeno(1,2,3-cd)pyrene	ug/Kg	57	33%	2	6			22 U					20 U
Naphthalene	ug/Kg	42	50%	2	4			38 U					36 UM
Phenanthrene	ug/Kg	82	50%	3	6			29 U					28 J
Pyrene	ug/Kg	150	83%	5	6			23 U					31 J
METALS													
Aluminum	mg/Kg	19200	100%	6	6			13600					15900
Antimony	mg/Kg	162	17%	1	6			1.3 UN					1.3 UN
Arsenic	mg/Kg	8.7	123%	32	32	5.4 N	8.7 N	4.9 B	5.5 N	7.3 N	6.1		5.2 B
Barium	mg/Kg	129	100%	6	6			70.1					68.6
Beryllium	mg/Kg	0.93	100%	6	6			0.67 B					0.73 B
Cadmium	mg/Kg	1.1	20%	1	5			1.1 UN					1.1 UN
Calcium	mg/Kg	36000	100%	6	6			2610					36000
Chromium	mg/Kg	28.4	100%	6	6			19					28.4 *
Cobalt	mg/Kg	14.7	100%	6	6			10.6					14.7 *
Copper	mg/Kg	33.2	100%	6	6			14.3					33.2
Iron	mg/Kg	31600	100%	6	6			23100					31600
Lead	mg/Kg	47.1	100%	6	6			17.5					47.1 *
Magnesium	mg/Kg	11300	100%	6	6			3590					11300
Manganese	mg/Kg	580	100%	6	6			492 *					580
Mercury	mg/Kg	0.082	75%	24	32	0.048 B	0.048 B	0.047 B	0.045 B	0.055 B		0.036	0.036 U
Nickel	mg/Kg	47.7	100%	6	6			21.5					47.7
Potassium	mg/Kg	2720	100%	6	6			1100					2400
Silver	mg/Kg	0.33	20%	1	5			0.33 U					0.33 U^
Sodium	mg/Kg	173	100%	6	6			57.4 B					131
Vanadium	mg/Kg	31.3	100%	6	6			22.8					20.5
Zinc	mg/Kg	887	107%	32	32	67.2	105	65	71.1	96.1	100		887 N

Table C-6
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-50/54
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID / SAMP ID:						PX-A5-SS-09-FS	PX-A5-SS-10-FS	PX-A5-SS-11-FS	PX-A5-SS-15-FS	PX-A5-SS-16-FS	PX-A5-SS-17-FS	PX-A5-SS-18-FS	PX-A5-SS-19-FS	PX-A5-SS-20-FS
STUDY ID:						SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54	SEAD-50/54
SAMP. DEPTH (IN)						6	6	6	6	6	6	6	6	6
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003	4Q2002-1Q2003
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
SEMIVOLATILE ORGANICS														
Acenaphthylene	ug/Kg	18	40%	2	5					14 U				
Anthracene	ug/Kg	17	40%	2	5					15 U				
Benzo(a)anthracene	ug/Kg	65	50%	3	6					19 U				
Benzo(a)pyrene	ug/Kg	85	50%	3	6					20 U				
Benzo(b)fluoranthene	ug/Kg	74	133%	4	3					47 UM				
Benzo(ghi)perylene	ug/Kg	65	60%	3	5					21 U				
Benzo(k)fluoranthene	ug/Kg	110	133%	4	3					48 UM				
Chrysene	ug/Kg	91	67%	4	6					21 U				
Dibenzo(a,h)anthracene	ug/Kg	24	17%	1	6					22 U				
Fluoranthene	ug/Kg	170	67%	4	6					27 U				
Fluorene	ug/Kg	26	20%	1	5					25 U				
Indeno(1,2,3-cd)pyrene	ug/Kg	57	33%	2	6					22 U				
Naphthalene	ug/Kg	42	50%	2	4					40 U				
Phenanthrene	ug/Kg	82	50%	3	6					30 U				
Pyrene	ug/Kg	150	83%	5	6					34 J				
METALS														
Aluminum	mg/Kg	19200	100%	6	6					12500				
Antimony	mg/Kg	162	17%	1	6					162 N				
Arsenic	mg/Kg	8.7	123%	32	32	5.3 B	4.5 B	7.6	4.7 BN	5.3 B	3.2 BN	5.8 N	3.7 BN	4.3 BN
Barium	mg/Kg	129	100%	6	6					67.8				
Beryllium	mg/Kg	0.93	100%	6	6					0.59 B				
Cadmium	mg/Kg	1.1	20%	1	5					1.1 UN				
Calcium	mg/Kg	36000	100%	6	6					2510				
Chromium	mg/Kg	28.4	100%	6	6					17.5				
Cobalt	mg/Kg	14.7	100%	6	6					7.6				
Copper	mg/Kg	33.2	100%	6	6					14.1				
Iron	mg/Kg	31600	100%	6	6					19500				
Lead	mg/Kg	47.1	100%	6	6					24.5				
Magnesium	mg/Kg	11300	100%	6	6					3040				
Manganese	mg/Kg	580	100%	6	6					298 *				
Mercury	mg/Kg	0.082	75%	24	32	0.082 B	0.052 B	0.042 U	0.035 U	0.045 B	0.037 U	0.045 U	0.037 U	0.033 U
Nickel	mg/Kg	47.7	100%	6	6					18.2				
Potassium	mg/Kg	2720	100%	6	6					1250				
Silver	mg/Kg	0.33	20%	1	5					0.32 U				
Sodium	mg/Kg	173	100%	6	6					51 B				
Vanadium	mg/Kg	31.3	100%	6	6					21.4				
Zinc	mg/Kg	887	107%	32	32	84.5	401	67.1	72.2	75	55.2	85.1	59.9	576

Table C-7
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-26
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SB26-10	SS26-34	SS26-35	SS26-36	SS26-37	SS26-38
SAMP ID:						SB26-10-00	SS26-34	SS26-35	SS26-36	SS26-37	SS26-38
QC CODE:						SA	SA	SA	SA	SA	SA
STUDY ID:						PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1
SAMP. DEPTH TOP:						0	0	0	0	0	0
SAMP. DEPTH BOT:						0.17	0.17	0.17	0.17	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						20-Sep-95	22-Oct-95	21-Oct-95	21-Oct-95	19-Oct-95	21-Oct-95
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS											
2-Butanone		19	25%	1	4						
Acetone	UG/KG	78	42%	8	19	20	11 U	7 J	1 J	3 J	4 J
SEMIVOLATILE ORGANICS											
1,2,4-Trichlorobenzene	UG/KG	430	13%	2	15	350 U	920 U	430 J	370 J	360 U	380 U
2,4-Dinitrophenol	UG/KG	960	60%	9	15	840 U	2200 U	1000 U	890 J	870 J	930 J
2-Methylnaphthalene	UG/KG	55	13%	2	15	55 J	55 J	430 U	370 U	360 U	380 U
2-Nitroaniline	UG/KG	1000	67%	10	15	840 J	2200 U	1000 J	890 J	870 J	930 J
2-Nitrophenol	UG/KG	430	67%	10	15	350 U	920 U	430 J	370 J	360 J	380 J
3,3'-Dichlorobenzidine	UG/KG	430	33%	5	15	350 U	920 U	430 J	370 U	360 U	380 U
3-Nitroaniline	UG/KG	940	7%	1	15	840 U	2200 U	1000 U	890 U	870 U	930 U
4,6-Dinitro-2-methylphenol	UG/KG	840	7%	1	15	840 J	2200 U	1000 U	890 U	870 U	930 U
4-Chloro-3-methylphenol	UG/KG	400	27%	4	15	350 U	920 U	430 U	370 J	360 U	380 J
4-Chloroaniline	UG/KG	390	33%	5	15	350 U	920 U	430 U	370 U	360 J	380 U
Acenaphthene	UG/KG	85	7%	1	15	85 J	920 U	430 U	370 U	360 U	380 U
Anthracene	UG/KG	220	37%	7	19	200 J	64 J	430 U	370 U	360 U	380 U
Benzo(a)anthracene	UG/KG	810	74%	14	19	810	310 J	430 U	370 U	360 U	380 U
Benzo(a)pyrene	UG/KG	650	74%	14	19	650	320 J	430 U	370 U	360 U	380 U
Benzo(b)fluoranthene	UG/KG	690	68%	13	19	690	300 J	430 U	370 U	360 U	380 U
Benzo(g,h,i)perylene	UG/KG	540	63%	12	19	540	430 J	430 U	370 U	36 J	380 U
Benzo(k)fluoranthene	UG/KG	720	74%	14	19	460 J	320 J	430 J	370 U	360 U	380 U
Carbazole	UG/KG	400	33%	5	15	290 J	920 U	430 U	370 U	360 J	380 U
Chrysene	UG/KG	760	84%	16	19	690	300 J	430 U	370 J	360 U	380 J
Dibenz(a,h)anthracene	UG/KG	310	32%	6	19	310 J	920 U	430 U	370 U	360 U	380 U
Dibenzofuran	UG/KG	37	7%	1	15	37 J	920 U	430 U	370 U	360 U	380 U
Fluoranthene	UG/KG	1900	79%	15	19	1900	520 J	46 J	370 U	360 U	380 U
Fluorene	UG/KG	91	7%	1	15	91 J	920 U	430 U	370 U	360 U	380 U
Hexachlorobutadiene	UG/KG	430	7%	1	15	350 U	920 U	430 J	370 U	360 U	380 U
Hexachlorocyclopentadiene	UG/KG	430	13%	2	15	350 U	920 U	430 J	370 J	360 U	380 U
Indeno(1,2,3-cd)pyrene	UG/KG	500	68%	13	19	490	290 J	430 U	370 U	37 J	380 U
Isophorone	UG/KG	430	67%	10	15	350 U	920 U	430 J	370 J	360 J	380 J
Naphthalene	UG/KG	36	7%	1	15	36 J	920 U	430 U	370 U	360 U	380 U
Nitrobenzene	UG/KG	400	53%	8	15	350 U	920 U	430 U	370 J	360 J	380 J
Pentachlorophenol	UG/KG	960	7%	1	15	840 U	2200 U	1000 U	890 U	870 U	930 U
Phenanthrene	UG/KG	860	63%	12	19	860	280 J	430 U	370 U	360 U	380 U
Pyrene	UG/KG	1200	74%	14	19	1200	500 J	430 U	370 U	360 U	380 U
bis(2-Ethylhexyl)phthalate	UG/KG	400	27%	4	15	400	920 U	430 U	370 U	360 U	380 U
PESTICIDES/PCBS											
4,4'-DDD	UG/KG	13	13%	2	15	5.4 J	13 J	4.3 U	3.7 U	3.5 U	3.8 U
4,4'-DDE	UG/KG	5.8	47%	9	19	4.8 J	5.7 J	4.3 U	3.7 U	2.9 J	3.8 U
4,4'-DDT	UG/KG	15	32%	6	19	7 J	15 J	4.3 U	3.7 U	3.5 U	3.8 U
Dieldrin	UG/KG	1.9	7%	1	15	3.4 U	1.9 J	4.3 U	3.7 U	3.5 U	3.8 U

Table C-7
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-26
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SB26-10	SS26-34	SS26-35	SS26-36	SS26-37	SS26-38
SAMP ID:						SB26-10-00	SS26-34	SS26-35	SS26-36	SS26-37	SS26-38
QC CODE:						SA	SA	SA	SA	SA	SA
STUDY ID:						PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1
SAMP. DEPTH TOP:						0	0	0	0	0	0
SAMP. DEPTH BOT:						0.17	0.17	0.17	0.17	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						20-Sep-95	22-Oct-95	21-Oct-95	21-Oct-95	19-Oct-95	21-Oct-95
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Endosulfan II	UG/KG	17	20%	3	15	5.7 J	2 J	4.3 U	3.7 U	3.5 U	3.8 U
Endosulfan sulfate	UG/KG	8.8	13%	2	15	5.4 J	8.8 J	4.3 U	3.7 U	3.5 U	3.8 U
Endrin aldehyde	UG/KG	8.7	20%	3	15	3.4 U	8.7 J	4.3 U	3.7 U	2.4 J	3.8 U
Endrin ketone	UG/KG	2.6	7%	1	15	3.4 U	2.6 J	4.3 U	3.7 U	3.5 U	3.8 U
Heptachlor	UG/KG	2.9	7%	1	15	1.8 U	1.9 U	2.2 U	1.9 U	1.8 U	2 U
Heptachlor epoxide	UG/KG	1.9	20%	3	15	1.4 J	1.9 J	2.2 U	1.9 U	1.1 J	2 U
alpha-Chlordane	UG/KG	1.2	7%	1	15	1.8 U	1.9 U	2.2 U	1.9 U	1.8 U	2 U
METALS											
Aluminum	MG/KG	18600	100%	19	19	6380	6980	17200	9080	6870	6670
Antimony	MG/KG	0.55	20%	3	15	0.51 J	0.46 UJ	0.42 UJ	0.55 J	0.38 UJ	0.53 J
Arsenic	MG/KG	12.2	100%	19	19	4.2	4.3 J	5.6	12.2	5.8	10.2
Barium	MG/KG	122	100%	19	19	49.6	122	74	47.1	35.2	40.5
Beryllium	MG/KG	0.83	100%	19	19	0.45	0.42	0.64	0.61	0.47	0.51
Calcium	MG/KG	260000	100%	19	19	58000	153000	41600	194000	258000 J	260000 J
Chromium	MG/KG	28.9	100%	19	19	13.8 J	12.4 J	21.2 J	12.3 J	11 J	9.4 J
Cobalt	MG/KG	15.8	100%	19	19	8.2	8.6	8	8.5	7.1	7
Copper	MG/KG	31.2	100%	19	19	17.2	17.9	17.5	29.3	17	25.4
Iron	MG/KG	38100	100%	19	19	18700	14600	21800	14100	10300	11800
Lead	MG/KG	66.8	100%	19	19	14.7	43.7	14.5 J	10 J	7.1 J	6.4 J
Magnesium	MG/KG	18200	95%	18	19	7210	13700	11700	4760	16300	6000
Manganese	MG/KG	951	95%	18	19	430	378	432	283	305	266
Mercury	MG/KG	0.11	95%	18	19	0.03	0.03	0.07 J	0.04 J	0.02 J	0.03 J
Nickel	MG/KG	54.9	100%	19	19	23.9	23.1	20.8	33.3	25.3	28.4
Potassium	MG/KG	3500	100%	19	19	1010	1720	2530	3020	2560	2250
Selenium	MG/KG	0.91	26%	5	19	0.66 UJ	0.77 UJ	0.7 U	0.6 U	0.64 U	0.82 U
Sodium	MG/KG	154	89%	17	19	41.2	89.9	68.8	91.9	154	64
Thallium	MG/KG	1.3	73%	11	15	0.77 J	0.62 U	0.65	0.66	0.52 U	0.7
Vanadium	MG/KG	31.5	100%	19	19	14.2	14.6	28.6 J	20.1 J	17.6 J	15.7 J
Zinc	MG/KG	155	100%	19	19	77.7 J	71.7	155	33	81.1	28.1
OTHER ANALYSES											
Total Petroleum Hydrocarbons	MG/KG	1480	100%	15	15	1480	647	82	36	50	62

Table C-7
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-26
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SS26-39	SS26-40	SS26-41	SS26-42	SS26-43	SS26-44
SAMP ID:						SS26-39	SS26-40	SS26-41	SS26-42	SS26-43	SS26-44
QC CODE:						SA	SA	SA	SA	SA	SA
STUDY ID:						PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1
SAMP. DEPTH TOP:						0	0	0	0	0	0
SAMP. DEPTH BOT:						0.17	0.17	0.17	0.17	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						21-Oct-95	21-Oct-95	20-Oct-95	20-Oct-95	20-Oct-95	20-Oct-95
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS											
2-Butanone		19	25%	1	4						
Acetone	UG/KG	78	42%	8	19	22 J	5 J	11 UJ	11 U	12 U	12 U
SEMIVOLATILE ORGANICS											
1,2,4-Trichlorobenzene	UG/KG	430	13%	2	15	400 U	400 U	360 U	390 U	390 U	380 U
2,4-Dinitrophenol	UG/KG	960	60%	9	15	960 J	960 J	870 J	940 J	940 J	920 J
2-Methylnaphthalene	UG/KG	55	13%	2	15	400 U	400 U	360 U	390 U	390 U	380 U
2-Nitroaniline	UG/KG	1000	67%	10	15	960 J	960 J	870 J	940 U	940 J	920 J
2-Nitrophenol	UG/KG	430	67%	10	15	400 J	400 J	360 J	390 J	390 J	380 J
3,3'-Dichlorobenzidine	UG/KG	430	33%	5	15	400 U	400 U	360 J	390 J	390 J	380 J
3-Nitroaniline	UG/KG	940	7%	1	15	960 U	960 U	870 U	940 J	940 U	920 U
4,6-Dinitro-2-methylphenol	UG/KG	840	7%	1	15	960 U	960 U	870 U	940 U	940 U	920 U
4-Chloro-3-methylphenol	UG/KG	400	27%	4	15	400 J	400 J	360 U	390 U	390 U	380 U
4-Chloroaniline	UG/KG	390	33%	5	15	400 U	400 U	360 J	390 J	390 J	380 J
Acenaphthene	UG/KG	85	7%	1	15	400 U	400 U	360 U	390 U	390 U	380 U
Anthracene	UG/KG	220	37%	7	19	56 J	400 U	360 U	220 J	390 U	40 U
Benzo(a)anthracene	UG/KG	810	74%	14	19	210 J	91 J	50 J	740	50 J	130 J
Benzo(a)pyrene	UG/KG	650	74%	14	19	180 J	93 J	54 J	620	61 J	120 J
Benzo(b)fluoranthene	UG/KG	690	68%	13	19	400 U	83 J	47 J	540	43 J	110 J
Benzo(g,h,i)perylene	UG/KG	540	63%	12	19	150 J	71 J	53 J	500	53 J	96 J
Benzo(k)fluoranthene	UG/KG	720	74%	14	19	540	110 J	66 J	720	78 J	140 J
Carbazole	UG/KG	400	33%	5	15	63 J	400 J	360 U	82 J	390 U	48 U
Chrysene	UG/KG	760	84%	16	19	230 J	99 J	64 J	760	60 J	150 J
Dibenz(a,h)anthracene	UG/KG	310	32%	6	19	51 J	400 U	360 U	220 J	390 U	380 U
Dibenzofuran	UG/KG	37	7%	1	15	400 U	400 U	360 U	390 U	390 U	380 U
Fluoranthene	UG/KG	1900	79%	15	19	530	160 J	110 J	1700	100 J	370 J
Fluorene	UG/KG	91	7%	1	15	400 U	400 U	360 U	390 U	390 U	380 U
Hexachlorobutadiene	UG/KG	430	7%	1	15	400 U	400 U	360 U	390 U	390 U	380 U
Hexachlorocyclopentadiene	UG/KG	430	13%	2	15	400 U	400 U	360 U	390 U	390 U	380 U
Indeno(1,2,3-cd)pyrene	UG/KG	500	68%	13	19	150 J	72 J	49 J	500	44 J	91 J
Isophorone	UG/KG	430	67%	10	15	400 J	400 J	360 J	390 J	390 J	380 J
Naphthalene	UG/KG	36	7%	1	15	400 U	400 U	360 U	390 U	390 U	380 U
Nitrobenzene	UG/KG	400	53%	8	15	400 U	400 J	360 J	390 J	390 J	380 J
Pentachlorophenol	UG/KG	960	7%	1	15	960 J	960 U	870 U	940 U	940 U	920 U
Phenanthrene	UG/KG	860	63%	12	19	300 J	57 J	60 J	610	40 J	230 J
Pyrene	UG/KG	1200	74%	14	19	380 J	120 J	78 J	1200	70 J	240 J
bis(2-Ethylhexyl)phthalate	UG/KG	400	27%	4	15	400 U	400 U	360 U	270 J	240 J	380 U
PESTICIDES/PCBS											
4,4'-DDD	UG/KG	13	13%	2	15	4 U	4 U	3.6 UJ	3.9 U	3.9 U	3.8 U
4,4'-DDE	UG/KG	5.8	47%	9	19	3.6 J	5.8	3.4 J	2.5 J	2.4 J	3.8 U
4,4'-DDT	UG/KG	15	32%	6	19	4 U	2.2 J	3.6 UJ	2.3 J	1.9 J	3.8 U
Dieldrin	UG/KG	1.9	7%	1	15	4 U	4 U	3.6 UJ	3.9 U	3.9 U	3.8 U

Table C-7
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-26
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SS26-39	SS26-40	SS26-41	SS26-42	SS26-43	SS26-44
SAMP ID:						SS26-39	SS26-40	SS26-41	SS26-42	SS26-43	SS26-44
QC CODE:						SA	SA	SA	SA	SA	SA
STUDY ID:						PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1	PHASE 1
SAMP. DEPTH TOP:						0	0	0	0	0	0
SAMP. DEPTH BOT:						0.17	0.17	0.17	0.17	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						21-Oct-95	21-Oct-95	20-Oct-95	20-Oct-95	20-Oct-95	20-Oct-95
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Endosulfan II	UG/KG	17	20%	3	15	4 U	4 U	3.6 UJ	3.9 U	3.9 U	3.8 U
Endosulfan sulfate	UG/KG	8.8	13%	2	15	4 U	4 U	3.6 UJ	3.9 U	3.9 U	3.8 U
Endrin aldehyde	UG/KG	8.7	20%	3	15	4 U	4 U	3.6 UJ	3.9 U	3.9 U	3.8 U
Endrin ketone	UG/KG	2.6	7%	1	15	4 U	4 U	3.6 UJ	3.9 U	3.9 U	3.8 U
Heptachlor	UG/KG	2.9	7%	1	15	2 U	2.1 U	1.9 UJ	2 U	2 U	2 U
Heptachlor epoxide	UG/KG	1.9	20%	3	15	2 U	2.1 U	1.9 UJ	2 U	2 U	2 U
alpha-Chlordane	UG/KG	1.2	7%	1	15	2 U	2.1 U	1.9 UJ	2 U	2 U	2 U
METALS											
Aluminum	MG/KG	18600	100%	19	19	17000	8120	7880	13100	17700	15300
Antimony	MG/KG	0.55	20%	3	15	0.4 UJ	0.47 UJ	0.44 UJ	0.51 UJ	0.46 UJ	0.47 UJ
Arsenic	MG/KG	12.2	100%	19	19	5.8	4.6	5.6	9.5	7.4	6.6
Barium	MG/KG	122	100%	19	19	61.2	33.8	36.7	64.1	77.9	82
Beryllium	MG/KG	0.83	100%	19	19	0.83	0.46	0.48	0.65	0.82	0.74
Calcium	MG/KG	260000	100%	19	19	49500	107000	177000	65900	12100	20500
Chromium	MG/KG	28.9	100%	19	19	28.9 J	14 J	13.3 J	21.8 J	27.1 J	24.4 J
Cobalt	MG/KG	15.8	100%	19	19	15.8	9.4	8.6	11.2	14.7	13.5
Copper	MG/KG	31.2	100%	19	19	31.2	16.5	14.9	25.5	28.1	23.3
Iron	MG/KG	38100	100%	19	19	31600	16700	14100	27400	32000	31700
Lead	MG/KG	66.8	100%	19	19	25.1 J	21.1 J	15.5 J	18.6 J	22 J	21.6 J
Magnesium	MG/KG	18200	95%	18	19	9280	12500	18200	9320	7320	6460
Manganese	MG/KG	951	95%	18	19	517	357	478	682	544	731
Mercury	MG/KG	0.11	95%	18	19	0.02 J	0.04 J	0.02 J	0.04 J	0.04 J	0.09 J
Nickel	MG/KG	54.9	100%	19	19	54.9	27.6	22.7	32.6	43.8	35.8
Potassium	MG/KG	3500	100%	19	19	2600	1530	2140	1950	2640	1570
Selenium	MG/KG	0.91	26%	5	19	0.67 U	0.79 U	0.74 U	0.86 U	0.91	0.79 U
Sodium	MG/KG	154	89%	17	19	101	126	116	132	67.1	42.9 U
Thallium	MG/KG	1.3	73%	11	15	0.82	0.64 U	0.6 U	0.95	1.1	1.1
Vanadium	MG/KG	31.5	100%	19	19	26.2 J	14.4 J	17.9 J	21.4 J	28.2 J	22.4 J
Zinc	MG/KG	155	100%	19	19	149	62	70.4	101	117	103
OTHER ANALYSES											
Total Petroleum Hydrocarbons	MG/KG	1480	100%	15	15	51	35	69	94	41	49

Table C-7
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-26
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SS26-45	SS26-46	SS26-47	TP26-2	TP26-2	TP26-6	TP26-6
SAMP ID:						SS26-45	SS26-46	SS26-47	TP26-2-1	TP26-2-2	TP26-6-1	TP26-6-2
QC CODE:						SA	SA	SA	SA	SA	SA	SA
STUDY ID:						PHASE 1	PHASE 1	PHASE 1	ESI	ESI	ESI	ESI
SAMP. DEPTH TOP:						0	0	0	0	5	0	5
SAMP. DEPTH BOT:						0.17	0.17	0.17	0.7	5	0.7	5
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						20-Oct-95	20-Oct-95	20-Oct-95	11/18/93	11/18/93	11/18/93	11/18/93
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value
VOLATILE ORGANICS												
2-Butanone		19	25%	1	4				11 U	19	12 U	12
Acetone	UG/KG	78	42%	8	19	12 U	12 U	11 U	11 U	78	12 U	12
SEMIVOLATILE ORGANICS												
1,2,4-Trichlorobenzene	UG/KG	430	13%	2	15	370 U	400 U	370 U				
2,4-Dinitrophenol	UG/KG	960	60%	9	15	900 U	960 U	910 U				
2-Methylnaphthalene	UG/KG	55	13%	2	15	370 U	400 U	370 U				
2-Nitroaniline	UG/KG	1000	67%	10	15	900 U	960 U	910 U				
2-Nitrophenol	UG/KG	430	67%	10	15	370 U	400 U	370 U				
3,3'-Dichlorobenzidine	UG/KG	430	33%	5	15	370 U	400 U	370 U				
3-Nitroaniline	UG/KG	940	7%	1	15	900 U	960 U	910 U				
4,6-Dinitro-2-methylphenol	UG/KG	840	7%	1	15	900 U	960 U	910 U				
4-Chloro-3-methylphenol	UG/KG	400	27%	4	15	370 U	400 U	370 U				
4-Chloroaniline	UG/KG	390	33%	5	15	370 U	400 U	370 U				
Acenaphthene	UG/KG	85	7%	1	15	370 U	400 U	370 U				
Anthracene	UG/KG	220	37%	7	19	76 J	61 J	370 U	2400 U	22 J	370 U	420
Benzo(a)anthracene	UG/KG	810	74%	14	19	280 J	170 J	370 U	160 J	71 J	100 J	34
Benzo(a)pyrene	UG/KG	650	74%	14	19	260 J	170 J	370 U	200 J	86 J	110 J	38
Benzo(b)fluoranthene	UG/KG	690	68%	13	19	640	210 J	370 U	130 J	83 J	94 J	28
Benzo(g,h,i)perylene	UG/KG	540	63%	12	19	230 J	170 J	370 U	2400 U	410 U	56 J	420
Benzo(k)fluoranthene	UG/KG	720	74%	14	19	370 U	110 J	370 U	190 J	75 J	120 J	34
Carbazole	UG/KG	400	33%	5	15	370 U	400 U	370 U				
Chrysene	UG/KG	760	84%	16	19	260 J	160 J	370 U	180 J	97 J	120 J	37
Dibenz(a,h)anthracene	UG/KG	310	32%	6	19	100 J	68 J	370 U	2400 U	29 J	370 U	420
Dibenzofuran	UG/KG	37	7%	1	15	370 U	400 U	370 U				
Fluoranthene	UG/KG	1900	79%	15	19	660	410	370 U	300 J	170 J	250 J	62
Fluorene	UG/KG	91	7%	1	15	370 U	400 U	370 U				
Hexachlorobutadiene	UG/KG	430	7%	1	15	370 U	400 U	370 U				
Hexachlorocyclopentadiene	UG/KG	430	13%	2	15	370 U	400 U	370 U				
Indeno(1,2,3-cd)pyrene	UG/KG	500	68%	13	19	200 J	140 J	370 U	2400 U	69 J	65 J	420
Isophorone	UG/KG	430	67%	10	15	370 U	400 U	370 U				
Naphthalene	UG/KG	36	7%	1	15	370 U	400 U	370 U				
Nitrobenzene	UG/KG	400	53%	8	15	370 U	400 U	370 U				
Pentachlorophenol	UG/KG	960	7%	1	15	900 U	960 U	910 U				
Phenanthrene	UG/KG	860	63%	12	19	280 J	230 J	370 U	2400 U	120 J	95 J	420
Pyrene	UG/KG	1200	74%	14	19	520	320 J	370 U	250 J	130 J	220 J	61
bis(2-Ethylhexyl)phthalate	UG/KG	400	27%	4	15	380 J	400 U	370 U				
PESTICIDES/PCBS												
4,4'-DDD	UG/KG	13	13%	2	15	3.7 U	4 U	3.7 U				
4,4'-DDE	UG/KG	5.8	47%	9	19	3.7 U	4 U	3.7 U	3.6 U	4.1 U	2.8 J	4.1
4,4'-DDT	UG/KG	15	32%	6	19	3.7 U	4 U	3.7 U	3.6 U	4.1 U	1.6 J	4.1
Dieldrin	UG/KG	1.9	7%	1	15	3.7 U	4 U	3.7 U				

Table C-7
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-26
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SS26-45	SS26-46	SS26-47	TP26-2	TP26-2	TP26-6	TP26-6
SAMP ID:						SS26-45	SS26-46	SS26-47	TP26-2-1	TP26-2-2	TP26-6-1	TP26-6-2
QC CODE:						SA	SA	SA	SA	SA	SA	SA
STUDY ID:						PHASE 1	PHASE 1	PHASE 1	ESI	ESI	ESI	ESI
SAMP. DEPTH TOP:						0	0	0	0	5	0	5
SAMP. DEPTH BOT:						0.17	0.17	0.17	0.7	5	0.7	5
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						20-Oct-95	20-Oct-95	20-Oct-95	11/18/93	11/18/93	11/18/93	11/18/93
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value
Endosulfan II	UG/KG	17	20%	3	15	3.7 U	17 J	3.7 U				
Endosulfan sulfate	UG/KG	8.8	13%	2	15	3.7 U	4 U	3.7 U				
Endrin aldehyde	UG/KG	8.7	20%	3	15	3.7 U	8 J	3.7 U				
Endrin ketone	UG/KG	2.6	7%	1	15	3.7 U	4 U	3.7 U				
Heptachlor	UG/KG	2.9	7%	1	15	1.9 U	2.9	1.9 U				
Heptachlor epoxide	UG/KG	1.9	20%	3	15	1.9 U	2 U	1.9 U				
alpha-Chlordane	UG/KG	1.2	7%	1	15	1.9 U	1.2 J	1.9 U				
METALS												
Aluminum	MG/KG	18600	100%	19	19	18000	15100	18600	10000	13200	8060	15900
Antimony	MG/KG	0.55	20%	3	15	0.39 UJ	0.37 UJ	0.39 UJ				
Arsenic	MG/KG	12.2	100%	19	19	6.5 J	5.8 J	7.1 J	10 J	6.4 J	6.6 J	9
Barium	MG/KG	122	100%	19	19	99.7	79.3	85.2	38.2	119	45.7	81.4
Beryllium	MG/KG	0.83	100%	19	19	0.75	0.66	0.82	0.48 J	0.7 J	0.46 J	0.77
Calcium	MG/KG	260000	100%	19	19	7770	31000	4660	9330	41800	116000	6100
Chromium	MG/KG	28.9	100%	19	19	23.9 J	21.8 J	26.2 J	16.5	19.7	12.1	25.1
Cobalt	MG/KG	15.8	100%	19	19	12.6	11	12.2	10	11.4 J	7.9 J	14.3
Copper	MG/KG	31.2	100%	19	19	19.6	20	25.2	13.9	23.5	14.5	29.1
Iron	MG/KG	38100	100%	19	19	26900	25500	29700	22200	25500	17200	38100
Lead	MG/KG	66.8	100%	19	19	17.8	14.8	12.8	6.5	66.8	15	13.5
Magnesium	MG/KG	18200	95%	18	19	5160	7010	5560	4720	5030	9180	6250
Manganese	MG/KG	951	95%	18	19	788	516	639	461	951	487 R	507
Mercury	MG/KG	0.11	95%	18	19	0.07	0.05	0.05	0.01 UJ	0.11 J	0.02 J	0.03
Nickel	MG/KG	54.9	100%	19	19	30	29.8	34.1	25.5	30.2	23	40.6
Potassium	MG/KG	3500	100%	19	19	3070	2450	3500	573 J	1840	1050	1570
Selenium	MG/KG	0.91	26%	5	19	0.66 UJ	0.62 UJ	0.65 UJ	0.31 J	0.72 J	0.82 J	0.29
Sodium	MG/KG	154	89%	17	19	35.6 U	62.3	36.8	56.7 J	93.8 J	101 J	52.6
Thallium	MG/KG	1.3	73%	11	15	1.3	0.74	1.2				
Vanadium	MG/KG	31.5	100%	19	19	29.5	24.3	31.5	12.8	21.1	13.1	25.4
Zinc	MG/KG	155	100%	19	19	106	120	103	59.6	135	70.3	88.1
OTHER ANALYSES												
Total Petroleum Hydrocarbons	MG/KG	1480	100%	15	15	43	140	35				

Table C-7
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-26
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:
SAMP ID:
QC CODE:
STUDY ID:
SAMP. DEPTH TOP:
SAMP. DEPTH BOT:
MATRIX:
SAMP. DATE:

Parameter	Units	Maximum Value	Frequency of Detection	Number of Times Detected	Number of Samples Collected	(Q)
VOLATILE ORGANICS						
2-Butanone		19	25%	1	4	U
Acetone	UG/KG	78	42%	8	19	U
SEMIVOLATILE ORGANICS						
1,2,4-Trichlorobenzene	UG/KG	430	13%	2	15	
2,4-Dinitrophenol	UG/KG	960	60%	9	15	
2-Methylnaphthalene	UG/KG	55	13%	2	15	
2-Nitroaniline	UG/KG	1000	67%	10	15	
2-Nitrophenol	UG/KG	430	67%	10	15	
3,3'-Dichlorobenzidine	UG/KG	430	33%	5	15	
3-Nitroaniline	UG/KG	940	7%	1	15	
4,6-Dinitro-2-methylphenol	UG/KG	840	7%	1	15	
4-Chloro-3-methylphenol	UG/KG	400	27%	4	15	
4-Chloroaniline	UG/KG	390	33%	5	15	
Acenaphthene	UG/KG	85	7%	1	15	
Anthracene	UG/KG	220	37%	7	19	U
Benzo(a)anthracene	UG/KG	810	74%	14	19	J
Benzo(a)pyrene	UG/KG	650	74%	14	19	J
Benzo(b)fluoranthene	UG/KG	690	68%	13	19	J
Benzo(g,h,i)perylene	UG/KG	540	63%	12	19	U
Benzo(k)fluoranthene	UG/KG	720	74%	14	19	J
Carbazole	UG/KG	400	33%	5	15	
Chrysene	UG/KG	760	84%	16	19	J
Dibenz(a,h)anthracene	UG/KG	310	32%	6	19	U
Dibenzofuran	UG/KG	37	7%	1	15	
Fluoranthene	UG/KG	1900	79%	15	19	J
Fluorene	UG/KG	91	7%	1	15	
Hexachlorobutadiene	UG/KG	430	7%	1	15	
Hexachlorocyclopentadiene	UG/KG	430	13%	2	15	
Indeno(1,2,3-cd)pyrene	UG/KG	500	68%	13	19	U
Isophorone	UG/KG	430	67%	10	15	
Naphthalene	UG/KG	36	7%	1	15	
Nitrobenzene	UG/KG	400	53%	8	15	
Pentachlorophenol	UG/KG	960	7%	1	15	
Phenanthrene	UG/KG	860	63%	12	19	U
Pyrene	UG/KG	1200	74%	14	19	J
bis(2-Ethylhexyl)phthalate	UG/KG	400	27%	4	15	
PESTICIDES/PCBS						
4,4'-DDD	UG/KG	13	13%	2	15	
4,4'-DDE	UG/KG	5.8	47%	9	19	U
4,4'-DDT	UG/KG	15	32%	6	19	U
Dieldrin	UG/KG	1.9	7%	1	15	

Table C-7
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-26
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:
SAMP ID:
QC CODE:
STUDY ID:
SAMP. DEPTH TOP:
SAMP. DEPTH BOT:
MATRIX:
SAMP. DATE:

Parameter	Units	Maximum Value	Frequency of Detection	Number of Times Detected	Number of Samples Collected	(Q)
Endosulfan II	UG/KG	17	20%	3	15	
Endosulfan sulfate	UG/KG	8.8	13%	2	15	
Endrin aldehyde	UG/KG	8.7	20%	3	15	
Endrin ketone	UG/KG	2.6	7%	1	15	
Heptachlor	UG/KG	2.9	7%	1	15	
Heptachlor epoxide	UG/KG	1.9	20%	3	15	
alpha-Chlordane	UG/KG	1.2	7%	1	15	
METALS						
Aluminum	MG/KG	18600	100%	19	19	
Antimony	MG/KG	0.55	20%	3	15	
Arsenic	MG/KG	12.2	100%	19	19	J
Barium	MG/KG	122	100%	19	19	
Beryllium	MG/KG	0.83	100%	19	19	J
Calcium	MG/KG	260000	100%	19	19	
Chromium	MG/KG	28.9	100%	19	19	
Cobalt	MG/KG	15.8	100%	19	19	
Copper	MG/KG	31.2	100%	19	19	
Iron	MG/KG	38100	100%	19	19	
Lead	MG/KG	66.8	100%	19	19	
Magnesium	MG/KG	18200	95%	18	19	R
Manganese	MG/KG	951	95%	18	19	J
Mercury	MG/KG	0.11	95%	18	19	
Nickel	MG/KG	54.9	100%	19	19	
Potassium	MG/KG	3500	100%	19	19	J
Selenium	MG/KG	0.91	26%	5	19	J
Sodium	MG/KG	154	89%	17	19	
Thallium	MG/KG	1.3	73%	11	15	
Vanadium	MG/KG	31.5	100%	19	19	
Zinc	MG/KG	155	100%	19	19	
OTHER ANALYSES						
Total Petroleum Hydrocarbons	MG/KG	1480	100%	15	15	

Table C-8
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-64A
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						MW64A-1	MW64A-1	MW64A-1	SB64A-1	SB64A-1	SB64A-1
SAMP ID:						MW64A-1-00	MW64A-1-02	MW64A-1-03	SB64A-1-00	SB64A-1-02	SB64A-1-04
QC CODE:						SA	SA	SA	SA	SA	SA
STUDY ID:						SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A
SAMP. DEPTH TOP:						0	2	4	0	2	6
SAMP. DEPTH BOT:						0.2	4	6	0.2	4	8
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						04/02/94	04/02/94	04/02/94	05/27/94	05/27/94	05/27/94
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS											
Benzene	UG/KG	2	8.33%	1	12	13 U	12 U	12 U	12 U	12 U	11 U
Toluene	UG/KG	2	8.33%	1	12	13 U	12 U	12 U	12 U	12 U	11 U
Trichloroethene	UG/KG	1	8.33%	1	12	13 U	12 U	12 U	12 U	12 U	11 U
SEMIVOLATILE ORGANICS											
2-Methylnaphthalene	UG/KG	2900	33.33%	4	12	450 U	390 U	370 U	54 J	400 U	360 U
Acenaphthene	UG/KG	1300	33.33%	4	12	450 U	390 U	370 U	140 J	400 U	360 U
Acenaphthylene	UG/KG	400	33.33%	4	12	450 U	390 U	370 U	250 J	400 U	360 U
Anthracene	UG/KG	1900	41.67%	5	12	450 U	390 U	370 U	540 J	58 J	360 U
Benzo(a)anthracene	UG/KG	5600	41.67%	5	12	450 U	390 U	370 U	3600	180 J	360 U
Benzo(a)pyrene	UG/KG	5400	58.33%	7	12	450 U	390 U	370 U	3000	180 J	360 U
Benzo(b)fluoranthene	UG/KG	9600	41.67%	5	12	450 U	390 U	370 U	6600 J	320 J	360 U
Benzo(ghi)perylene	UG/KG	4000	58.33%	7	12	450 U	390 U	370 U	1100	140 J	24 J
Benzo(k)fluoranthene	UG/KG	5900	33.33%	4	12	450 U	390 U	370 U	1000 UJ	400 UJ	360 U
Bis(2-Ethylhexyl)phthalate	UG/KG	13000	75.00%	9	12	750	280 J	320 J	1000 U	41 J	40 J
Carbazole	UG/KG	780	41.67%	5	12	450 U	390 U	370 U	720 J	39 J	360 U
Chrysene	UG/KG	4800	50.00%	6	12	450 U	390 U	370 U	3400	180 J	360 U
Di-n-butylphthalate	UG/KG	290	8.33%	1	12	290 J	390 U	370 U	1000 U	400 U	360 U
Dibenz(a,h)anthracene	UG/KG	1500	50.00%	6	12	450 U	390 U	370 U	1200	70 J	360 U
Dibenzofuran	UG/KG	1400	25.00%	3	12	450 U	390 U	370 U	90 J	400 U	360 U
Fluoranthene	UG/KG	11000	50.00%	6	12	450 U	390 U	370 U	5700	470	360 U
Fluorene	UG/KG	4100	41.67%	5	12	450 U	390 U	370 U	260 J	36 J	360 U
Indeno(1,2,3-cd)pyrene	UG/KG	3500	50.00%	6	12	450 U	390 U	370 U	1900	92 J	360 U
Naphthalene	UG/KG	3800	25.00%	3	12	450 U	390 U	370 U	1000 U	400 U	360 U
Phenanthrene	UG/KG	15000	50.00%	6	12	450 U	390 U	370 U	2300	290 J	360 U
Phenol	UG/KG	44	8.33%	1	12	450 U	390 U	370 U	1000 U	400 U	360 U
Pyrene	UG/KG	8700	50.00%	6	12	450 U	390 U	370 U	4400	340 J	360 U
PESTICIDES/PCBs											
4,4'-DDD	UG/KG	3.7	8.33%	1	12	4.5 U	3.9 U	3.7 U	8 UJ	4 UJ	3.6 UJ
4,4'-DDE	UG/KG	9	25.00%	3	12	4.5 U	3.9 U	3.7 U	4.5 J	4 UJ	3.6 UJ
4,4'-DDT	UG/KG	24	33.33%	4	12	4.5 U	3.9 U	3.7 U	4.6 J	4 UJ	3.6 UJ
Alpha-Chlordane	UG/KG	6.3	25.00%	3	12	2.3 U	2 U	1.9 U	4.2 J	2.1 UJ	1.8 UJ
Dieldrin	UG/KG	7.5	16.67%	2	12	4.5 U	3.9 U	3.7 U	5.9 J	4 UJ	3.6 UJ
Endosulfan I	UG/KG	33	41.67%	5	12	2.3 U	2 U	1.9 U	22 J	5.1 J	1.8 UJ
Endosulfan sulfate	UG/KG	5	16.67%	2	12	4.5 U	3.9 U	3.7 U	8 UJ	4 UJ	3.6 UJ
Heptachlor epoxide	UG/KG	1.9	8.33%	1	12	2.3 U	2 U	1.9 U	4.1 UJ	2.1 UJ	1.8 UJ
METALS											
Aluminum	MG/KG	19800	100.00%	12	12	16100	19800	12600	11800	17100	12800
Antimony	MG/KG	4.3	25.00%	3	12	0.23 J	0.2 UJ	0.2 UJ	0.36 J	0.26 UJ	0.26 UJ
Arsenic	MG/KG	8.4	100.00%	12	12	7.1	8.2	5	4.7	6	8.4
Barium	MG/KG	133	100.00%	12	12	83.7	91.2	62.3	59.3	133	53.7
Beryllium	MG/KG	0.8	100.00%	12	12	0.68 J	0.74 J	0.53 J	0.54 J	0.8 J	0.55 J
Cadmium	MG/KG	1	91.67%	11	12	0.11 J	0.02 U	0.12 J	0.45 J	0.48 J	0.33 J
Calcium	MG/KG	72400	100.00%	12	12	7210	4300	72400	36300	4450	4580
Chromium	MG/KG	35.5	100.00%	12	12	23	25	19	19.7	23.9	21.4
Cobalt	MG/KG	14	100.00%	12	12	11.8	11.3	9.1 J	10.6	10.3	14
Copper	MG/KG	56.3	100.00%	12	12	25.5	21	23.7	23.3	20.1	24.6
Iron	MG/KG	35900	100.00%	12	12	28500	28000	22600	25500	28600	35900
Lead	MG/KG	391	83.33%	10	12	21.6	13.6	15.4	18.5	14.5	11.1
Magnesium	MG/KG	14800	100.00%	12	12	5480	5010	14800	6940	4510	5420
Manganese	MG/KG	968	100.00%	12	12	558	604	402	528	968	619
Mercury	MG/KG	0.1	100.00%	12	12	0.05 J	0.03 J	0.02 J	0.04 J	0.06 J	0.03 J
Nickel	MG/KG	36.1	100.00%	12	12	32.2	28.6	26.7	33.3	29.2	36.1
Potassium	MG/KG	2820	100.00%	12	12	2590 J	2260 J	2700 J	1530 J	2070 J	1150 J
Selenium	MG/KG	1.7	83.33%	10	12	0.96	1.7	0.34 U	0.98	0.94 J	0.82 J
Sodium	MG/KG	92.1	75.00%	9	12	27.5 U	31.8 U	92.1 J	50.9 J	22.1 J	39.2 J
Thallium	MG/KG	0.42	8.33%	1	12	0.42 J	0.32 U	0.32 U	0.26 U	0.38 U	0.39 U
Vanadium	MG/KG	33.5	100.00%	12	12	27.6	32.2	22.8	20	29.3	19.1

Table C-8
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-64A
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						MW64A-1	MW64A-1	MW64A-1	SB64A-1	SB64A-1	SB64A-1
SAMP ID:						MW64A-1-00	MW64A-1-02	MW64A-1-03	SB64A-1-00	SB64A-1-02	SB64A-1-04
QC CODE:						SA	SA	SA	SA	SA	SA
STUDY ID:						SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A
SAMP. DEPTH TOP:						0	2	4	0	2	6
SAMP. DEPTH BOT:						0.2	4	6	0.2	4	8
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						04/02/94	04/02/94	04/02/94	05/27/94	05/27/94	05/27/94
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Zinc	MG/KG	167	100.00%	12	12	104	87.1	64.9	83	87	106

Table C-8
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-64A
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SB64A-2	SB64A-2	SB64A-2	SB64A-3	SB64A-3	SB64A-3
SAMP ID:						SB64A-2-00	SB64A-2-02	SB64A-2-03	SB64A-3-00	SB64A-3-01	SB64A-3-02
QC CODE:						SA	SA	SA	SA	SA	SA
STUDY ID:						SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A
SAMP. DEPTH TOP:						0	2	4	0	0	2
SAMP. DEPTH BOT:						0.2	4	7	0.2	2	3
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						06/10/94	06/10/94	06/10/94	06/10/94	06/10/94	06/10/94
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS											
Benzene	UG/KG	2	8.33%	1	12	11 U	11 U	12 U	12 U	2 J	12 U
Toluene	UG/KG	2	8.33%	1	12	11 U	11 U	12 U	12 U	2 J	12 U
Trichloroethene	UG/KG	1	8.33%	1	12	11 U	11 U	12 U	1 J	11 U	12 U
SEMIVOLATILE ORGANICS											
2-Methylnaphthalene	UG/KG	2900	33.33%	4	12	150 J	2900 J	370 U	52 J	370 U	370 U
Acenaphthene	UG/KG	1300	33.33%	4	12	250 J	1300 J	370 U	50 J	370 U	370 U
Acenaphthylene	UG/KG	400	33.33%	4	12	400 J	310 J	370 U	170 J	370 U	370 U
Anthracene	UG/KG	1900	41.67%	5	12	1100 J	1900 J	370 U	230 J	370 U	370 U
Benzo(a)anthracene	UG/KG	5600	41.67%	5	12	5600	4000	370 U	1200	370 U	370 U
Benzo(a)pyrene	UG/KG	5400	58.33%	7	12	5400	3100 J	21 J	1200	35 J	370 U
Benzo(b)fluoranthene	UG/KG	9600	41.67%	5	12	9600 J	3700 UJ	370 UJ	1500	29 J	370 U
Benzo(ghi)perylene	UG/KG	4000	58.33%	7	12	4000	1500 J	370 U	1000	27 J	370 U
Benzo(k)fluoranthene	UG/KG	5900	33.33%	4	12	2300 UJ	5900 J	37 J	550	25 J	370 U
Bis(2-Ethylhexyl)phthalate	UG/KG	13000	75.00%	9	12	13000	3700 U	52 J	140 J	21 J	370 U
Carbazole	UG/KG	780	41.67%	5	12	420 J	780 J	370 U	110 J	370 U	370 U
Chrysene	UG/KG	4800	50.00%	6	12	4800	4500	22 J	970	370 U	370 U
Di-n-butylphthalate	UG/KG	290	8.33%	1	12	2300 U	3700 U	370 U	390 U	370 U	370 U
Dibenz(a,h)anthracene	UG/KG	1500	50.00%	6	12	1500 J	820 J	370 U	390 J	19 J	370 U
Dibenzofuran	UG/KG	1400	25.00%	3	12	120 J	1400 J	370 U	390 U	370 U	370 U
Fluoranthene	UG/KG	11000	50.00%	6	12	6900	11000	26 J	1500	370 U	370 U
Fluorene	UG/KG	4100	41.67%	5	12	350 J	4100	370 U	120 J	370 U	370 U
Indeno(1,2,3-cd)pyrene	UG/KG	3500	50.00%	6	12	3500	1500 J	370 U	930	27 J	370 U
Naphthalene	UG/KG	3800	25.00%	3	12	340 J	3800	370 U	51 J	370 U	370 U
Phenanthrene	UG/KG	15000	50.00%	6	12	2700	15000	23 J	680	370 U	370 U
Phenol	UG/KG	44	8.33%	1	12	2300 U	3700 U	370 U	44 J	370 U	370 U
Pyrene	UG/KG	8700	50.00%	6	12	5400	8700	50 J	1200	370 U	370 U
PESTICIDES/PCBs											
4,4'-DDD	UG/KG	3.7	8.33%	1	12	3.7 J	3.7 U	3.7 U	3.9 U	3.7 U	3.7 UJ
4,4'-DDE	UG/KG	9	25.00%	3	12	9 J	3.7 U	3.7 U	3 J	3.7 U	3.7 UJ
4,4'-DDT	UG/KG	24	33.33%	4	12	24 J	4.4 J	3.7 U	5	3.7 U	3.7 UJ
Alpha-Chlordane	UG/KG	6.3	25.00%	3	12	6.3 J	1.9 U	1.9 U	2.9 J	1.9 U	1.9 UJ
Dieldrin	UG/KG	7.5	16.67%	2	12	7.5 J	3.7 U	3.7 U	3.9 U	3.7 U	3.7 UJ
Endosulfan I	UG/KG	33	41.67%	5	12	33 J	7.8 J	1.9 U	23 J	1.9 U	1.9 UJ
Endosulfan sulfate	UG/KG	5	16.67%	2	12	5 J	3.7 U	3.7 U	3.7 J	3.7 U	3.7 UJ
Heptachlor epoxide	UG/KG	1.9	8.33%	1	12	3.6 U	1.9 U	1.9 U	1.9 J	1.9 U	1.9 UJ
METALS											
Aluminum	MG/KG	19800	100.00%	12	12	11800	18400	12400	16500	14500	15000
Antimony	MG/KG	4.3	25.00%	3	12	4.3 J	0.2 UJ	0.19 UJ	0.24 UJ	0.25 UJ	0.21 UJ
Arsenic	MG/KG	8.4	100.00%	12	12	5.8	7.1	4.8	5.7	6.1	5.9
Barium	MG/KG	133	100.00%	12	12	96.3	90.9	68.7	109	103	86.1
Beryllium	MG/KG	0.8	100.00%	12	12	0.55 J	0.78 J	0.54 J	0.74 J	0.72 J	0.65 J
Cadmium	MG/KG	1	91.67%	11	12	1	0.72 J	0.7 J	0.83 J	0.4 J	0.32 J
Calcium	MG/KG	72400	100.00%	12	12	62800	4040	64900	27600	3560	3130
Chromium	MG/KG	35.5	100.00%	12	12	35.5	27	17.5	23.7	20.8 J	22.1 J
Cobalt	MG/KG	14	100.00%	12	12	10.3	9.5	8.9	9.1 J	11.3	11
Copper	MG/KG	56.3	100.00%	12	12	56.3	23.5	24.3	21	23.4	25.8
Iron	MG/KG	35900	100.00%	12	12	23000	30000	21200	24600	26700	26800
Lead	MG/KG	391	83.33%	10	12	391	10.1	10.7	24.4	13.6 R	10.8 R
Magnesium	MG/KG	14800	100.00%	12	12	8000	5610	11900	5870	4410	5190
Manganese	MG/KG	968	100.00%	12	12	517	310	405	664	753	556
Mercury	MG/KG	0.1	100.00%	12	12	0.1	0.09 J	0.02 J	0.05 J	0.05 J	0.04 J
Nickel	MG/KG	36.1	100.00%	12	12	31.1	31.5	26.5	26.5	29	33.9
Potassium	MG/KG	2820	100.00%	12	12	2060 J	2820 J	2170 J	2430 J	1630 J	2210 J
Selenium	MG/KG	1.7	83.33%	10	12	0.49 J	0.72 J	0.39 U	0.73 J	0.91 J	0.83
Sodium	MG/KG	92.1	75.00%	9	12	78.4 J	39.4 J	85.5 J	42.8 J	21.9 J	16.4 U
Thallium	MG/KG	0.42	8.33%	1	12	0.33 U	0.3 U	0.27 U	0.35 U	0.37 U	0.31 U
Vanadium	MG/KG	33.5	100.00%	12	12	25.4	31.1	20.8	33.5	25.6	25

Table C-8
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-64A
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SB64A-2	SB64A-2	SB64A-2	SB64A-3	SB64A-3	SB64A-3
SAMP ID:						SB64A-2-00	SB64A-2-02	SB64A-2-03	SB64A-3-00	SB64A-3-01	SB64A-3-02
QC CODE:						SA	SA	SA	SA	SA	SA
STUDY ID:						SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A	SEAD-64A
SAMP. DEPTH TOP:						0	2	4	0	0	2
SAMP. DEPTH BOT:						0.2	4	7	0.2	2	3
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						06/10/94	06/10/94	06/10/94	06/10/94	06/10/94	06/10/94
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Zinc	MG/KG	167	100.00%	12	12	167	76.7	61.2	92.7	77.4	82.8

Table C-9
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-121I
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SD121I-1	SD121I-2	SD121I-3
SAMP ID:						121I-4000	121I-4001	121I-4002
QC CODE:						SA	SA	SA
STUDY ID:						SEAD-121I	SEAD-121I	SEAD-121I
SAMP. DEPTH TOP:						0	0	0
SAMP. DEPTH BOT:						2	2	2
MATRIX:						SEDIMENT	SEDIMENT	SEDIMENT
SAMP. DATE:						11/6/2002	11/6/2002	11/6/2002
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS								
Acetone	UG/KG	30	100%	3	3	30	8	9.9
SEMIVOLATILE ORGANICS								
Benzo(a)anthracene	UG/KG	49	33%	1	3	460 U	380 U	49 J
Benzo(b)fluoranthene	UG/KG	45	67%	2	3	460 U	45 J	44 J
Fluoranthene	UG/KG	130	67%	2	3	460 U	99 J	130 J
Phenanthrene	UG/KG	93	67%	2	3	460 U	50 J	93 J
Pyrene	UG/KG	93	67%	2	3	460 U	78 J	93 J
PESTICIDES/PCBS								
Heptachlor	UG/KG	1.4	50%	0	3	1.4 U	1.2 U	1.3 U
METALS								
Aluminum	MG/KG	8790	100%	3	3	8790	4180	6930
Arsenic	MG/KG	7.7	100%	3	3	7.7	2.6	4
Barium	MG/KG	53.7	100%	3	3	47.8 J	44.1 J	53.7 J
Beryllium	MG/KG	0.52	100%	3	3	0.52	0.31	0.42
Calcium	MG/KG	36500	100%	3	3	17000	36500	33200
Chromium	MG/KG	15.6	100%	3	3	15.6	8.6	11.7
Cobalt	MG/KG	10.3	100%	3	3	10.3	5.9	9.3
Copper	MG/KG	23.1	100%	3	3	17.1 J	23.1	22.9
Iron	MG/KG	19800	100%	3	3	19800 J	10100	16600
Lead	MG/KG	22.4	100%	3	3	11.2 J	22.4	17.8
Magnesium	MG/KG	7540	100%	3	3	4480 J	3530	7540
Manganese	MG/KG	478	100%	3	3	478 J	303	399
Mercury	MG/KG	0.18	100%	3	3	0.04 J	0.02	0.18
Nickel	MG/KG	24.4	100%	3	3	24.3 J	16.4	24.4
Potassium	MG/KG	818	100%	3	3	723 J	541	818
Sodium	MG/KG	209	100%	3	3	184 J	186	209
Vanadium	MG/KG	13.4	100%	3	3	13.4 J	8.1	12.4
Zinc	MG/KG	132	100%	3	3	57.3 J	59.3 J	132 J
OTHER ANALYSES								
Total Organic Carbon	MG/KG	7200	100%	3	3	7200 J	4400	2800
Total Petroleum Hydrocarbons	MG/KG	150	33%	1	3	55 UJ	150	52 U

Table C-10
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-121B
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SB121B-1	SB121B-1	SB121B-1	SB121B-2	SB121B-3
SAMP ID:						EB212	EB213	EB238	EB239	EB240
QC CODE:						SA	SA	SA	SA	SA
STUDY ID:						SEAD-121B	SEAD-121B	SEAD-121B	SEAD-121B	SEAD-121B
SAMP. DEPTH TOP:						0	4	0	0	0
SAMP. DEPTH BOT:						0.2	4.5	0.2	0.2	0.2
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						7-Mar-98	7-Mar-98	9-Mar-98	9-Mar-98	9-Mar-98
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS										
Acetone	UG/KG	14	20%	1	5	14 J	12 U	16 U	14 U	11 U
Toluene	UG/KG	20	100%	5	5	6 J	7 J	4 J	2 J	20
SEMIVOLATILE ORGANICS										
2-Methylnaphthalene	UG/KG	460	60%	3	5	220 U	220 U	27 J	78 J	460 J
Acenaphthene	UG/KG	1800	100%	5	5	59 J	120 J	320 J	640 J	1800 J
Anthracene	UG/KG	2500	100%	5	5	83 J	160 J	430 J	960 J	2500 J
Benzo[a]anthracene	UG/KG	9400	100%	5	5	390	420	1600	3100	9400
Benzo[a]pyrene	UG/KG	9100	100%	5	5	390	390	1500	2800	9100
Benzo[b]fluoranthene	UG/KG	10000	100%	5	5	460	410	1700	3200	10000
Benzo[ghi]perylene	UG/KG	6500	100%	5	5	260	230	1000	2000	6500
Benzo[k]fluoranthene	UG/KG	9700	100%	5	5	410	440	1600	2600	9700
Carbazole	UG/KG	5300	100%	5	5	130 J	200 J	820	1400	5300
Chrysene	UG/KG	12000	100%	5	5	450	450	2000	3400	12000
Dibenz[a,h]anthracene	UG/KG	2100	100%	5	5	110 J	78 J	500	640 J	2100 J
Dibenzofuran	UG/KG	1200	100%	5	5	16 J	42 J	140 J	300 J	1200 J
Diethyl phthalate	UG/KG	12	20%	1	5	12 J	220 U	500 U	970 U	3700 U
Fluoranthene	UG/KG	30000	100%	5	5	1100	1200	5000 J	8900 J	30000
Fluorene	UG/KG	1800	100%	5	5	44 J	88 J	270 J	580 J	1800 J
Indeno[1,2,3-cd]pyrene	UG/KG	6600	100%	5	5	240	210 J	970	2000	6600
Naphthalene	UG/KG	1700	60%	3	5	220 U	220 U	79 J	240 J	1700 J
Phenanthrene	UG/KG	21000	100%	5	5	620	940	3200	5800	21000
Pyrene	UG/KG	21000	100%	5	5	940	1100	3800	5900	21000
PESTICIDES/PCBS										
Aroclor-1254	UG/KG	76	20%	1	5	44 U	40 U	50 U	48 U	76 J

Table C-11
SUMMARY OF DETECTED ANALYTES IN SOILS - SEAD-121C (DRMO Yard)
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SSDRMO-17	SSDRMO-18	SSDRMO-23	SDDRMO-8	SDDRMO-6	SDDRMO-7	SDDRMO-8
SAMP ID:						DRMO-1013	DRMO-1014	DRMO-1019	DRMO-4005	DRMO-4006	DRMO-4007	DRMO-4008
QC CODE:						SA	SA	SA	SA	SA	SA	SA
STUDY ID:						SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C	SEAD-121C
SAMP. DEPTH TOP:						0	0	0	0	0	0	0
SAMP. DEPTH BOT:						0.2	0.2	0.2	2	2	2	2
MATRIX:						SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT
SAMP. DATE:						10/30/2002	10/30/2002	10/30/2002	11/5/2002	11/5/2002	11/5/2002	11/5/2002
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS												
Acetone	UG/KG	72	29%	2	7	5.2 U	19 U	13 UJ	21 J	3.7 U	2.9 U	72 J
Carbon disulfide	UG/KG	12	29%	2	7	3.3 U	3.2 U	3 UJ	6.6 UJ	12 J	2.9 UJ	6.7 J
SEMIVOLATILE ORGANICS												
Benzo(a)anthracene	UG/KG	55	33%	1	3	380 U	55 J	400 U				
Benzo(b)fluoranthene	UG/KG	77	33%	1	3	380 U	77 J	400 U				
Fluoranthene	UG/KG	110	67%	2	3	380 U	110 J	54 J				
Pyrene	UG/KG	87	67%	2	3	380 U	87 J	44 J				
METALS												
Aluminum	MG/KG	14700	100%	7	7	11800 J	12300 J	11100 J	10100	9670	7620	14700 J
Antimony	MG/KG	15.5	100%	3	3	0.32 J	15.5 J	1.4 J				
Arsenic	MG/KG	5.9	100%	7	7	5.3 J	4.7 J	4.1 J	2.1	3.3	3.6	5.9 J
Barium	MG/KG	122	100%	7	7	76.6 J	76.3 J	99.3 J	72.2 J	47.1 J	50.9 J	122 J
Beryllium	MG/KG	1	100%	7	7	0.7 J	0.73 J	0.65 J	0.63	0.6	0.52	1 J
Cadmium	MG/KG	0.06	33%	1	3	0.06 U	0.06 J	0.06 U				
Calcium	MG/KG	34500	100%	7	7	22800 J	7720 J	11700 J	24000	13200	16300	34500 J
Chromium	MG/KG	32.7	100%	7	7	18.2 J	26.5 J	17.7 J	22.6	17.1	14	32.7 J
Cobalt	MG/KG	20.2	100%	7	7	11.9 J	12.7 J	8.6 J	11.4	10.6	11.5	20.2 J
Copper	MG/KG	64.9	100%	7	7	21.2 J	64.9 J	43.8 J	34	16.2	18.8	50.6 J
Iron	MG/KG	34100	100%	7	7	19500 J	23300 J	17300 J	20500	21200	20500	34100 J
Lead	MG/KG	170	100%	7	7	13.1 J	170 J	59.2 J	58.3	14	13.3	85.2 J
Magnesium	MG/KG	7310	100%	7	7	6940 J	5570 J	4700 J	5150	4480	3540	7310 J
Manganese	MG/KG	885	100%	7	7	537 J	415 J	266 J	471	610	577	885 J
Mercury	MG/KG	0.18	100%	7	7	0.04	0.05	0.08	0.11	0.04	0.09	0.18 J
Nickel	MG/KG	45.3	100%	7	7	29.6 J	39.7 J	25 J	30.9	29.5	24	45.3 J
Potassium	MG/KG	1660	100%	7	7	1590 J	1660 J	1430 J	905	810	558	1270 J
Silver	MG/KG	1	43%	3	7	0.44 U	0.46 J	0.44 U	0.65	0.38 U	0.35 U	1 J
Sodium	MG/KG	656	100%	7	7	94.1	58.2	65.2	388	297	167	656 J
Vanadium	MG/KG	27.3	100%	7	7	16.7 J	18.5 J	16.1 J	17.8	15.6	13.9	27.3 J
Zinc	MG/KG	195	100%	7	7	57.8 J	124 J	111 J	135 J	62.8 J	51.4 J	195 J
OTHER ANALYSES												
Total Organic Carbon	MG/KG	8700	100%	7	7	7200	8700	7500	7100 J	4900	4200	7100 J

Table C-12
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-17
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC_ID:						SS17-16	SS17-17	SS17-19	SS17-20	SS17-21	SS17-22	SS17-23	SS17-24
SAMP ID:						SS17-16-1	SS17-17-1	SS17-19-1	SS17-20-1	SS17-21-1	SS17-22-1	SS17-23-1	16072
QC CODE:						SA	SA	SA	SA	SA	SA	SA	SA
STUDY ID:						ESI	ESI	ESI	ESI	ESI	ESI	ESI	RI ROUND1
TOP:						0	0	0	0	0	0	0	0
BOTTOM:						0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMPLE DATE:						10/21/1993	10/21/1993	10/21/1993	10/21/1993	10/21/1993	10/21/1993	10/21/1993	8/22/1996
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS													
Acetone	UG/KG	26	33%	1	3								
Toluene	UG/KG	8	33%	1	3								
SEMIVOLATILE ORGANICS													
3,3'-Dichlorobenzidine	UG/KG	410	9%	1	11	450 U	430 U	2300 U	420 U	430 U	430 U	430 U	390 UJ
3-Nitroaniline	UG/KG	990	9%	1	11	1100 U	1100 U	5500 U	1000 U	1100 U	1000 U	1000 U	940 UJ
4-Nitroaniline	UG/KG	990	9%	1	11	1100 U	1100 U	5500 U	1000 U	1100 U	1000 U	1000 U	940 UJ
Benzo(a)anthracene	UG/KG	21	9%	1	11	450 U	430 U	2300 U	420 U	430 U	21 J	430 U	390 U
Benzo(a)pyrene	UG/KG	21	18%	2	11	450 U	430 U	2300 U	420 U	430 U	21 J	430 U	390 U
Benzo(b)fluoranthene	UG/KG	28	9%	1	11	450 U	430 U	2300 U	420 U	430 U	28 J	430 U	390 U
Benzo(k)fluoranthene	UG/KG	21	9%	1	11	450 U	430 U	2300 U	420 U	430 U	21 J	430 U	390 U
Carbazole	UG/KG	410	9%	1	11	450 U	430 U	2300 U	420 U	430 U	430 U	430 U	390 UJ
Chrysene	UG/KG	28	36%	4	11	450 U	430 U	2300 U	420 U	430 U	28 J	430 U	23 J
Di-n-butylphthalate	UG/KG	1200	45%	5	11	340 J	480	1200 J	510	760	430 U	430 U	390 U
Dibenz(a,h)anthracene	UG/KG	55	9%	1	11	450 U	430 U	2300 U	420 U	430 U	430 U	430 U	390 U
Fluoranthene	UG/KG	49	55%	6	11	31 J	23 J	2300 U	420 U	430 U	49 J	430 U	27 J
Pentachlorophenol	UG/KG	990	9%	1	11	1100 U	1100 U	5500 U	1000 U	1100 U	1000 U	1000 U	940 UJ
Phenanthrene	UG/KG	20	27%	3	11	450 U	430 U	2300 U	420 U	430 U	20 J	430 U	18 J
Pyrene	UG/KG	40	45%	5	11	28 J	430 U	2300 U	420 U	430 U	40 J	430 U	36 J
bis(2-Chloroisopropyl) ether	UG/KG	410	25%	1	4								390 U
bis(2-Ethylhexyl)phthalate	UG/KG	200	25%	4	16	450 U	430 U	2300 U	420 U	200 J	430 U	430 U	390 U
PESTICIDES/PCBS													
4,4'-DDD	UG/KG	15	21%	3	14	4.5 U	4.3 U	15	4.2 U	4.3 U	4.3 U	4.3 U	3.9 U
4,4'-DDE	UG/KG	28	29%	4	14	4.5 U	4.3 U	2.5 J	4.2 U	4.3 U	4.3 U	4.3 U	3.9 U
4,4'-DDT	UG/KG	3	14%	2	14	4.5 U	4.3 U	4.5 U	4.2 U	4.3 U	4.3 U	4.3 U	3.9 U
Aroclor-1260	UG/KG	28	18%	2	11	45 U	43 U	45 U	21 J	28 J	43 U	43 U	39 U
Dieldrin	UG/KG	80	18%	2	11	4.5 U	4.3 U	4.5 U	4.2 U	4.3 U	4.3 U	4.3 U	3.9 U
Endosulfan II	UG/KG	3.8	67%	2	3								
METALS													
Aluminum	MG/KG	19300	100%	16	16	17300	14100	15500	13900	14400	18100	15700	14400 J
Antimony	MG/KG	3.9	36%	5	14	12.4 UR	11.6 UR	9 UR	8.7 UR	11 UR	12.8 UJ	13.1 UJ	3.3 J
Arsenic	MG/KG	8.9	100%	16	16	6.5	5.7	6.3	6.5	8.9	5.9	5.3	5.4
Barium	MG/KG	192	69%	11	16	210 R	132 R	149 R	96.2 R	96.5 R	127	92.6	140
Beryllium	MG/KG	0.99	100%	16	16	0.82 J	0.74 J	0.83 J	0.71 J	0.74 J	0.8 J	0.72 J	0.56
Cadmium	MG/KG	5.6	79%	11	14	2.3	2	2.9	0.54 U	0.69 U	1.5	0.82 U	2.8
Calcium	MG/KG	7310	100%	16	16	4760	3400	4210	6230	3910	6900	2510	2300
Chromium	MG/KG	27.9	100%	16	16	23	19.7	22.9	21.4	23.2	23.8	20.3	20.1
Cobalt	MG/KG	21.9	100%	16	16	7.7 J	21.9	10.2	11.1	12.4	9.9 J	9.4 J	11
Copper	MG/KG	182	100%	16	16	182	47.8	81.7	26.9	25.9	52 J	22.6 J	59
Iron	MG/KG	36100	100%	16	16	24200	23400	25500	28700	28800	24700	22700	25300
Lead	MG/KG	595	100%	16	16	595	373	402	69.2	44.9	226	111	496
Magnesium	MG/KG	5820	100%	16	16	4170	3520	4260	4770	4930	4880	3720	3340
Manganese	MG/KG	1080	100%	16	16	613	880	741	602	857	662	598	652 J
Mercury	MG/KG	0.36	88%	14	16	0.36 J	0.07 J	0.07 J	0.08 J	0.06 J	0.06 J	0.04 J	0.06
Nickel	MG/KG	37.2	100%	16	16	25.2	23.5	30.2	31	35.6	27	22.6	21.2
Potassium	MG/KG	2630	100%	16	16	1810	1070 J	1610	1270	1410	1960	1430	1230
Selenium	MG/KG	1.9	36%	5	14	0.25 UJ	0.25 UJ	0.23 UJ	0.18 UJ	0.2 UJ	0.24 UJ	0.26 UJ	1 J
Silver	MG/KG	1.1	27%	3	11	1.6 UJ	1.5 UJ	1.1 UJ	1.1 UJ	1.4 UJ	1.6 U	1.7 U	0.58
Sodium	MG/KG	119	75%	12	16	56.6 J	71.3 J	59.5 J	40.4 J	36.3 J	87 J	46 J	61.2 U
Thallium	MG/KG	1.5	29%	4	14	0.27 U	0.28 U	0.25 U	0.2 U	0.22 U	0.26 U	0.29 U	1.5
Vanadium	MG/KG	30.7	100%	16	16	29.8	25.5	26.3	24	24.1	30.1	26.4	26.7
Zinc	MG/KG	468	100%	16	16	150	140	351	71.6	83.9	196	75.5	222 J
HERBICIDES													

Table C-12
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-17
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC_ID:						SS17-16	SS17-17	SS17-19	SS17-20	SS17-21	SS17-22	SS17-23	SS17-24
SAMP ID:						SS17-16-1	SS17-17-1	SS17-19-1	SS17-20-1	SS17-21-1	SS17-22-1	SS17-23-1	16072
QC CODE:						SA	SA	SA	SA	SA	SA	SA	SA
STUDY ID:						ESI	ESI	ESI	ESI	ESI	ESI	ESI	RI ROUND1
TOP:						0	0	0	0	0	0	0	0
BOTTOM:						0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMPLE DATE:						10/21/1993	10/21/1993	10/21/1993	10/21/1993	10/21/1993	10/21/1993	10/21/1993	8/22/1996
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
MCPA	UG/KG	32000	14%	1	7	6800 U	32000	6900 U	6500 U	6600 U	6500 U	6600 U	

Table C-12
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-17
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC_ID:						SS17-25	SS17-28	SS17-39	SB17-3	SB17-3	SW/SD17-4	SW/SD17-5	SW/SD17-6
SAMP ID:						16073	16064	16075	SB17-3-1	SB17-3-2	16136A	16137A	16121A
QC CODE:						SA	SA	SA	SA	SA	SA	SA	SA
STUDY ID:						RI ROUND1	RI ROUND1	RI ROUND1	ESI	ESI	RI ROUND1	RI ROUND1	RI ROUND1
TOP:						0	0	0	0	2	0	0	0
BOTTOM:						0.2	0.2	0.2	2	4	6	6	6
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
SAMPLE DATE:						8/22/1996	8/21/1996	8/22/1996	11/30/1993	11/30/1993	9/18/1996	9/18/1996	9/18/1996
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS													
Acetone	UG/KG	26	33%	1	3						20 U	20 U	26
Toluene	UG/KG	8	33%	1	3						20 U	20 U	8 J
SEMIVOLATILE ORGANICS													
3,3'-Dichlorobenzidine	UG/KG	410	9%	1	11	410 J	390 U	410 UJ					
3-Nitroaniline	UG/KG	990	9%	1	11	990 J	950 U	1000 UJ					
4-Nitroaniline	UG/KG	990	9%	1	11	990 J	950 U	1000 UJ					
Benzo(a)anthracene	UG/KG	21	9%	1	11	410 U	390 U	410 U					
Benzo(a)pyrene	UG/KG	21	18%	2	11	410 U	390 U	19 J					
Benzo(b)fluoranthene	UG/KG	28	9%	1	11	410 U	390 U	410 U					
Benzo(k)fluoranthene	UG/KG	21	9%	1	11	410 U	390 U	410 U					
Carbazole	UG/KG	410	9%	1	11	410 J	390 U	410 UJ					
Chrysene	UG/KG	28	36%	4	11	19 J	390 U	21 J					
Di-n-butylphthalate	UG/KG	1200	45%	5	11	410 U	390 U	410 U					
Dibenz(a,h)anthracene	UG/KG	55	9%	1	11	410 U	55 J	410 U					
Fluoranthene	UG/KG	49	55%	6	11	23 J	390 U	30 J					
Pentachlorophenol	UG/KG	990	9%	1	11	990 J	950 U	1000 UJ					
Phenanthrene	UG/KG	20	27%	3	11	410 U	390 U	20 J					
Pyrene	UG/KG	40	45%	5	11	29 J	390 U	36 J					
bis(2-Chloroisopropyl) ether	UG/KG	410	25%	1	4	410 J	390 U	410 U					
bis(2-Ethylhexyl)phthalate	UG/KG	200	25%	4	16	410 U	390 U	410 U	93 J	72 J	36 J	570 U	560 U
PESTICIDES/PCBS													
4,4'-DDD	UG/KG	15	21%	3	14	4.1 U	3.9 U	4.2 U			7.8	3.2 J	5.6 U
4,4'-DDE	UG/KG	28	29%	4	14	4.1 U	3.7 U	4.2 U			28	13	6.5
4,4'-DDT	UG/KG	3	14%	2	14	4.1 U	2.7 J	4.2 U			6.1 U	5.7 U	3 J
Aroclor-1260	UG/KG	28	18%	2	11	41 U	39 U	42 U					
Dieldrin	UG/KG	80	18%	2	11	12 J	80 J	4.2 U					
Endosulfan II	UG/KG	3.8	67%	2	3						3.8 J	5.7 U	3.7 J
METALS													
Aluminum	MG/KG	19300	100%	16	16	16700 J	14100 J	14400 J	19300	13200	16600	14800	15900
Antimony	MG/KG	3.9	36%	5	14	3.9 J	2.7 J	1.6 J			2 J	0.88 UJ	1.2 UJ
Arsenic	MG/KG	8.9	100%	16	16	6.2	5	4.4	4.1	5.4	4.1	4.8	4.2
Barium	MG/KG	192	69%	11	16	192 J	141 J	156 J	104	73.7	106	103	73.2
Beryllium	MG/KG	0.99	100%	16	16	0.64	0.58	0.83	0.99	0.63 J	0.67	0.62	0.5
Cadmium	MG/KG	5.6	79%	11	14	3.5	5.6	0.5			2.4	2.1	1.1
Calcium	MG/KG	7310	100%	16	16	3940	7310	5280	2620	4920	6860	3070	2780
Chromium	MG/KG	27.9	100%	16	16	22.3	21.7	20.1	27.9	20.1	23.5	19.8	23.8
Cobalt	MG/KG	21.9	100%	16	16	11.3	10.2	7.4	21.7	9 J	9.9	10	11
Copper	MG/KG	182	100%	16	16	58.2	141	46.2	25.9	26.9	75.3 J	46.6 J	36.4 J
Iron	MG/KG	36100	100%	16	16	25500	24200 J	22500	36100	25800	24500	24200	27800
Lead	MG/KG	595	100%	16	16	448	524	183	24.6 J	21.2 J	258	136	106
Magnesium	MG/KG	5820	100%	16	16	3500	4380	3820	5820	4600	5780	4210	5570
Manganese	MG/KG	1080	100%	16	16	996 J	579	256 J	1080	338	275	347	488 J
Mercury	MG/KG	0.36	88%	14	16	0.07	0.06	0.09	0.06 J	0.04 J	0.16	0.04 U	0.06 U
Nickel	MG/KG	37.2	100%	16	16	23.4	32.6	23.5	37.2	31.5	30.6 J	24.7 J	30.6 J
Potassium	MG/KG	2630	100%	16	16	1540	1370	1410	1540	1350	2630 J	1660 J	1980 J
Selenium	MG/KG	1.9	36%	5	14	1.2 J	0.79	1.2 J			1.4 U	1.9	1.6 U
Silver	MG/KG	1.1	27%	3	11	0.29 U	1.1	0.45					
Sodium	MG/KG	119	75%	12	16	60.7 U	119	64.4 U	70.8 J	80.2 J	109	98.6	112 U
Thallium	MG/KG	1.5	29%	4	14	1.1	0.9 J	1 U			1.3 U	1	1.4 U
Vanadium	MG/KG	30.7	100%	16	16	29.3	21.2	25.2	30.7	21.1	26.4	25	21.3
Zinc	MG/KG	468	100%	16	16	284 J	468	84.8 J	69.7	69	158	96.6	97.6
HERBICIDES													

Table C-12
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-17
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC_ID:						SS17-25	SS17-28	SS17-39	SB17-3	SB17-3	SW/SD17-4	SW/SD17-5	SW/SD17-6
SAMP ID:						16073	16064	16075	SB17-3-1	SB17-3-2	16136A	16137A	16121A
QC CODE:						SA	SA	SA	SA	SA	SA	SA	SA
STUDY ID:						RI ROUND1	RI ROUND1	RI ROUND1	ESI	ESI	RI ROUND1	RI ROUND1	RI ROUND1
TOP:						0	0	0	0	2	0	0	0
BOTTOM:						0.2	0.2	0.2	2	4	6	6	6
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SEDIMENT	SEDIMENT	SEDIMENT
SAMPLE DATE:						8/22/1996	8/21/1996	8/22/1996	11/30/1993	11/30/1993	9/18/1996	9/18/1996	9/18/1996
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
MCPA	UG/KG	32000	14%	1	7								

Table C-13
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-2
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SS301-00	SS301-01	SS301-02	SS301-03	SS301-04	SS301-04	SS301-09	SS301-20
SAMP ID:						21000	21001	21002	21003	021004D	21004	21009	21020
QC CODE:						SA	SA	SA	SA	DU	SA	SA	SA
STUDY ID:						SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
SAMP. DEPTH TOP:						0	0	0	0	0	0	0	0
SAMP. DEPTH BOT:						0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
VOLATILE ORGANICS													
1,1-Dichloroethene	UG/KG	4.9	43%	3	7	1.7	0.88 U	0.84 U	1.1 U		1.5 U	4.6	4.9
Acetone	UG/KG	8.4	29%	2	7	4 U	4.4 U	4.2 U	5.6 U		7.4 U	8.4 J	6.5 J
Toluene	UG/KG	0.73	57%	4	7	0.43 J	0.88 U	0.35 J	1.1 U		1.5 U	0.43 J	0.73 J
SEMIVOLATILE ORGANICS													
1,1'-Biphenyl	UG/KG	849	29%	2	7	849 J	3460 UJ	50.1 UJ	109 UJ		40 J	57.5 UJ	355 U
2-Methylnaphthalene	UG/KG	3700	86%	6	7	3700 J	178 J	204 J	1380 UJ		198	260 J	94.4
Acenaphthene	UG/KG	7570	100%	7	7	7570 J	290 J	717 J	1870 J		250	424 J	79.2
Acenaphthylene	UG/KG	2410	86%	6	7	1230 J	900 J	382 J	2410 J		41.4 U	323 J	403
Anthracene	UG/KG	24200	100%	7	7	24200 J	1030 J	2650 J	7560 J		401	1160 J	320
Benzo(a)anthracene	UG/KG	39300	100%	7	7	39300 J	4670 J	7690 J	27900 J		1330	3300 J	2660
Benzo(a)pyrene	UG/KG	31600	100%	7	7	31600 J	5300 J	7240 J	22900 J		1080	3240 J	2100 J
Benzo(b)fluoranthene	UG/KG	56700	100%	7	7	56700 J	6540 J	8980 J	28800 J		1670	4050 J	3210 J
Benzo(ghi)perylene	UG/KG	11900	100%	7	7	11600 J	3540 J	3860 J	11900 J		551	2220 J	1150 J
Benzo(k)fluoranthene	UG/KG	11700	57%	4	7	1370 UJ	3660 J	4340 J	11700 J		41.4 U	1540 J	35.5 UJ
Carbazole	UG/KG	11300	86%	6	7	11300 J	807 J	1920 J	5810 J		281 J	640 J	355 U
Chrysene	UG/KG	35000	100%	7	7	35000 J	5540 J	7950 J	29900 J		1150	4150 J	2620
Di-n-butylphthalate	UG/KG	419	29%	2	7	13700 UJ	3460 UJ	3540 UJ	13800 UJ		414 U	419 J	329 J
Dibenz(a,h)anthracene	UG/KG	19900	29%	2	7	19900 J	346 UJ	354 UJ	1380 UJ		281	353 UJ	35.5 UJ
Dibenzofuran	UG/KG	11300	100%	7	7	11300 J	250 J	761 J	2210 J		265 J	468 J	46.3 J
Diphenylamine	UG/KG	119	14%	1	7	13700 UJ	3460 UJ	3540 UJ	13800 UJ		414 U	3530 UJ	119 J
Fluoranthene	UG/KG	88900	100%	7	7	88900 J	9100 J	17400 J	53200 J		2560	6980 J	2490
Fluorene	UG/KG	18100	100%	7	7	18100 J	637 J	1550 J	4440 J		288	728 J	174
Indeno(1,2,3-cd)pyrene	UG/KG	11600	100%	7	7	11600 J	2630 J	3640 J	10700 J		572	1730 J	864
Naphthalene	UG/KG	838	43%	3	7	838 J	346 UJ	354 UJ	1380 UJ		572	353 UJ	106
Phenanthrene	UG/KG	81500	100%	7	7	81500 J	5340 J	12400 J	38300 J		2000	5240 J	1050
Pyrene	UG/KG	98600	100%	7	7	98600 J	10500 J	15700 J	61200		2150	8150 J	5350

Table C-13
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-2
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SS301-00	SS301-01	SS301-02	SS301-03	SS301-04	SS301-04	SS301-09	SS301-20
SAMP ID:						21000	21001	21002	21003	021004D	21004	21009	21020
QC CODE:						SA	SA	SA	SA	DU	SA	SA	SA
STUDY ID:						SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2	SEAD-2
SAMP. DEPTH TOP:						0	0	0	0	0	0	0	0
SAMP. DEPTH BOT:						0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003	4/17/2003
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
METALS													
Aluminum	UG/KG	16800000	100%	8	8	2780000	4430000	4300000	5610000	16800000	15700000	5080000	5400000
Antimony	UG/KG	1770	75%	6	8	755 J	667 UJ	678 J	682 UJ	1580 J	1080 J	1770 J	1050 J
Arsenic	UG/KG	17600	100%	8	8	2920	3430	3150	4600	17300	17600	3350	3470
Barium	UG/KG	162000	100%	8	8	162000 J	29500 J	41000 J	29200 J	132000 J	121000 J	30200 J	54000 J
Beryllium	UG/KG	845	100%	8	8	194	257	268	322	845	804	301	316
Boron	UG/KG	13800	100%	8	8	9990 J	9620 J	12500 J	10900 J	13800 J	11000 J	13100 J	13700 J
Cadmium	UG/KG	4200	88%	7	8	359	134 J	78.8 U	150 J	329	325 J	470	4200
Calcium	UG/KG	221000000	100%	8	8	221000000	137000000	212000000	129000000	7200000	7730000	126000000	123000000
Chromium	UG/KG	52800	100%	8	8	6410	8080	7570	10700	52800	52300	11900	17400
Cobalt	UG/KG	10500	100%	8	8	2360	4100	4400	5020	10500	9010	4110	4760
Copper	UG/KG	35100	100%	8	8	8110	10600	9500	11400	35100	34300	14100	16900
Iron	UG/KG	21800000	100%	8	8	5150000 J	8200000 J	6860000 J	9430000 J	21100000 J	21800000 J	7850000 J	8550000 J
Lead	UG/KG	77600	100%	8	8	24700	23400	14800	26800	29300	27600	62800	77600
Magnesium	UG/KG	53900000	100%	8	8	19800000	32500000	35700000	37500000	5230000	5670000	36700000	53900000
Manganese	UG/KG	522000	100%	8	8	340000 J	297000 J	323000 J	363000 J	522000 J	400000 J	295000 J	288000 J
Mercury	UG/KG	66	100%	8	8	18.8	11.3	10.6	12.2	66	63.9	17.1	24.9
Molybdenum	UG/KG	508	50%	4	8	158 U	167 U	166 U	170 U	500	508 J	189 J	204 J
Nickel	UG/KG	30400	100%	8	8	9180	12600	11600	14600	30400	28700	12100	11800
Phosphorous	UG/KG	1380000	100%	8	8	250000	312000	312000	371000	620000	649000	421000	1380000
Potassium	UG/KG	2490000	100%	8	8	1100000 J	1370000 J	1520000 J	1570000 J	2490000 J	2070000 J	1730000 J	1890000 J
Selenium	UG/KG	1310	38%	3	8	390 U	412 U	410 U	421 U	1280	1310	414 J	407 U
Silica	UG/KG	1650000	100%	8	8	1190000 J	1290000 J	1420000 J	1050000 J	962000 J	1650000 J	832000 J	1500000 J
Silicon	UG/KG	771000	100%	8	8	556000 J	603000 J	665000 J	491000 J	450000 J	771000 J	389000 J	703000 J
Sodium	UG/KG	162000	100%	8	8	162000	122000	162000	145000	44700	42400	136000	129000
Strontium	UG/KG	250000	100%	8	8	250000	112000	213000	118000	19200	18400	114000	84100
Sulfur	UG/KG	1680000	100%	8	8	1680000 J	1160000 J	810000 J	850000 J	322000 J	352000 J	619000 J	430000 J
Tin	UG/KG	1060	100%	8	8	537 J	438 J	376 J	450 J	1060	767 J	858 J	909 J
Titanium	UG/KG	101000	100%	8	8	29900 J	53800 J	55300 J	97200 J	72600 J	70100 J	79100 J	101000 J
Uranium	UG/KG	573	13%	1	8	462 UJ	488 UJ	486 UJ	499 UJ	573 J	613 UJ	485 UJ	482 UJ
Vanadium	UG/KG	32100	100%	8	8	32100	15500	11200	13500	28300	26100	20500	17500
Zinc	UG/KG	156000	100%	8	8	28100	36200	29400	63900	156000	151000	76400	88000

Table C-14
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-66
Sites Requiring Institutional Controls
Seneca Army Depot Activity

LOC ID:						SS66-1	SS66-2	SS66-3RE	SS66-4	SS66-5	SS66-6	SS66-7	SS66-8	SS66-9
SAMP ID:						SS66-1	SS66-2	SS66-3RE	SS66-4	SS66-5	SS66-6	SS66-7	SS66-8	SS66-9
QC CODE:						SA	SA	SA	SA	SA	SA	SA	SOIL	DU
STUDY ID:						SEAD-66	SEAD-66	SEAD-66	SEAD-66	SEAD-66	SEAD-66	SEAD-66	SEAD-66	SEAD-66
SAMP. DEPTH TOP:						0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
SAMP. DEPTH BOT:						0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2	0-0.2
MATRIX:						SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SAMP. DATE:						12/17/93	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93
PARAMETER	**UNIT**	**Maximum Value**	**Frequency of Detection**	**Number of Times Detected**	**Number of Samples Collected**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
PESTICIDES/PCBs														
4,4'-DDD	ug/Kg	560	33%	3	9	3.5 U	4.4 U	4.1 UJ	11 J	2.7 J	4 U	4 UJ	560 J	4 U
4,4'-DDE	ug/Kg	8700	89%	8	9	4.5 J	2.5 J	3.1 J	110 J	4.7 J	4 U	4 J	8700	11 J
4,4'-DDT	ug/Kg	36000	89%	8	9	3.5 J	4.4 U	5.5 J	170	9.4 J	2 J	25 J	36000	10 J
alpha-Chlordane	ug/Kg	16	22%	2	9	1.8 U	2.3 U	2.1 UJ	11 U	2.3 UJ	2.1 U	1.3 J	16 J	2.1 U
Aroclor-1254	ug/Kg	80	44%	4	9	43	44 U	31 J	220 U	45 UJ	40 U	24 J	370 U	80
Endosulfan I	ug/Kg	9.4	44%	4	9	3.2	4.3	9.4 J	11 U	2.3 UJ	2.1 U	2 UJ	19 U	6
Endosulfan II	ug/Kg	48	33%	3	9	3.5 U	4.4 U	4.1 UJ	22 U	3.5 J	2.5 J	4 UJ	48 J	4 U
gamma-BHC (Lindane)	ug/Kg	39	11%	1	9	1.8 U	2.3 U	2.1 UJ	11 U	2.3 UJ	2.1 U	2 UJ	39	2.1 U
Total Solids	%W/W	99	100%	9	9	93	74.6	79.9	75.3	73	82	82.6	99	82.3

TABLE C-15
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-67
Sites Requiring Institutional Controls
Seneca Army Depot Activity

	MATRIX							SOIL	SOIL	SOIL	SOIL
	LOCATION							SEAD-67	SEAD-67	SEAD-67	SEAD-67
	DEPTH (FEET)							0-0.2	2-4	4-5	2-3
	SAMPLE DATE							03/30/94	03/30/94	03/30/94	06/06/94
	ES ID							MW67-2.00	MW67-2.02	MW67-2.03	TP67-1
	LAB ID		FREQUENCY		NUMBER	NUMBER	NUMBER	216109	216112	216113	223303
	SDG NUMBER	MAXIMUM	OF	CRITERIA	ABOVE	OF	OF	43257	43257	43257	44410
PARAMETER	**UNITS**	**DETECT**	**DETECTION**	**VALUE (a)**	**CRITERIA**	**DETECTS**	**SAMPLES**	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Semivolatile Organics											
2-Methylnaphthalene	ug/Kg	44	25%	36400	0	2	8	480 U	380 U	370 U	44 J
Acenaphthene	ug/Kg	50	13%	50000*	0	1	8	480 U	380 U	370 U	50 J
Acenaphthylene	ug/Kg	210	50%	41000	0	4	8	480 U	380 U	370 U	38 J
Anthracene	ug/Kg	140	50%	50000*	0	4	8	480 U	380 U	370 U	97 J
Benzo(a)anthracene	ug/Kg	610	63%	220	4	5	8	480 U	380 U	370 U	**280** J
Benzo(a)pyrene	ug/Kg	830	63%	61	4	5	8	480 U	380 U	370 U	**210** J
Benzo(b)fluoranthene	ug/Kg	1300	63%	1100	1	5	8	480 U	380 U	370 U	440 J
Benzo(g,h,i)perylene	ug/Kg	620	63%	50000*	0	5	8	480 U	380 U	370 U	64 J
Benzo(k)fluoranthene	ug/Kg	28	13%	1100	0	1	8	480 U	380 U	370 U	390 UJ
bis(2-Ethylhexyl)phthalate	ug/Kg	250	38%	50000*	0	3	8	480 U	250 J	230 J	29 J
Carbazole	ug/Kg	80	38%	50000*	0	3	8	480 U	380 U	370 U	80 J
Chrysene	ug/Kg	690	63%	400	1	5	8	480 U	380 U	370 U	300 J
Dibenz(a,h)anthracene	ug/Kg	310	50%	14	4	4	8	480 U	380 U	370 U	**70** J
Dibenzofuran	ug/Kg	50	13%	6200	0	1	8	480 U	380 U	370 U	50 J
Di-n-butylphthalate	ug/Kg	47	13%	8100	0	1	8	480 U	47 J	370 U	390 U
Fluoranthene	ug/Kg	860	75%	50000*	0	6	8	36 J	380 U	370 U	760
Fluorene	ug/Kg	110	38%	50000*	0	3	8	480 U	380 U	370 U	110 J
Indeno(1,2,3-cd)pyrene	ug/Kg	620	63%	3200	0	5	8	480 U	380 U	370 U	96 J
Naphthalene	ug/Kg	34	25%	13000	0	2	8	480 U	380 U	370 U	34 J
Phenanthrene	ug/Kg	740	63%	50000*	0	5	8	480 U	380 U	370 U	740
Pyrene	ug/Kg	950	75%	50000*	0	6	8	31 J	380 U	370 U	520
Pesticides/PCB											
4,4'-DDE	ug/Kg	4.8	50%	2100	0	4	8	4.8 U	3.8 U	3.7 U	2.3 J
4,4'-DDT	ug/Kg	9.4	38%	2100	0	3	8	4.8 U	3.8 U	3.7 U	3.9 U
alpha-Chlordane	ug/Kg	2.1	38%	540	0	3	8	2.5 U	2 U	1.9 U	2 U
Aroclor-1254	ug/Kg	72	13%	1000	0	1	8	48 U	38 U	37 U	39 U
Endosulfan I	ug/Kg	25	75%	900	0	6	8	4	2 U	1.9 U	3.2 J
Endosulfan sulfate	ug/Kg	2.1	13%	1000	0	1	8	4.8 U	3.8 U	3.7 U	3.9 U
Heptachlor epoxide	ug/Kg	5.5	25%	20	0	2	8	5.5	2 U	1.9 U	2 U
Metals											
Aluminum	mg/Kg	19100	100%	19300	0	8	8	16700	14900	9460	16100
Antimony	mg/Kg	0.44	63%	5.9	0	5	8	0.27 J	0.22 J	0.2 UJ	0.26 UJ
Arsenic	mg/Kg	6	100%	8.2	0	8	8	4.4	4.5	4.2	4.8
Barium	mg/Kg	182	100%	300	0	8	8	114	105	80.8	96.7
Beryllium	mg/Kg	0.87	100%	1.1	0	8	8	0.67 J	0.61 J	0.4 J	0.74 J
Cadmium	mg/Kg	0.73	100%	2.3	0	8	8	0.2 J	0.11 J	0.12 J	0.46 J
Calcium	mg/Kg	139000	100%	121000	1	8	8	3580	79000	77800	6810
Chromium	mg/Kg	24.8	100%	29.6	0	8	8	19.5	22.5	14.8	22.2
Cobalt	mg/Kg	12.8	100%	30	0	8	8	7.5 J	10.4 J	9.7 J	10.7
Copper	mg/Kg	29.7	100%	33	0	8	8	16.5	20.3	20.5	22
Iron	mg/Kg	27300	100%	36500	0	8	8	20500	24400	18700	26000
Lead	mg/Kg	40.9	100%	24.8	1	8	8	17.5	9.3	8.5	12.8
Magnesium	mg/Kg	20900	100%	21500	0	8	8	3590	15600	20900	4760
Manganese	mg/Kg	1380	100%	1060	1	8	8	438	528	411	594
Mercury	mg/Kg	4	100%	0.1	3	8	8	0.04	0.01 J	0.02 J	**4** J
Nickel	mg/Kg	32.3	100%	49	0	8	8	18.7	32.3	25.9	27.8
Potassium	mg/Kg	3160	100%	2380	2	8	8	1780 J	**3160** J	1970 J	1620 J
Selenium	mg/Kg	2	75%	2	0	6	8	0.81	0.36 U	0.34 U	1
Sodium	mg/Kg	112	75%	172	0	6	8	25.1 U	112 J	107 J	19.9 U
Thallium	mg/Kg	0.48	13%	0.7	0	1	8	0.48 J	0.34 U	0.32 U	0.38 U

TABLE C-15
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-67
Sites Requiring Institutional Controls
Seneca Army Depot Activity

	MATRIX							SOIL	SOIL	SOIL	SOIL
	LOCATION							SEAD-67	SEAD-67	SEAD-67	SEAD-67
	DEPTH (FEET)							0-0.2	2-4	4-5	2-3
	SAMPLE DATE							03/30/94	03/30/94	03/30/94	06/06/94
	ES ID							MW67-2.00	MW67-2.02	MW67-2.03	TP67-1
	LAB ID		**FREQUENCY**		**NUMBER**	**NUMBER**	**NUMBER**	216109	216112	216113	223303
	SDG NUMBER	**MAXIMUM**	**OF**	**CRITERIA**	**ABOVE**	**OF**	**OF**	43257	43257	43257	44410
PARAMETER	**UNITS**	**DETECT**	**DETECTION**	**VALUE (a)**	**CRITERIA**	**DETECTS**	**SAMPLES**	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Vanadium	mg/Kg	31.8	100%	150	0	8	8	28.2	24.8	16.5	26.5
Zinc	mg/Kg	100	100%	110	0	8	8	64.8	62	60.1	70.5
Other Analyses											
Total Solids	%W/W	90.2	1		0	8	8	68.9	85.5	90.2	83.8

NOTES:
a) NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046.
* = As per TAGM #4046, total VOCs < 10 ppm; total Semi-VOCs < 500 ppm; individual semi-VOCs < 50 ppm.
NA = Not Available
U = Compound was not detected.
J = the reported value is an estimated concentration.
R = the data was rejected in the data validating process.
UJ = the compound was not detected; the associated reporting limit is approximate.

TABLE C-15
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-67
Sites Requiring Institutional Controls
Seneca Army Depot Activity

	MATRIX							SOIL	SOIL	SOIL	SOIL
	LOCATION							SEAD-67	SEAD-67	SEAD-67	SEAD-67
	DEPTH (FEET)							2-3	2-3	2-3	2-3
	SAMPLE DATE							06/06/94	06/06/94	06/06/94	06/06/94
	ES ID							TP67-2	TP67-3	TP67-4	TP67-5
	LAB ID		FREQUENCY		NUMBER	NUMBER	NUMBER	223305	223306	223307	223308
	SDG NUMBER	MAXIMUM	OF	CRITERIA	ABOVE	OF	OF	44410	44410	44410	44410
PARAMETER	**UNITS**	**DETECT**	**DETECTION**	**VALUE (a)**	**CRITERIA**	**DETECTS**	**SAMPLES**	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Semivolatile Organics											
2-Methylnaphthalene	ug/Kg	44	25%	36400	0	2	8	380 U	25 J	400 U	450 U
Acenaphthene	ug/Kg	50	13%	50000*	0	1	8	380 U	380 U	400 U	450 U
Acenaphthylene	ug/Kg	210	50%	41000	0	4	8	33 J	210 J	400 U	26 J
Anthracene	ug/Kg	140	50%	50000*	0	4	8	44 J	140 J	400 U	43 J
Benzo(a)anthracene	ug/Kg	610	63%	220	4	5	8	**250** J	**610**	24 J	**240** J
Benzo(a)pyrene	ug/Kg	830	63%	61	4	5	8	**220** J	**830**	28 J	**220** J
Benzo(b)fluoranthene	ug/Kg	1300	63%	1100	1	5	8	470 J	**1300** J	26 J	430 J
Benzo(g,h,i)perylene	ug/Kg	620	63%	50000*	0	5	8	93 J	620	40 J	97 J
Benzo(k)fluoranthene	ug/Kg	28	13%	1100	0	1	8	380 UJ	380 UJ	28 J	450 UJ
bis(2-Ethylhexyl)phthalate	ug/Kg	250	38%	50000*	0	3	8	380 U	380 U	400 U	450 U
Carbazole	ug/Kg	80	38%	50000*	0	3	8	23 J	380 U	400 U	32 J
Chrysene	ug/Kg	690	63%	400	1	5	8	290 J	**690**	29 J	230 J
Dibenz(a,h)anthracene	ug/Kg	310	50%	14	4	4	8	**53** J	**310** J	400 U	**65** J
Dibenzofuran	ug/Kg	50	13%	6200	0	1	8	380 U	380 U	400 U	450 U
Di-n-butylphthalate	ug/Kg	47	13%	8100	0	1	8	380 U	380 U	400 U	450 U
Fluoranthene	ug/Kg	860	75%	50000*	0	6	8	610	860	55 J	510
Fluorene	ug/Kg	110	38%	50000*	0	3	8	31 J	380 U	400 U	27 J
Indeno(1,2,3-cd)pyrene	ug/Kg	620	63%	3200	0	5	8	120 J	620	25 J	130 J
Naphthalene	ug/Kg	34	25%	13000	0	2	8	380 U	34 J	400 U	450 U
Phenanthrene	ug/Kg	740	63%	50000*	0	5	8	340 J	180 J	32 J	280 J
Pyrene	ug/Kg	950	75%	50000*	0	6	8	500	950	43 J	450
Pesticides/PCB											
4,4'-DDE	ug/Kg	4.8	50%	2100	0	4	8	4.5 J	4.8 J	4 U	3 J
4,4'-DDT	ug/Kg	9.4	38%	2100	0	3	8	6.3 J	9.4	4 U	4.2 J
alpha-Chlordane	ug/Kg	2.1	38%	540	0	3	8	1.4 J	2.1 J	2.1 U	1.9 J
Aroclor-1254	ug/Kg	72	13%	1000	0	1	8	72 J	38 U	40 U	45 U
Endosulfan I	ug/Kg	25	75%	900	0	6	8	11 J	25 J	1.2 J	15 J
Endosulfan sulfate	ug/Kg	2.1	13%	1000	0	1	8	3.8 U	2.1 J	4 U	4.5 U
Heptachlor epoxide	ug/Kg	5.5	25%	20	0	2	8	2 U	1.2 J	2.1 U	2.3 U
Metals											
Aluminum	mg/Kg	19100	100%	19300	0	8	8	12200	9870	19100	17200
Antimony	mg/Kg	0.44	63%	5.9	0	5	8	0.27 J	0.44 J	0.39 J	0.32 UJ
Arsenic	mg/Kg	6	100%	8.2	0	8	8	5.4	5	6	4.9
Barium	mg/Kg	182	100%	300	0	8	8	105	82.2	158	182
Beryllium	mg/Kg	0.87	100%	1.1	0	8	8	0.62 J	0.49 J	0.87 J	0.83 J
Cadmium	mg/Kg	0.73	100%	2.3	0	8	8	0.5 J	0.69 J	0.69 J	0.73 J
Calcium	mg/Kg	139000	100%	121000	1	8	8	5940	**139000**	12000	20100
Chromium	mg/Kg	24.8	100%	29.6	0	8	8	18.7	15.1	24.8	23.2
Cobalt	mg/Kg	12.8	100%	30	0	8	8	9.5	7.5	11	12.8
Copper	mg/Kg	29.7	100%	33	0	8	8	21.3	21.5	29.7	24.5
Iron	mg/Kg	27300	100%	36500	0	8	8	24000	16800	27300	27300
Lead	mg/Kg	40.9	100%	24.8	1	8	8	21.3	**40.9**	19.1	12
Magnesium	mg/Kg	20900	100%	21500	0	8	8	4730	12900	6660	5010
Manganese	mg/Kg	1380	100%	1060	1	8	8	624	627	863	**1380**
Mercury	mg/Kg	4	100%	0.1	3	8	8	0.05 J	**0.62** J	**0.13** J	0.06 J
Nickel	mg/Kg	32.3	100%	49	0	8	8	27.2	22	30.1	30.2
Potassium	mg/Kg	3160	100%	2380	2	8	8	1390 J	2090 J	**2520** J	2040 J
Selenium	mg/Kg	2	75%	2	0	6	8	1.1	0.41 J	1.2	2
Sodium	mg/Kg	112	75%	172	0	6	8	26.4 J	111 J	39.4 J	26.1 J
Thallium	mg/Kg	0.48	13%	0.7	0	1	8	0.34 U	0.28 U	0.41 U	0.47 U

TABLE C-15
SUMMARY OF DETECTED ANALYTES IN SOIL - SEAD-67
Sites Requiring Institutional Controls
Seneca Army Depot Activity

	MATRIX							SOIL	SOIL	SOIL	SOIL
	LOCATION							SEAD-67	SEAD-67	SEAD-67	SEAD-67
	DEPTH (FEET)							2-3	2-3	2-3	2-3
	SAMPLE DATE							06/06/94	06/06/94	06/06/94	06/06/94
	ES ID							TP67-2	TP67-3	TP67-4	TP67-5
	LAB ID		**FREQUENCY**		**NUMBER**	**NUMBER**	**NUMBER**	223305	223306	223307	223308
	SDG NUMBER	**MAXIMUM**	**OF**	**CRITERIA**	**ABOVE**	**OF**	**OF**	44410	44410	44410	44410
PARAMETER	**UNITS**	**DETECT**	**DETECTION**	**VALUE (a)**	**CRITERIA**	**DETECTS**	**SAMPLES**	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Vanadium	mg/Kg	31.8	100%	150	0	8	8	22.7	20.9	31.8	27.8
Zinc	mg/Kg	100	100%	110	0	8	8	70.5	72.8	100	86.6
Other Analyses											
Total Solids	%W/W	90.2	1		0	8	8	86.4	86.3	82	73.5

NOTES:
a) NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046.
* = As per TAGM #4046, total VOCs < 10 ppm; total Semi-VOCs < 500 ppm; individual semi-VOCs < 50 ppm.
NA = Not Available
U = Compound was not detected.
J = the reported value is an estimated concentration.
R = the data was rejected in the data validating process.
UJ = the compound was not detected; the associated reporting limit is approximate.

TABLE C-16
SUMMARY OF DETECTED ANALYTES IN GROUNDWATER - SEAD-67
Sites Requiring Institutional Controls
Seneca Army Depot Activity

PARAMETER	MATRIX LOCATION SAMPLE DATE ES ID LAB ID SDG NUMBER UNITS	MAXIMUM DETECT	FREQUENCY OF DETECTION	CRITERIA VALUE (a)	NUMBER ABOVE CRITERIA	WATER SEAD-67 07/07/94 MW67-1 226307 45257 Value (Q)	WATER SEAD-67 07/10/94 MW67-2 226488 45282 Value (Q)	WATER SEAD-67 07/08/94 MW67-3 226308 45257 Value (Q)
METALS								
Aluminum	ug/L	5790	100%	50 (b)	3	**5790**	**1240**	**448**
Arsenic	ug/L	2.5	33%	10 (c)	0	2.5 J	2 U	2 U
Barium	ug/L	203	100%	1000	0	203	100 J	98.9 J
Beryllium	ug/L	0.72	33%	4 (d)	0	0.72 J	0.1 U	0.1 U
Calcium	ug/L	351000	100%	NA	NA	351000	119000	122000
Chromium	ug/L	10	100%	50	0	10	2 J	0.9 J
Cobalt	ug/L	12.3	100%	NA	NA	12.3 J	1.4 J	1.3 J
Copper	ug/L	13.1	100%	200	0	13.1 J	1.5 J	2 J
Iron	ug/L	10800	100%	300	3	**10800**	**2270**	**689**
Lead	ug/L	8.3	33%	15 (d)	0	8.3	0.9 U	0.9 U
Magnesium	ug/L	51800	100%	NA	NA	51800	24200	24000
Manganese	ug/L	1710	100%	50 (b)	3	**1710**	**153**	**194**
Mercury	ug/L	0.09	67%	0.7	0	0.09 J	0.04 U	0.06 J
Nickel	ug/L	15.9	100%	100	0	15.9 J	2.9 J	2.2 J
Potassium	ug/L	5740	100%	NA	NA	5740	1870 J	1670 J
Sodium	ug/L	13700	100%	20000	0	4240 J	13700	4970 J
Thallium	ug/L	2	33%	2 (d)	0	2 J	1.9 U	1.9 U
Vanadium	ug/L	9.2	100%	NA	NA	9.2 J	2.1 J	0.86 J
Zinc	ug/L	29.6	100%	5000 (b)	0	29.6	6.5 J	6.7 J
OTHER ANALYSES								
pH	Standard Units					7.2	7	7
Conductivity	umhos/cm					520	490	440
Temperature	°C					14.9	12	11.9
Turbidity	NTU					>1000	90	NR

NOTES:

a) NY State Class GA Groundwater Standard (TOGS 1.1.1, June 1998), except as noted below.
b) US EPA Secondary Drinking Water Regulation, non-enforceable (EPA 822-B-00-001, Summer 2000)
c) US EPA Maximum Contaminant Limit announced 10/31/01. Source http://www.epa.gov/safewater/arsenic.html
d) US EPA National Primary Drinking Water Standards, EPA 816-F-01-007 March 2001
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 C-17
SUMMARY OF DETECTED ANALYTES IN SURFACE WATER - SEAD-67
Sites Requiring Institutional Controls
Seneca Army Depot Activity

PARAMETER	MATRIX LOCATION SAMPLE DATE ES ID LAB ID SDG NUMBER UNITS	MAXIMUM DETECT	FREQUENCY OF DETECTION	NYS CRITERIA VALUE (a,b)	NUMBER ABOVE CRITERIA	WATER SEAD-67 04/26/94 SW67-1 219464 43810 Value (Q)	WATER SEAD-67 04/26/94 SW67-2 219465 43810 Value (Q)
METALS							
Aluminum	ug/L	129	100%	100	1	**129** J	38.1 J
Barium	ug/L	45.8	100%	NA	NA	45.8 J	45.6 J
Calcium	ug/L	77100	100%	NA	NA	77100	75900
Copper	ug/L	1.1	100%	17.3	0	1.1 J	0.86 J
Iron	ug/L	369	100%	300	1	**369**	84.6 J
Magnesium	ug/L	14700	100%	NA	NA	14100	14700
Manganese	ug/L	161	100%	NA	NA	161	37.7
Potassium	ug/L	1160	100%	NA	NA	1160 J	1120 J
Sodium	ug/L	7860	100%	NA	NA	5830	7860
Thallium	ug/L	2.1	50%	8	0	1.6 U	2.1 J
Zinc	ug/L	3.3	100%	159.2	0	2.4 J	3.3 J
OTHER ANALYSES							
pH	Standard Units			6.5 - 9	0	7.9	7.5
Conductivity	umhos/cm					445	440
Temperature	°C					21.4	22.7
Turbidity	NTU					1.4	1.6

NOTES:

a) The New York State Ambient Water Quality Standards and Guidance Values for Class C surface water (June 1998).
b) Hardness dependent values assume a hardness of 216.4 mg/L (depot site-wide average).

NA = Not Available
U = The compound was not detected below this concentration.
J = The reported value is an estimated concentration.
UJ = The compound may have been present above this concentration, but was not detected due to problems with the analysis.
R = The data was rejected during the data validation process.

TABLE C-18
SUMMARY OF DETECTED ANALYTES IN SEDIMENT - SEAD-67
Sites Requiring Institutional Controls
Seneca Army Depot Activity

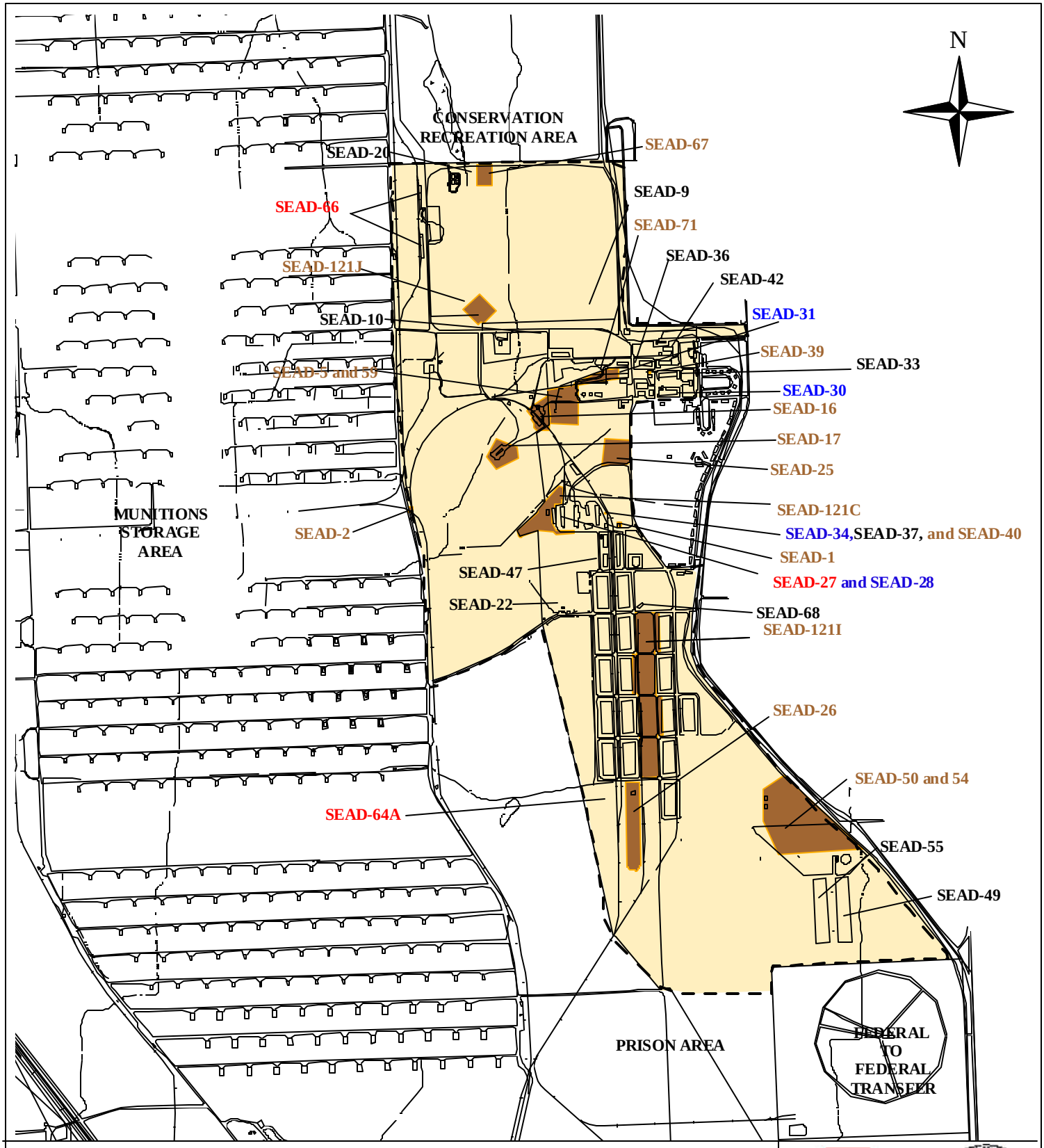
PARAMETER	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID SDG NUMBER UNITS	MAXIMUM DETECT	FREQUENCY OF DETECTION	CRITERIA VALUE (a)	CRITERIA TYPE (b,c)	NUMBER ABOVE CRITERIA	NUMBER OF DETECTS	NUMBER OF ANALYSES	SOIL SEAD-67 0-0.2 04/26/94 SD67-1 219450 43663	SOIL SEAD-67 0-0.2 04/26/94 SD67-2 219451 43663
									Value (Q)	Value (Q)
VOLATILE ORGANICS										
2-Butanone	ug/Kg	21	50%			NA	1	2	21 J	20 UJ
Acetone	ug/Kg	53	50%			NA	1	2	53 J	28 UJ
SEMIVOLATILE ORGANICS										
Acenaphthene	ug/Kg	120	50%	5474	BALCT	0	1	2	820 UJ	120 J
Acenaphthylene	ug/Kg	54	50%				1	2	820 UJ	54 J
Anthracene	ug/Kg	600	50%	4184	BALCT	0	1	2	820 UJ	600 J
Benzo(a)anthracene	ug/Kg	1400	100%	50.83	HHBC	2	2	2	**180** J	**1400**
Benzo(a)pyrene	ug/Kg	970	100%	50.83	HHBC	2	2	2	**170** J	**970**
Benzo(b)fluoranthene	ug/Kg	880	100%	50.83	HHBC	2	2	2	**180** J	**880**
Benzo(g,h,i)perylene	ug/Kg	370	100%				2	2	87 J	370 J
Benzo(k)fluoranthene	ug/Kg	930	100%	50.83	HHBC	2	2	2	**160** J	**930**
Carbazole	ug/Kg	78	50%				1	2	820 UJ	78 J
Chrysene	ug/Kg	1300	100%	50.83	HHBC	2	2	2	**220** J	**1300**
Dibenz(a,h)anthracene	ug/Kg	230	50%				1	2	820 UJ	230 J
Dibenzofuran	ug/Kg	83	50%				1	2	820 UJ	83 J
Fluoranthene	ug/Kg	3400	100%	39887	BALCT	0	2	2	440 J	3400
Fluorene	ug/Kg	280	50%	312.8	BALCT	0	1	2	820 UJ	270 J
Indeno(1,2,3-cd)pyrene	ug/Kg	460	100%	50.83	HHBC	2	2	2	**98** J	**460** J
Phenanthrene	ug/Kg	2400	100%	4692	BALCT	0	2	2	260 J	2400
Pyrene	ug/Kg	3000	100%	37580	BALCT	0	2	2	370 J	3000
PESTICIDES/PCB										
4,4'-DDT	ug/Kg	4.1	50%	0.39	HHBC	1	1	2	8.2 UJ	**4.1** J
alpha-Chlordane	ug/Kg	4.8	100%	0.039	HHBC	2	2	2	**4.8** J	**3.6** J
Endosulfan I	ug/Kg	20	50%	1.17	BALCT	1	1	2	4.2 UJ	**20** J
METALS										
Aluminum	mg/Kg	12000	100%				2	2	12000 J	10700 J
Arsenic	mg/Kg	4.2	100%	6	LEL	0	2	2	3.7 J	4.2 J
Barium	mg/Kg	95.8	100%				2	2	95.8 J	92.7 J
Beryllium	mg/Kg	0.58	100%				2	2	0.58 J	0.56 J
Cadmium	mg/Kg	0.37	100%	0.6	LEL	0	2	2	0.37 J	0.34 J
Calcium	mg/Kg	13200	100%				2	2	6620 J	13200 J
Chromium	mg/Kg	18	100%	26	LEL	0	2	2	18 J	16.4 J
Cobalt	mg/Kg	8.3	100%				2	2	8 J	8.3 J
Copper	mg/Kg	37.7	100%	16	LEL	2	2	2	**37.7** J	**22.6** J
Iron	mg/Kg	19800	100%	20000	LEL	0	2	2	18900 J	19800 J
Lead	mg/Kg	17.8	100%	31	LEL	0	2	2	15.4 J	17.8 J

TABLE C-18
SUMMARY OF DETECTED ANALYTES IN SEDIMENT - SEAD-67
Sites Requiring Institutional Controls
Seneca Army Depot Activity

	MATRIX								SOIL	SOIL
	LOCATION								SEAD-67	SEAD-67
	DEPTH (FEET)								0-0.2	0-0.2
	SAMPLE DATE								04/26/94	04/26/94
	ES ID								SD67-1	SD67-2
	LAB ID		FREQUENCY			NUMBER	NUMBER	NUMBER	219450	219451
	SDG NUMBER	MAXIMUM	OF	CRITERIA	CRITERIA	ABOVE	OF	OF	43663	43663
PARAMETER	UNITS	DETECT	DETECTION	VALUE (a)	TYPE (b,c)	CRITERIA	DETECTS	ANALYSES		
Magnesium	mg/Kg	5030	100%				2	2	4160 J	5030 J
Manganese	mg/Kg	731	100%	460	LEL	1	2	2	413 J	**731** J
Nickel	mg/Kg	23.2	100%	16	LEL	2	2	2	**22.6** J	**23.2** J
Potassium	mg/Kg	1650	100%				2	2	1650 J	1330 J
Silver	mg/Kg	1.7	100%	1	LEL	2	2	2	**1.7** J	**1.1** J
Sodium	mg/Kg	107	100%				2	2	84.5 J	107 J
Vanadium	mg/Kg	20.4	100%				2	2	20.4 J	18.8 J
Zinc	mg/Kg	85.4	100%	120	LEL	0	2	2	85.4 J	76.5 J
OTHER ANALYSES										
Total Solids	%W/W						2	2	40.1	48.9

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

U = The compound was not detected below this concentration.
J = The reported value is an estimated concentration.
UJ = The compound may have been present above this concentration, but was not detected due to problems with the analysis.
R = The data was rejected during the data validation process.



LEGEND

Area Covered by Land Use Restriction
- No Residential Activity
- No Groundwater Use

Army Retained Property - No Unauthorized Access

SEAD-121I - Army Retained Site

SEAD-27 - Land Use Restriction Site

SEAD-55 - No Action Site

SEAD-28 - No Further Action Site

700 0 700 1400 2100 Feet

PARSONS

SENECA ARMY DEPOT ACTIVITY
Record of Decision - IC Sites

FIGURE C-1
EXTENT OF PID AREA
LAND USE RESTRICTION

Job #: 736026-01002

April 2004

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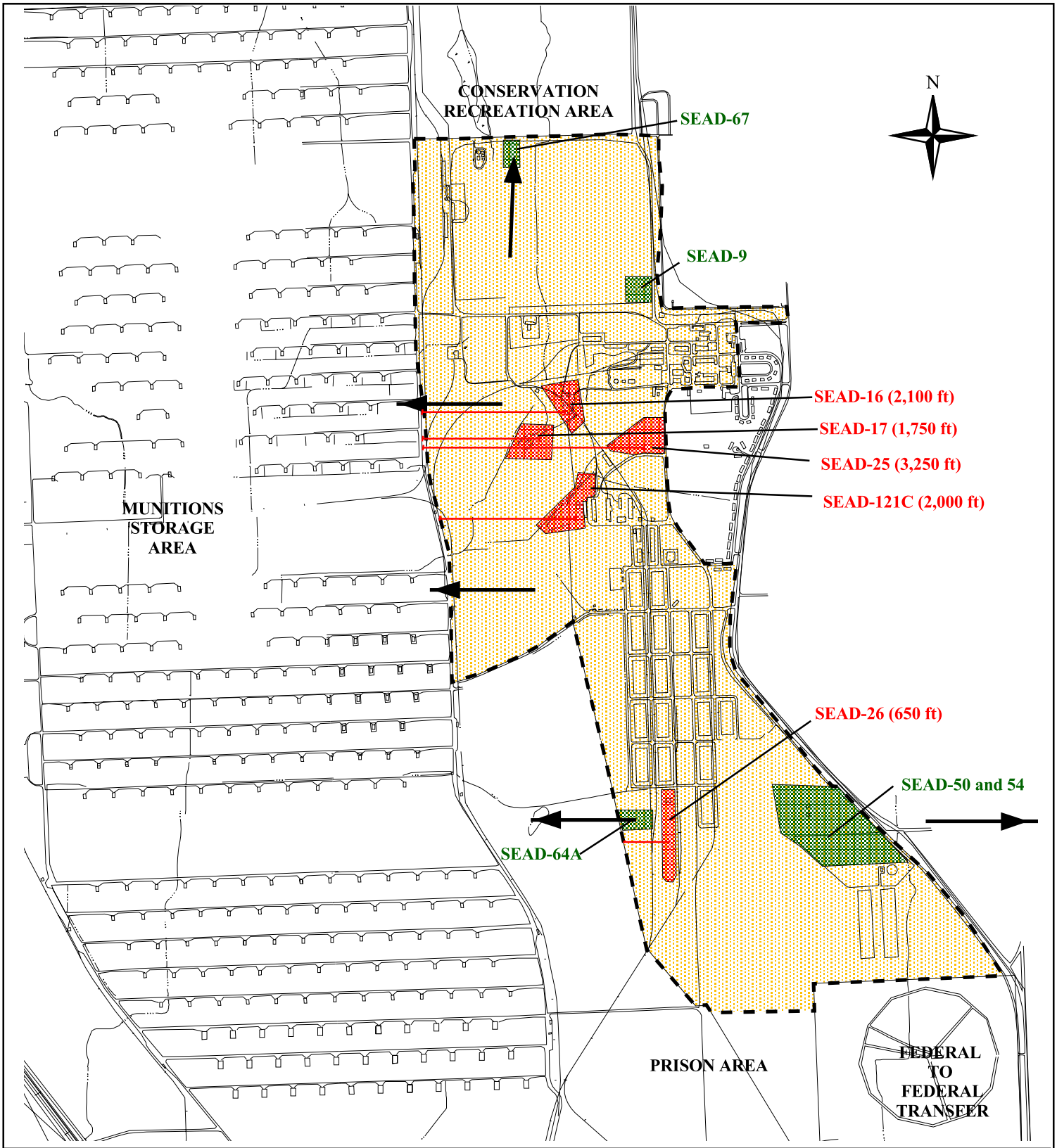


LEGEND

Area covered by Industrial Use Land Control

Principal direction of groundwater flow

Areas of Industrial Sites to be retained by Army where groundwater quality data is available

Red - Organics detected - label includes approximate downgradient distance to Industrial Boundary

Green - No organics detected

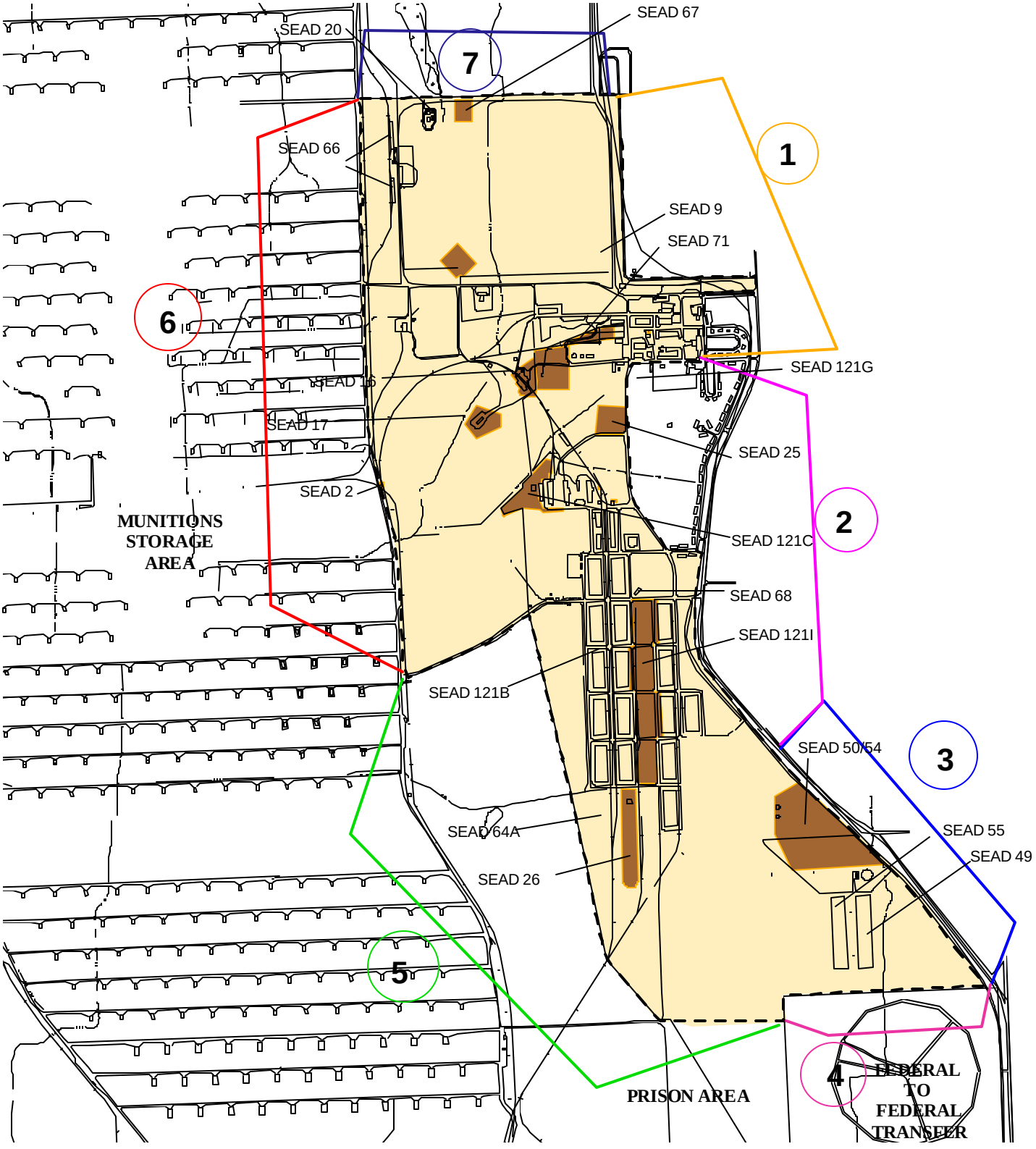
700 0 700 1400 2100 Feet

PARSONS

SENECA ARMY DEPOT ACTIVITY
Proposed Plan - LUC Sites

FIGURE C-2
SUMMARY OF GROUNDWATER QUALITY INFORMATION
PID AREA

Job #: 741175-02900 | April 2004



LEGEND

N

1000 0 1000 2000 Feet

Area Covered by Restriction
- No Residential Activity
- No Groundwater Use

6 Boundary Segments Designated in Text

Army Retained Property - No Unauthorized Access

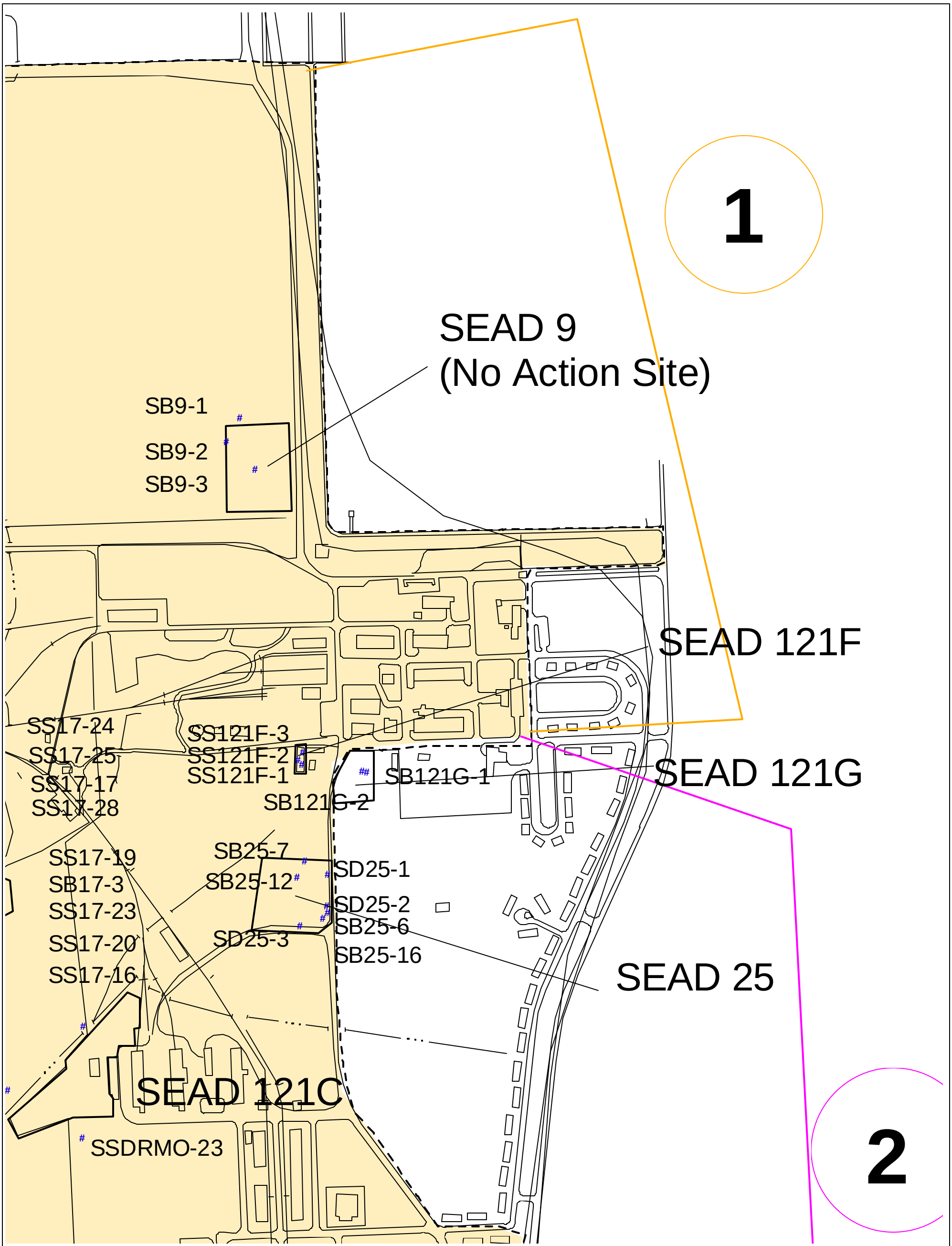
PARSONS

SENECA ARMY DEPOT ACTIVITY
Record of Decision - IC Sites

FIGURE C-3
EXTENT OF PID AREA
LAND USE RESTRICTION

Job #: 736026-01002 | April 2004

o:\seneca\land use\pid land use.apr\figure 1-3



LEGEND

N

Area covered by
Industrial Land Use Control

6 Boundary Segments Designated in Text

\# Location of Sampling Points Used in
Support of Boundary Definition

500 0 500 1000 Feet

PARSONS

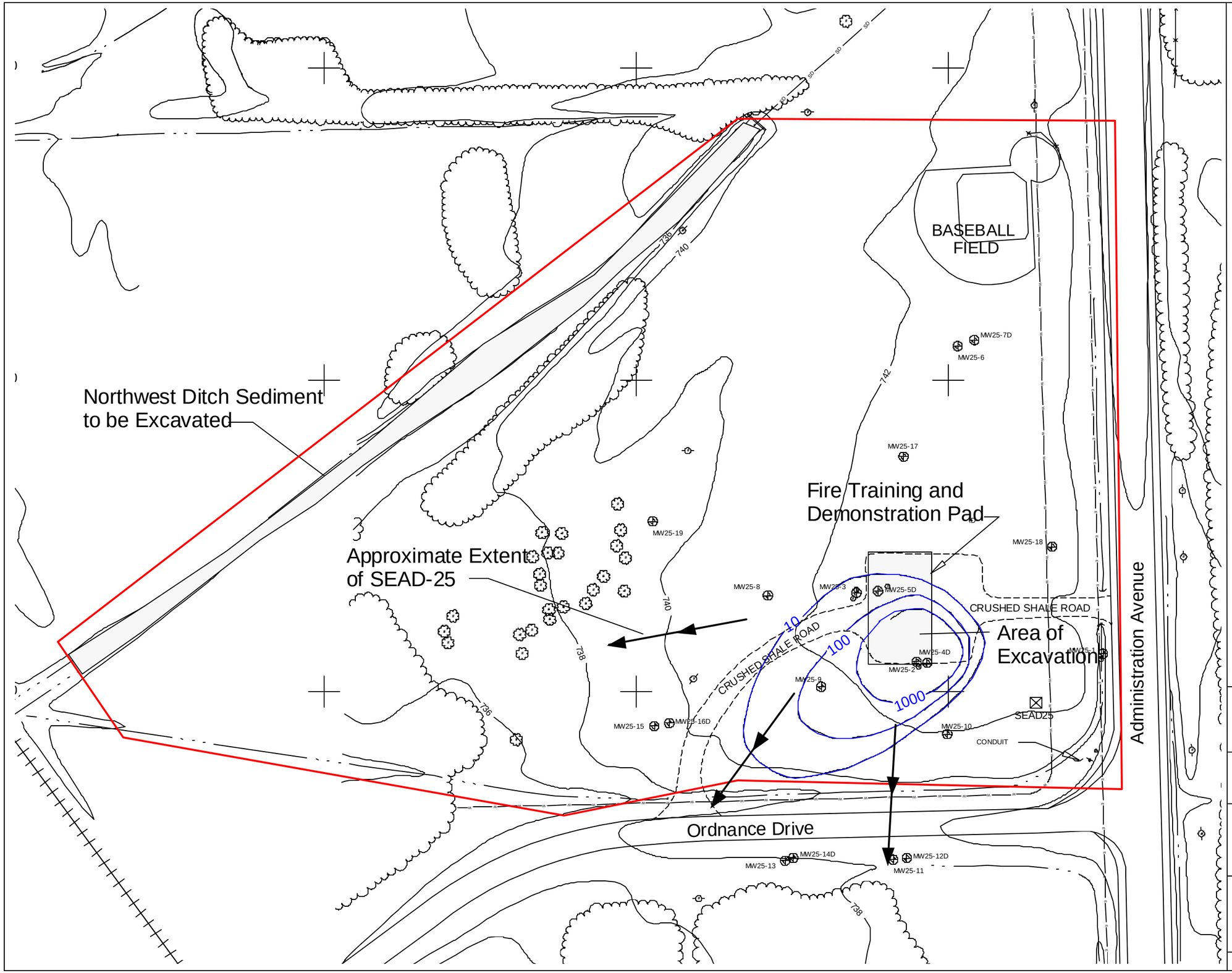
SENECA ARMY DEPOT ACTIVITY

FIGURE C-4
LAND USE CONTROL BOUNDARY
NORTH, NORTHEAST &
EAST CENTRAL BOUNDARY

Contract: DACA87-95-0031

April 2004

c:/seneca/land_use/nid_land_use.apr



Monitoring Well

Soil Boring

Telephone Pole

Benchmark

Road

Railroad

Groundwater Flow Direction

BTEX Contour Line
w/ Concentration in ppb

Site Boundary

Note: Please see Table 3 for analytical data used to create BTEX contour lines

N

50 0 50 100 Feet

PARSONS

Seneca Army Depot Activity
SEAD-25 Fire Training and Demonstration Pad

FIGURE C-5
SUMMARY OF GROUNDWATER
QUALITY INFORMATION
SEAD-25

D 121I

SEAD 50/54

3

PX-A7-SS-001-FS
FX-A7-SS-010-FS
FX-A7-SS-009-FS
FX-A7-SS-008-FS
FX-A7-SS-007-FS
FX-A7-SS-006-FS
FX-A7-SS-005-FS
FX-A7-SS-004-FS
FX-A7-SS-003-FS
FX-A7-SS-002-FS
FX-A7-SS-001-FS
PX-A7-SS-002-FS

FX-A5-SS-01-FS
FX-A5-SS-06-FS
FX-A5-SS-09-FS
FX-A5-SS-10-FS
FX-A5-SS-25-FS
FX-A5-SS-24-FS
FX-A5-SS-23-FS
FX-A5-SS-22-FS
FX-A5-SS-21-FS

PX-A5-SS-01-FS
PX-A5-SS-08-FS
PX-A5-SS-09-FS
PX-A5-SS-10-FS
PX-A5-SS-11-FS

PX-A5-SS-15-FS
PX-A5-SS-16-FS
PX-A5-SS-17-FS
PX-A5-SS-18-FS
PX-A5-SS-19-FS
PX-A5-SS-20-FS

SEAD 49
(No Action Site)

SEAD 55
(No Action Site)

4

N

LEGEND

Area covered by
Industrial Land Use Control

6 Boundary Segments Designated in Text

\# Location of Sampling Points Used in
Support of Boundary Definition

500 0 500 1000 Feet

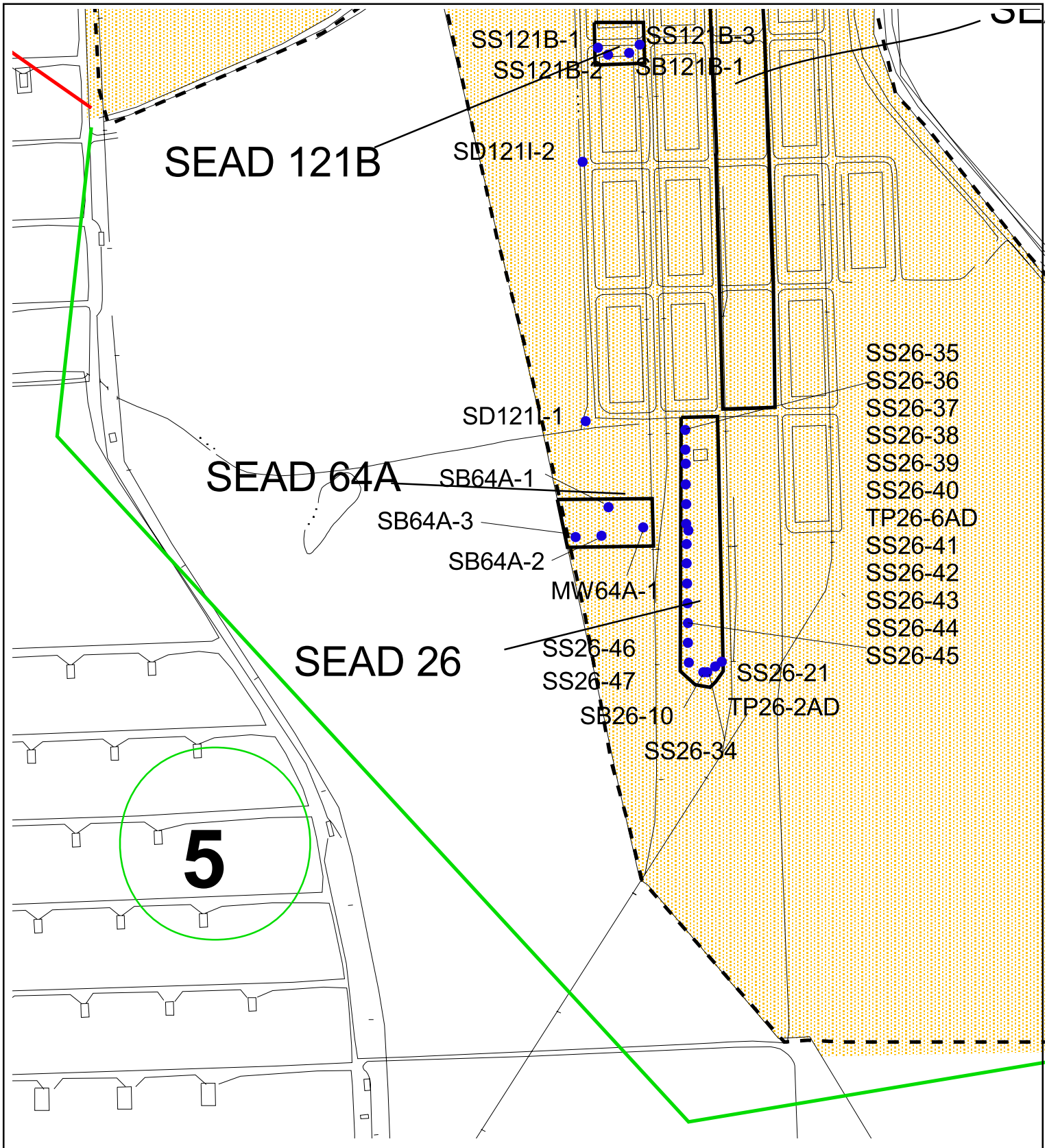
PARSONS

SENECA ARMY DEPOT ACTIVITY

FIGURE C-6
LAND USE CONTROL BOUNDARY
SOUTHEAST & SOUTH SECTION

Contract: DACA87-95-0031 | April 2004

c:/seneca/land_use/nid_land_use.apr



LEGEND

N

Area covered by Industrial Land Use Control

6 Boundary Segments Designated in Text

Location of Sampling Points Used in Support of Boundary Definition

300 0 300 600 Feet

PARSONS

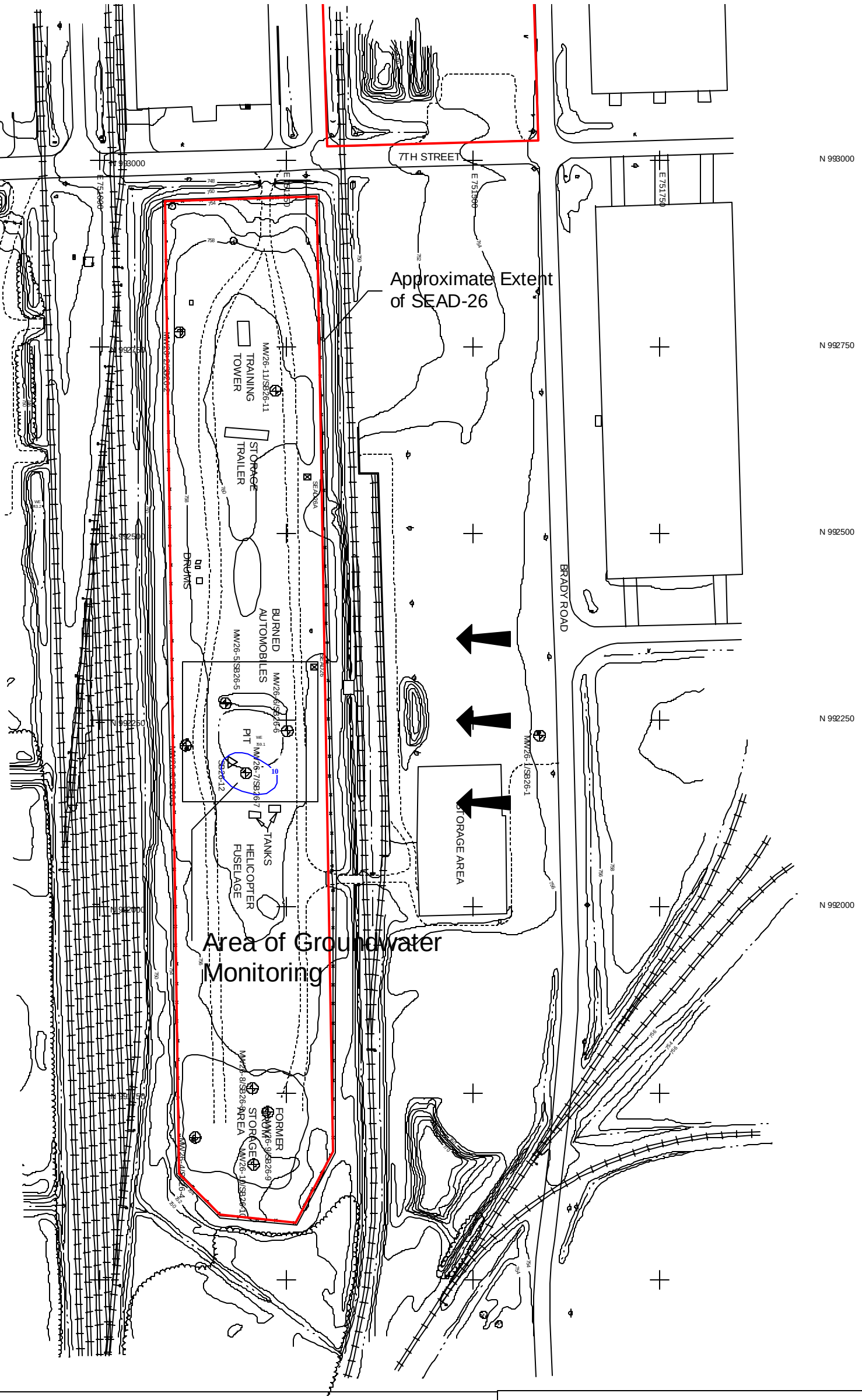
SENECA ARMY DEPOT ACTIVITY

FIGURE C-7
LAND USE CONTROL BOUNDARY
SOUTHWEST BOUNDARY

Contract: DACA87-95-0031

March 2004

o:/seneca/land use/pid land use.apr



LEGEND

- Monitoring Well
- Soil Boring
- Telephone Pole
- Benchmark
- Road
- Railroad
- Groundwater Flow Direction
- BTEX Countour Line w/ Concentration in ppb
- Site Boundary

N

Note: Please see Table 4 for analytical data used to create BTEX contour lines

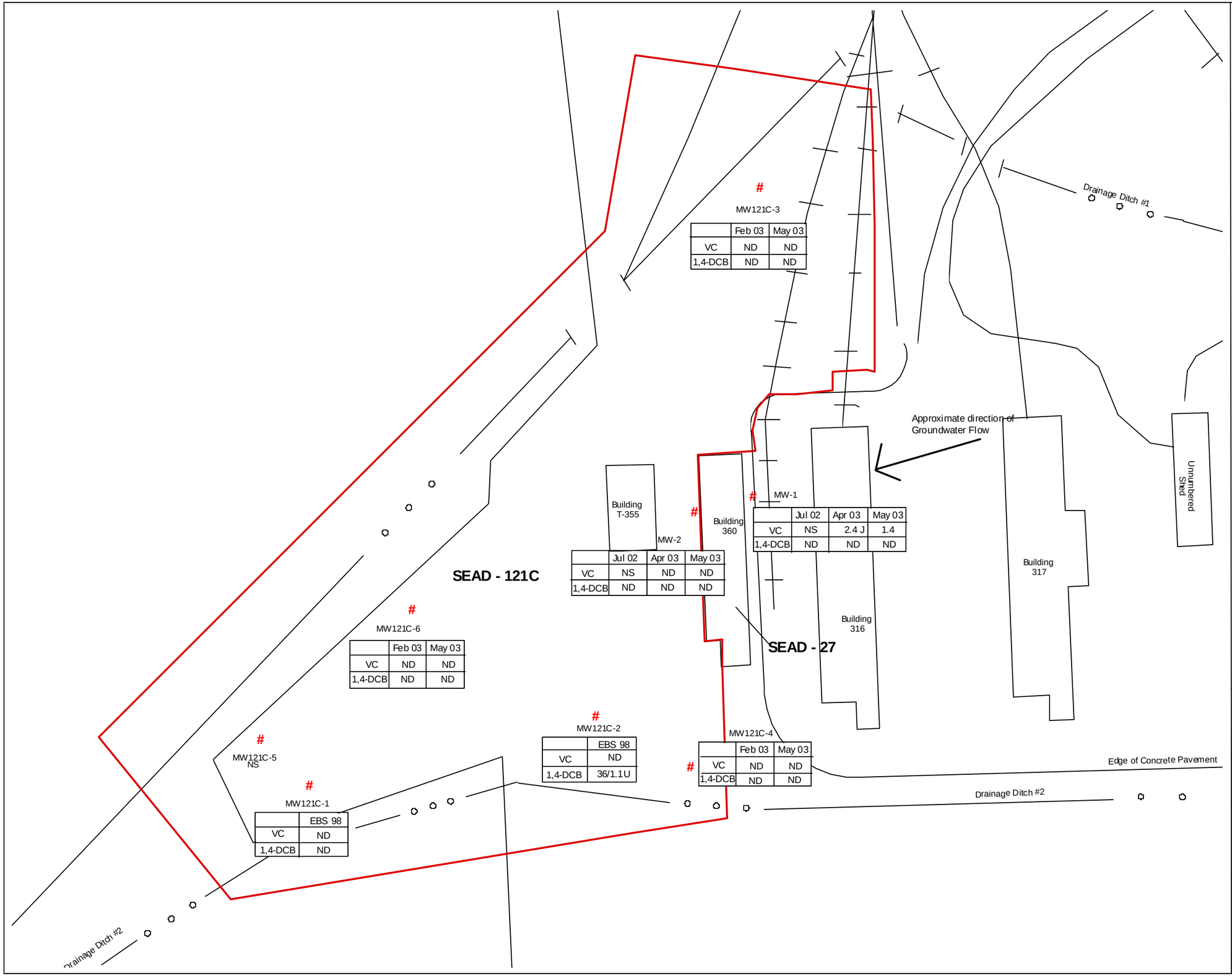
PARSONS

Seneca Army Depot Activity

SEAD-26 Fire Training Pit and Area

FIGURE C-8
SUMMARY OF GROUNDWATER QUALITY INFORMATION
SEAD-26

April 2004



LEGEND

- Railroad Tracks
- Site Boundary
- Surface Water
- MW121C-6 # — Monitoring Well

N

40 0 40 80 120 160 Feet

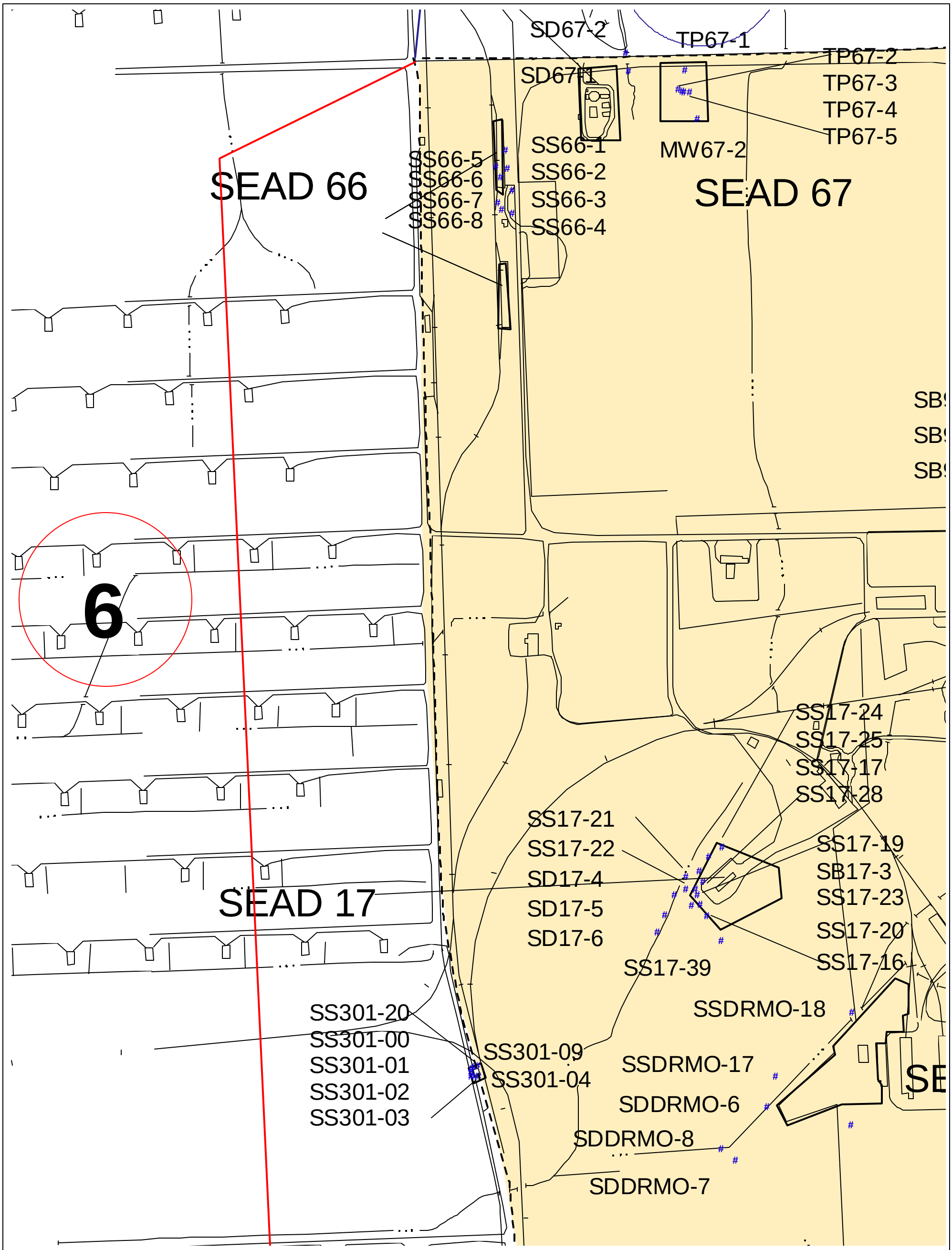
PARSONS

SENECA ARMY DEPOT ACTIVITY

SEAD-121C

FIGURE C-9
SUMMARY OF GROUNDWATER QUALITY INFORMATION
SEAD-121C & SEAD-27

Job #: 736026-01002 | April 2004



PARSONS

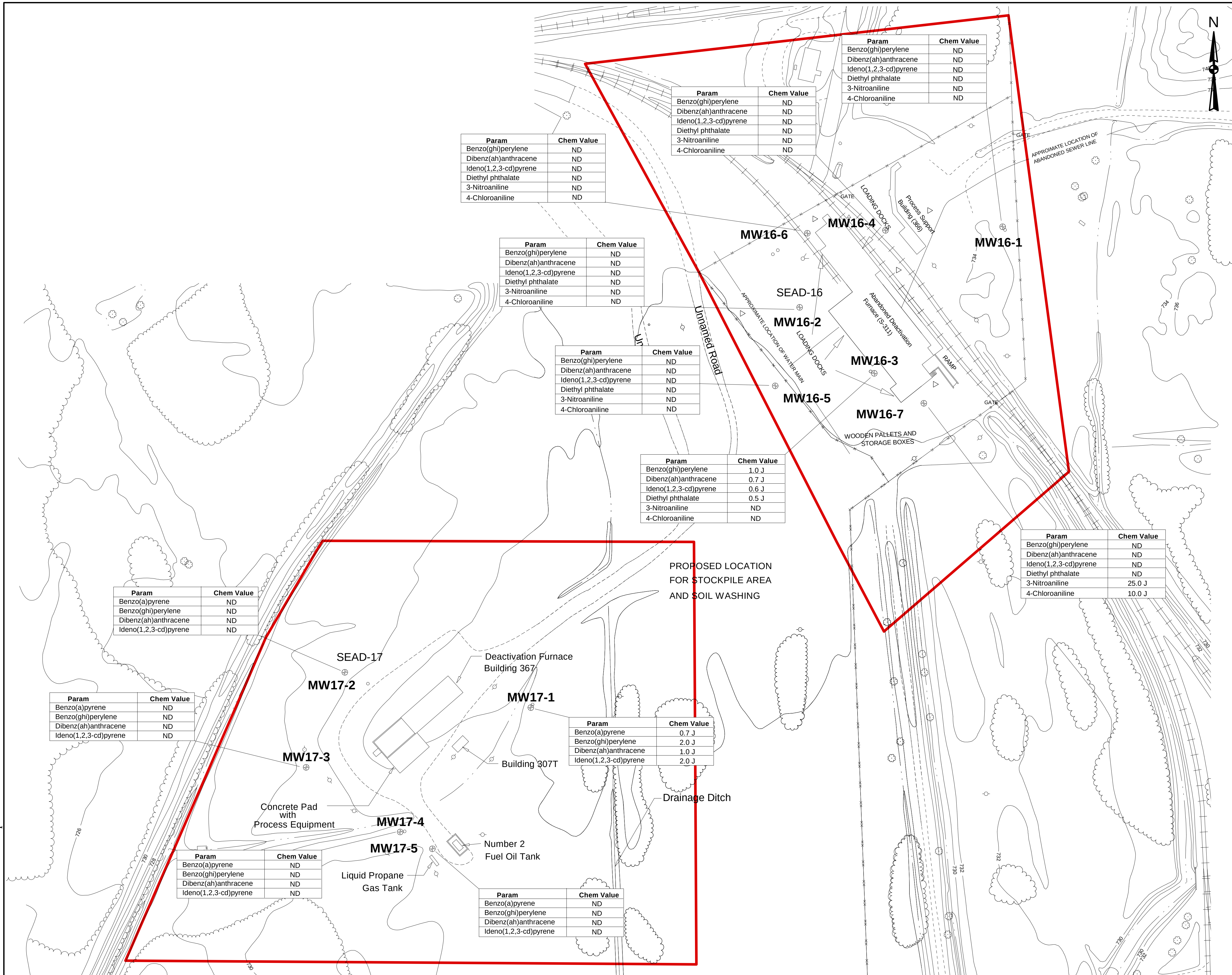
SENECA army DEPOT ACTIVITY

FIGURE C-10
LAND USE CONTROL BOUNDARY
NORTHWEST & NORTH BOUNDARY

Contract: DACA87-95-0031

April 2004

g:/seneca/land use/nid land use.apr



Param	Chem Value
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND
Diethyl phthalate	ND
3-Nitroaniline	ND
4-Chloroaniline	ND

Param	Chem Value
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND
Diethyl phthalate	ND
3-Nitroaniline	ND
4-Chloroaniline	ND

Param	Chem Value
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND
Diethyl phthalate	ND
3-Nitroaniline	ND
4-Chloroaniline	ND

Param	Chem Value
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND
Diethyl phthalate	ND
3-Nitroaniline	ND
4-Chloroaniline	ND

Param	Chem Value
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND
Diethyl phthalate	ND
3-Nitroaniline	ND
4-Chloroaniline	ND

Param	Chem Value
Benzo(ghi)perylene	1.0 J
Dibenz(ah)anthracene	0.7 J
Ideno(1,2,3-cd)pyrene	0.6 J
Diethyl phthalate	0.5 J
3-Nitroaniline	ND
4-Chloroaniline	ND

Param	Chem Value
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND
Diethyl phthalate	ND
3-Nitroaniline	25.0 J
4-Chloroaniline	10.0 J

Param	Chem Value
Benzo(a)pyrene	ND
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND

Param	Chem Value
Benzo(a)pyrene	ND
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND

Param	Chem Value
Benzo(a)pyrene	0.7 J
Benzo(ghi)perylene	2.0 J
Dibenz(ah)anthracene	1.0 J
Ideno(1,2,3-cd)pyrene	2.0 J

Param	Chem Value
Benzo(a)pyrene	ND
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND

Param	Chem Value
Benzo(a)pyrene	ND
Benzo(ghi)perylene	ND
Dibenz(ah)anthracene	ND
Ideno(1,2,3-cd)pyrene	ND

LEGEND

- PAVED ROAD
- 680 GROUND CONTOUR AND ELEVATION
- WETLAND
- BRUSH
- CHAIN LINK FENCE
- UTILITY POLE
- APPROXIMATE LOCATION OF FIRE HYDRANT
- RAILROAD
- EXISTING MONITORING WELL AND DESIGNATION
- EXISTING TEST PIT AND DESIGNATION
- PROPOSED MONITORING WELL AND DESIGNATION
- PROPOSED TEST PIT AND DESIGNATION
- SITE BOUNDARY

Note: All chem values are in ug/L

60 0 60 120 180 Feet

PARSONS

SENECA ARMY DEPOT ACTIVITY
SEADs 16 & 17 - Former Deactivation Furnaces

FIGURE C-11
SUMMARY OF GROUNDWATER
QUALITY INFORMATION
SEAD-17

JOB NUMBER: April 2004

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Appendix D

Protocol for Defining Boundary of Army Retained Sites Within Planned Industrial / Office Development Area

Site Requiring Institutional Controls in the Planned Industrial/Office Development and Warehousing Area

Seneca Army Depot Activity
Romulus, Seneca County, New York

Appendix D: RETAINED SITE BOUNDARY DEFINITION PROTOCOL

The land within the Planned Industrial /Office Development and Warehousing Area (i.e., the PID Area) where the Army recommends imposition of institutional controls (ICs) encompasses a number of CERCLA sites that the Army plans to retain pending the completion of ongoing or scheduled investigations and remedial actions. These sites, the "Retained Sites," include: SEAD 1, 2, 5, 16, 17, 25, 26, 39, 40, 50, 54, 59, 67, 71, 121C, 121I, and 121J. Each of these sites is shown on **Figure 1-2** of the main body of this Record of Decision, highlighted in a dark brown color.

The Army has defined the extent of each of the "Retained Sites" based on a review and assessment of existing analytical data from soil, groundwater and sediment samples that were collected in, or immediately around, the "Retained Sites" as part of site investigations. In many cases, these data show that many contaminants are not present. In other cases, the available data indicates that contaminants are present but they are present at concentrations that are either: less than established federal or state criteria levels [e.g., less than Maximum Contaminant Levels (MCLs) in water or recommended soil cleanup objective levels]; present at higher concentrations that do not pose an unacceptable risk to future residential users of the site; or are present at higher levels that may exceed criteria levels for unrestricted use but are associated with natural or other non-CERCLA regulated activities (e.g., vehicular or railroad traffic or operating releases). A full description of the protocol used to evaluate the existing analytical data for the extent of the "Retained Sites" is provided below.

Soil and Sediment evaluation criteria:

1) All reported analytical results from the identified locations were assessed and found to be consistent with prevailing criteria for unrestricted use of the site; or
2) Human health risk assessments are completed on the site data, using maximum observed concentrations for the Mini risk assessment or RAGs assessment data The results indicate that the contamination identified at the site does not pose an unacceptable risk to potential future residential users of the site; or
3) Human health risk assessments are completed using the maximum concentration for contaminants at a site. The results indicate that there are potential risks to future residential occupants but the site data show that the sample location(s) driving the calculated risk were bounded by other sample location concentrations that are acceptable for unrestricted use of the site; or
4) Identified levels of contaminants at the site may exceed the criteria for unrestricted use; however the levels are assessed and are considered to be associated with anthropogenic or other non-CERCLA regulated activities (e.g., vehicular or railroad traffic and

operating releases, roofing operations, etc.). Typically, these areas are located near roads, railroad tracks, etc. where no known release occurred other than incidental contaminants from typical site activities.

Ground Water criteria:

1) If there was evidence that a ground water plume containing compounds other than metals (e.g., chlorinated volatile organic compounds in groundwater at SEADs 25, 26, and 121C) existed. The boundary was drawn outside the limits of this plume.
2) If there was a discernible contaminant plume containing non-metal contaminants was present at a site, the boundary was drawn such that the existing monitoring network showed the concentrations would diminish to acceptable levels within the proposed bounded area where ICs were proposed.
3) At sites where metals were found in the groundwater, and only aluminum, iron, and manganese identified in the groundwater at levels that exceeded GA standards, we assessed whether the concentrations were indicative of regional groundwater and not releases from the site.
4) For sites where the metals aluminum, iron and manganese were found in the groundwater exceeding GA Standards, we assessed whether the concentrations were associated with elevated levels of turbidity. If yes, we determined that the concentrations were not indicative of dissolved contaminants in groundwater. If not, turbidity was not the cause of higher concentrations, we evaluated whether the concentrations were either similar upgradient of the site or simply associated with the overall geologic formation found at the Depot as opposed to specific activities conducted historically at the site.

For each retained site, the boundary is established based on the above criteria to include the soil, sediment, and groundwater contamination that has been identified as a potential concern, and is associated with a release. The area inside the boundary is considered the area of the SWMU and will be retained by the Army until the site is closed out in accordance with the FFA.

Appendix E

Responsiveness Summary

Site Requiring Institutional Controls in the Planned Industrial/Office Development and Warehousing Area

Seneca Army Depot Activity
Romulus, Seneca County, New York

Responsiveness Summary for Comments Received on
DRAFT FINAL Proposed Plan and DRAFT FINAL Record of Decision
Sites Requiring Institutional Controls in the Planned Industrial / Office Development or Warehousing Areas
Seneca Army Depot Activity – Romulus, New York
August and September 2003

Written comments received during Public Meeting (September 16, 2003)

Comment (Source: written public comments received September 16, 2003 during public presentation – original comments in italics): *Restriction on use (groundwater, daycare, residential). Use KISS* [Army annotation - Keep it Simple…] *principle. Just don't allow it.*

Response:

The Seneca Army Depot Activity in Romulus, New York is a Federal Facility identified on the National Priorities List. As such, recommended actions at a site at the Depot where evidence of the presence of hazardous waste or materials has been identified must be developed and presented in a manner that is consistent with federal and state guidelines governing environmental responses under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

The Army prepared its recommendation for the Planned Industrial/Office Development and Warehousing Areas in the referenced Draft Final Proposed Plan and Draft Final Record of Decision, and presented this recommendation to the public at the Offices of the Seneca County Board of Supervisors on September 16, 2003. The Army believes that it has succeeded in complying with all prescribed federal and state guidelines. As is required under CERCLA, available analytical data for soil and groundwater from the three sites were evaluated and used in the individual risk assessments that were prepared for each of the sites. Based on its evaluation and the results of these risk assessments, the Army recommends that the three identified sites (SEADs 27, SEAD-64A and SEAD-66) are suitable for transfer, but are not suitable for unrestricted use. Specifically, the Army recommends a restriction on these sites to prevent residential use of the land and access to and use of the underlying groundwater. The Army has included these restrictions in all official documents affecting the proposed transfer of these properties. While the Army agrees with the comment, we are required to comply with the prevailing federal and state guidelines and requirements when proposing remedial actions for the review and approval of the public and oversight agencies.

Comment: Original text: *Recommend follow-up with Seneca County Board of Supervisor re addition lay of control via County Building and Health Dept. in addition to the Town.* [Army Annotation - Recommend follow-up with Seneca County Board of Supervisors regarding the addition of another layer of control via County Building and Health Department in addition to the Town of Romulus].

Response:

The Army is willing to meet and work with the County Board of Supervisors or it designee to discuss procedures that can be implemented to control future land uses at the identified sites in the Planned Industrial / Office Development and Warehousing Areas at the Seneca Army Depot Activity. The Army believes it has demonstrated its willingness to assist in the development and implementation of such procedures by its involvement in the process completed by the Town of Romulus for controlling land

within the former grounds of the Army Depot. However, the Army is concerned that multiple overlying layers of control have the potential of adversely impacting the future beneficial development and reuse of the subject areas due to uncertainties about line authorities and conflicting requirements. Therefore, the Army believes that it is all parties' best interest to ensure that all authorities are uniquely defined and that all concerned parties are prepared to integrate their efforts to the beneficial future release of the subject property. The Army will identify the layering authorities for the various land use control restrictions and mechanisms during the development of the Remedial Design Plan for the Planned industrial / Office Development Area.

Comments from U.S. Environmental Protection Agency, Region II
Draft Proposed Plan for Sites Requiring Institutional Controls in the Planned Industrial Development (PID) and Warehousing Areas; Seneca Army Depot Activity, Romulus New York
Dated: November 14, 2003

Please find our review on the subject document received July 23, 2003.

Comment:

Section 3.0, page 3, 1st Column, 1st ¶: Please define all CERFA Categories within this document.

Response:

Agreed. A definition of all CERFA Categories will be provided. To facilitate document readability, these have been added as a table. A copy of the proposed table presentation is provided below.

CATEGORY 1
Areas where no storage for one year or longer, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent property). Additionally, includes areas where no evidence exists for the release, disposal or migration of hazardous substances or petroleum products; however, the area has been used to store less than reportable quantities of hazardous substances (40 CFR 302.4) or 600 or fewer gallons of petroleum products.
CATEGORY 2
Areas where only storage of hazardous substances in amounts exceeding their reportable quantities or petroleum products exceeding 600 gallons has occurred, but no release, disposal or migration has occurred.
CATEGORY 3
Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, but at concentrations that do not require a removal or remedial action.
CATEGORY 4
Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, and all removal or remedial actions to protect human health and the environment have been taken.
CATEGORY 5
Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, and removal or remedial actions are underway, but all required actions have not yet been implemented.
CATEGORY 6
Areas where storage, release, disposal, or migration of hazardous substances or petroleum products has occurred, but required removal or remedial actions have not yet been initiated.
CATEGORY 7
Areas that are not evaluated or require additional evaluation.

Comment:

Section 3.1, page 3 & 4: There are a number of pits and tacks depicted within this section. However, it is unclear which of these were covered by the referenced RCRA closure.

Response:

The section will be revised as is presented below to enhance clarity.

3.1 SEAD-27 – Steam Cleaning Waste Tank in Building 360

Building 360 is located in the eastern-central portion of the Depot (see **Figure 1**) and is a building where old equipment was refurbished and reconstructed. Lathes, presses, metal-working machines were degreased with steam, high-pressure water and detergents in the cleaning area. After steam cleaning, the equipment was moved to other portions of Building 360 for rehabilitation.

SEAD-27, the Steam Cleaning Waste Tank, is located within a high bay area of Building 360 that is located near the north end of the building and is separated from the remainder of the building by cinder block walls. The overall size of the cleaning area is 38 feet-6 inches long by 20 feet-6 inches wide. The Steam Cleaning Waste Tank, also known as the Steam Jenny Accumulation Pit, is a belowground, concrete tank above which track-mounted cars loaded with equipment requiring cleaning can be positioned and steam cleaned. The track-mounted cars are rolled into and out of the cleaning area via permanently installed tracks that extend through roll-up doors and out of the building. Equipment requiring cleaning can also be placed directly above the tank on the floor. An overhead and two cross-sectional views (looking north and west) of the Steam Cleaning Waste Tank are provided as **Figures 2**, **3**, and **4**, respectively.

The floor surrounding and overlying the waste tank slopes towards the tank to channel all condensate and over spray back towards the tracks and collection grates. Under the metal grating is a trench system which slopes from a depth of 2 feet-0 inches at the west end of the overall cleaning area to a depth of 2 feet-10 inches toward the east end. Condensate and wastewater flowed through the trench system and fall into the Steam Cleaning Accumulation Pit, which is located at the east end of the overall cleaning area. The dimensions of the accumulation pit are 10 feet-6 inches wide by 3 feet long by 3 feet-4 inches deep. The maximum capacity of the Steam Cleaning Waste Tank is approximately 5,000 gallons when filled to near the top or 1,100 gallons to the 2-foot freeboard mark. This tank is no longer in use.

Use of the Steam Jenny Accumulation Pit began in 1976. Since cleaning operations ceased on January 2, 1990, SEDA has periodically monitored the depth of water in the accumulation pit to determine if water levels in the pit are affected by varying groundwater levels. SEDA has also periodically rinsed the pit and disposed of the rinseate as hazardous waste but has never had the pit tested after rinsing for contamination. An analysis of sludge from the bottom of the pit and water in the pit was completed in 1987. A closure investigation was performed under the RCRA program in July of 1995 and the determination was made that the accumulation pit in Building 360 satisfied the RCRA requirements for clean closure (International Technology Corporation, 1995).

Approximately 25 feet south of, and isolated from the Steam Cleaning Waste Tank area by a cinder block wall, is an enclosure within Building 360 that is associated with a historic vapor degreaser. This vapor

degreaser pit is not part of, or directly associated with the operations conducted in SEAD-27, Steam Cleaning Waste Tank operation. Within the vapor degreaser enclosure is a vapor degreaser, a below ground concrete accumulation pit that measures approximately 15 feet long by 12 feet wide, and a 2 foot diameter tile sump pit (T-sump), that is located beneath the bottom of the accumulation pit. The approximate location of the vapor degreaser enclosure and the T-sump are shown on **Figure 2**.

Comment:

Section 3.1, page 4, 1st Column, 4th ¶: The conclusion of the groundwater and pit water level monitoring effort should be included within this discussion. Please state whether they are related and if there is an indication of possible groundwater impact.

Response:

The results of the groundwater and pit water monitoring activities conducted as part of the SEAD-27 closure effort are provided in Section 4.1 of the Proposed Plan and will be modified based on another USEPA comment contained in this letter (see below) and to enhance clarity as presented later. The referenced fourth paragraph of **Section 3.1** of the Proposed Plan will be revised as shown below.

Use of the Steam Cleaning Waste Tank (i.e., Steam Jenny Accumulation Pit) began in 1976. After cleaning operations ceased on January 2, 1990, SEDA periodically monitored the depth of water in the accumulation pit to determine if water levels in the pit are affected by varying groundwater levels. SEDA reports that there was never any evidence that groundwater was entering the Steam Cleaning Waste Tank. SEDA has also periodically rinsed the pit and disposed of the rinseate as hazardous waste but has never had the pit tested after rinsing for contamination. An analysis of sludge from the bottom of the pit and water in the pit was completed in 1987. A closure investigation was performed under the RCRA program in July of 1995 and the determination was made that the accumulation pit in Building 360 satisfied the RCRA requirements for clean closure (International Technology Corporation, 1995). Monitoring of the water elevation in the waste tank and the removal of accumulated water (if present) ceased once RCRA closure was completed and certified.

Comment:

Section 3.2, Page 4, 2nd Column: "Constantine" wire seems to be a misspell.

Response:

The word is properly spelled. There is Constantan wire and Constantine wire. Constantine wire is also known as a type of razor wire or barbed wire that is commonly used at the top of security fences and to deter access to contested or secured areas.

Comment:

Section 4.1, page 5: It is difficult, from the explanation provided, to understand how did you determine that the T-sump water samples were not representative of the accumulation pit. Please provide a longitudinal cross section layout of the Steam Cleaning Waste Tank system to help us visualize the structure discussed.

Response:

Two cross-sectional views of the Steam Cleaning Waste Tank System will be added to the Proposed Plan.

Comment:

Section 4.1, page 5, 2nd Column, Last ¶: The referenced 2003 data was never sent or reviewed by the regulatory agencies. In addition, this information is confusing as it does not change the remedial outcome from previous investigations. Please purge all references to the 2003 sampling event from this document.

Response:

Agreed. References to the 2003 sampling events and analytical results will be removed from the document. The discussion of Steam Cleaning Waste Tank closure sampling and monitoring presented in Section 4.1 of the Proposed Plan will be modified to read as provided below. This revision also addresses an issue identified by the USEPA in an earlier comment within this letter.

Soil

The four soil samples collected from SEAD-27 in 1995 were analyzed for VOCs, PCBs, cadmium, chromium, and lead. Of these compounds, only chromium and lead were detected. None of these detections exceeded recommended soil cleanup levels identified by NYSDEC in Technical and Guidance Memorandum (TAGM) #4046 "*Determination of Soil Cleanup Objectives and Cleanup Levels*" (NYSDEC, 1994).

Steam Cleaning Waste Tank Wastewater

One representative, composite sample of wastewater contained within the Steam Cleaning Waste Tank was collected and analyzed for VOCs, pesticides, herbicides, PCBs, metals, and various classical chemical parameters prior to the beginning of closure of SEAD-27. Resulting analytical data indicated that there were no detectable levels of VOCs, herbicides or PCBs within the sample. Total cresol, lindane, 4,4`-DDE, 10 metals and numerous classical parameters were detected in the wastewater (refer to **Table 4** below for details), and this data was used as the basis for recommending disposal and treatment of the wastewater at the Depot's wastewater treatment plant.

Concrete Core Samples

Six inch diameter concrete core samples were also collected from three location within the bottom of the Steam Cleaning Waste Tank pit and analyzed for PCBs and toxicity characteristic leaching procedure (TCLP) cadmium, lead, and chromium. Each of these samples was split into three fractions, yielding nine final samples delivered for analysis. The first sample from each core represented concrete from the top portion of the core, the second from the middle portion of the core, and the third from the bottom of the core where it met underlying soil. Resulting data showed that only two detection of chromium were seen in any of the samples, and these concentrations were 22 and 12 µg/L, respectively from the top and middle portions of core CC-3. Both of these values are well below the federal regulatory limit value of 5 mg/L.

Groundwater

The groundwater samples collected from SEAD-27 in 1995 were analyzed for VOCs, SVOCs, PCBs, cadmium, chromium, and lead. There were three exceedances of NYSDEC's GA groundwater criteria for 1,1-dichloroethane, and one exceedance each for 1,1,2,2-tetrachloroethane and total xylene. All of the observed exceedances occurred in the final round of samples collected (May 1995). 1,1-Dichloroethane was detected in MW-2, the downgradient well, at approximately 7 times the GA standard level, and in the two other wells at levels roughly equivalent to, though higher than, the standard (i.e., 5 µg/L). The concentration of 1,1,2,2-tetrachloroethane measured was slightly greater than NYSDEC's GA standard concentration, while the concentration of total xylene detected was twice NYSDEC's GA criteria level. The sample collected from the upgradient well contained the noted exceedances for total xylene and 1,1,2,2-tetrachloroethane.

T-Sump Water Sample

Water samples were also collected from the T-sump during each of the groundwater sampling events that were conducted during 1995 as part of the RCRA Closure program at SEAD-27. Lead and 1,1,1-Trichloroethane were detected in each of the five samples collected from the T-sump, while, bromodichloromethane, bromoform, and dibromochloromenthane were detected in the sample colleted from the T-sump during the second sampling event. Finally, chromium was detected in the first T-sump sample. All of the concentrations reported for 1,1,1-Trichloroethane (i.e., 14, 18, 20, 16 and 18 µg/L, respectively) exceeded its GA groundwater standard (5 µg/L), while three values reported for lead (197 µg/L, 1st event; and 30.5 and 38.5 µg/L,, second event and duplicate, respectively) exceeded its GA standard (25 µg/L). In the conclusions of the RCRA Closure Report for the Steam Cleaning Waste Tank, the author states "Data and historical operations of the 1,1,1,-trichloroethane sump and adjacent storage tank suggests the constituents present in the T-sump groundwater are likely not related to past operation of the steam jenny pit area [i.e., Steam Cleaning Waste Tank] but are inherent to the operations of the 1,1,1-trichloroethane storage tank." This conclusion is based on the determination no elevated levels of any of either of these two compounds was found in any of the soil or concrete core samples collected from the Steam Cleaning Waste Tank. Although, lead and chromium were detected in the wastewater removed from the Steam Cleaning Waste Tank at the time of closure, evidence of their migration through the concrete and into the underlying soils were not confirmed. Thus, the T-sump water samples are excluded from this analysis.

TABLE 4
Summary of Steam Cleaning Waste Tank Wastewater Analytical Results

Parameter	Concentration	Units
Volatile Organic Compounds	Not Detected	µg/L
Herbicides	Not Detected	µg/L
PCBs	Not Detected	µg/L
Total Cresol	20	µg/L
Other Semivolatile Organics	Not Detected	µg/L
Lindane	0.1	µg/L
4,4`-DDE	0.25	µg/L
Other pesticides	Not Detected	µg/L
Arsenic	40.3	µg/L
Barium	56.8 J	µg/L
Cadmium	5.4	µg/L
Chromium	43	µg/L
Copper	155	µg/L
Lead	194	µg/L
Nickel	276	µg/L
Selenium	23.4	µg/L
Silver	8 J	µg/L
Zinc	2,590	µg/L
Other Metals	Not Detected	µg/L
Density	0.999	mg/L
Total Dissolved Solids	1500	mg/L
Total Suspended Solids	330	mg/L
Total Organic Carbon	110	mg/L
Total Organic Nitrogen	3.2	mg/L
Phenol	0.01 J	mg/L
Sulfide	1.4	mg/L
PH	8.7	Standard units

Comment:

Section 4.2, page 6: See Section 4.1 for comments regarding the 2003 sampling event.

Response:

Agreed. References to the 2003 sampling events and analytical results will be removed from the document.

Comment:

Section 4.3, page 6: Explain why no groundwater samples were collected for SEAD-66.

Response:

The limited sampling program was conducted in 1993, and at the time of its implementation, no groundwater sampling was proposed until there was a determination of whether evidence of a release existed and that the levels of contaminants identified posed a potential threat. Soil data from limited sampling event indicates that there is no risk resulting from the identified chemicals and the planned future industrial land use at this site.

Comment:

Section 5.3, page 8: Your discussion seems to indicate that the maximum value, used to run the risk assessment, was not really representative of the data set (i.e. outlier). However, if such statistical analysis was not performed on the data set, the Army's discussion and position that 4,4`-DDT is not a COC is unacceptable. Also, please add data tables for this site.

Response:

The soil data for the site has been added to the Proposed Plan as **Table LLL.** A table with the data will be added as **Table LLL** within the Proposed Plan. The data for the 4,4`-DDT is summarized below:

Original Sample Concentration	Data Qualifier	Substituted Value
3.5	J	3.5
4.4	U	2.2
5.5	J	5.5
170		170
9.4	J	9.4
2	J	2
25	J	25
36000		36000
10	J	10
	Mean	4023.177778
	Standard Deviation - SD (n-1)	11991.43
	Grubbs ' Test Value Z = (|mean – value|) / SD	(| 4023 – 36000|) / 11991 = 2.66666
	Critical Z Value	2.21

As the calculated Z value is greater than the critical Z value, there is less than a 5 percent chance (actually less than a 1 % chance) that the observed 36,000 ug/Kg value is anything but an outlier. Given this data analysis, the high concentration reported for 4,4`-DDT at location SS66-8 is an outlier of the data set. Additionally, as this sample location is bounded by three other locations where the measured concentrations are between 200 and 6500 times lower, it is presumed that this value is indicative of an isolated "hot spot."

A summary of this additional information will be added to the Proposed Plan and Record of Decision Discussion for the Sites Requiring Institutional Controls.

Comment:

Section 6.0, page 8: This objective is too broad and vague. Please develop site-specific remedial goals.

Response:

The identified section has been modified as follows.

The selected remedy for any site should, at a minimum, eliminate or mitigate all significant threats to the public health or the environment presented by the hazardous waste present at the site. Based on the data presented and summarized earlier within this Proposed Plan, the Army has identified potential contaminants within the groundwater and/or soil that remain at each of the identified sites (i.e., SEAD-27, SEAD-64A, and SEAD-66) that represent a potential threat to human health and the environment and prohibit the unrestricted future use of the site. Specifically, the identified groundwater contaminants found at SEAD-27 and SEAD-64A exceed federal MCLs or State of New York GA groundwater standards which precludes their use as a potable water supply. Similarly, the anomalously high concentration of 4,4`-DDT measured at SEAD-66, which has been shown to be an outlier, precludes the use of this area for residential purposes unless some other action is implemented. However, each of these sites is located in a portion of the overall Depot that has been designated as land that will be used for future planned industrial /office development. Further, the area where each of these sites is located is within the portion of the former Depot where a municipal potable water distribution system is present and operating at this time. Therefore, the selected remedy or action for each of these sites should address that each of these three sites should not be used for residential activities and that access to and use of groundwater from within these areas is not allowed.

Comment:

Section 7.0 page 8: Land use restriction should include no digging for landfills (SEAD-64A).

Response:

The identified institutional control will be included in the list for SEAD-64A.

Comment:

Section 7.0 page 9, 1st Column, 3rd ¶: All areas, retained and these restricted sites, need further delineation of the unrestricted use line. CERCLA institutional controls (ICs) are only applicable to areas of contamination. Therefore, this PID/Warehouse Area-wide land use restriction is only acceptable as a temporary measure while further delineation efforts are completed. Furthermore, restriction for the already determined No Action (NA)? No Further Action (NFA) sites can be lifted when delineation is completed.

Additionally, the Army has raised the possibility of PID/Warehouse Area-wide anthropogenic contamination. This possibility is yet to be formally presented to the regulatory agencies, and no

determination has been issued. As you can see, there is much work yet to be done at the PID/Warehouse Area.

Response:

The proposed boundary of the areas requiring ICs is defensible based on available data from previous investigations at SEDA. SWMUs located near the proposed boundary have been identified and data from these SWMUs are presented in Section 7.0 to support the appropriateness of the boundary definition.

Text from Section 7.0 is presented below in its entirety:

Based on the results of the investigations and mini risk assessments completed for the three sites, the Army intends to impose institutional controls (ICs) on the three SWMUs (i.e., SEAD-27, SEAD-64A, and SEAD-66) described earlier within this document. The objectives of ICs proposed for SEAD 27, 64A, and 66 ICs include the establishment of the following land use restrictions for the sites:

- Prevent residential activities, including housing and use as a daycare facility; and
- Prevent access or use of the groundwater without prior Army/USEPA approval.

These land use restrictions are based on the results of the SEAD-27, SEAD-64A, and SEAD-66 mini risk assessments that are documented in the Completion Report "Decision Document, Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B, Seneca Army Depot Activity, *Final*" (Parsons, 2002), and which are summarized above. The risk assessments suggest that restricting residential activities and access/use of groundwater at SEAD 27, 64A, and 66 will ensure protection of human health and the environment by reducing the hazard indices and cancer risk to within an acceptable range.

The Army recommends that the land use restrictions proposed for SEAD 27, 64A, and 66 also be imposed and maintained on all the property within the Planned Industrial/Office Development and Warehousing Area ("PID Area"), as it is has been defined in the "Reuse Plan and Implementation Strategy for the Seneca Army Depot Activity" (RKG Associates, Inc., 1996). The proposed boundary for the land use restrictions is shown on **Figure 5**.

The Army's proposed establishment of an area-wide set of land use restrictions is consistent with the planned reuse of the property by the Seneca County Industrial Development Authority (SCIDA) and will simplify IC implementation by having a single set of land use restrictions for the entire PID Area. Further, the extent of the proposed land use restrictions is consistent with the area that is within the bounds of a Township of Romulus, NY ordinance that requires future developers/owners to provide details of all construction/building/renovation projects that may be performed within this area to the Army and to the town managers for review and approval. Additionally, the Army contends that the proposed boundaries for the area of the proposed ICs are consistent with existing geographic, cultural,

demographic, or other historic features and are supported, to the fullest extent possible, by the available analytical data collected at identified sites that are in proximity to the proposed boundary. Generally, the area where the Army proposes to implement the institutional controls is defined by historic and existing security fence lines and roadways that exist at the site. This provides a high degree of visibility, and thus certainty, as to the extent of the proposed boundary without necessitating the installation of new identification markers. Finally, with respect to recommended groundwater use/access restriction, the proposed bounds envelop an area of the former Depot where an ample public water supply is available so that a site-wide groundwater use restriction will have a minimal adverse impact on the future land use.

The Army acknowledges that portions, but not all, of the PID Area for which it is recommending that ICs be implemented as a remedial measure contains sites where hazardous wastes and materials have been used, stored, and treated or disposed. In response to this acknowledgement, the Army, under conditions of regulatory oversight, review, and approval/acceptance, has implemented numerous investigations and studies to identify areas where potential risks from exposure to environmental contaminants continue to exist. Further, as potential sites have been investigated and assessed the Army has, and will continue to, propose and implement necessary remedial actions to eliminate, lessen or control contaminants found. Finally, in accordance with requirements delineated under CERCLA section 120(h)(3), transfers of certain property by deed must also include a covenant by the United States that all remedial action necessary to protect human health and the environment has been taken prior to transfer, a covenant by the United States to undertake any further remedial action found to be necessary after transfer, and a clause granting access to the transferred property in case remedial action or corrective action is found to be necessary after transfer.

As has been mentioned earlier, the PID Area includes sites ("NA/NFA Sites") that have been closed out under the CERCLA process as No Action/No Further Action sites. The NA/NFA ROD (Parsons, 2003) identified sites at which either no remediation is required or no further remediation is required. The NA sites located in the PID Area include SEADs 9, 10, 20, 22, 33, 36, 37, 42, 47, 49, 55, and 68. The NFA sites located in the PID Area include SEADs 28, 30, 31, and 34. These sites are shown on **Figure 5**. The sites listed in the NA/NFA ROD will continue to be subject to PID Area site-wide land use restrictions. However, upon request by a future property owner, the Army, USEPA, and NYSDEC will evaluate requested variance for land use restrictions in a designated area on a site-by-site basis. A copy of the NA/NFA ROD is available at the Information Repository at SEDA.

Data and information used to support the proposed boundary definition have been collected from existing reports that have been prepared for the encompassed and neighboring sites at the Depot. Once Seneca Army Depot was listed on the NPL, the Army, USEPA, and NYSDEC identified a list enumerating 57 solid waste management units (SWMUs) where historic data or information suggested, or evidence existed to support, that hazardous materials or hazardous wastes had been handled and may have possibly been released and migrated into the environment. Each of these sites was identified in the Federal Facilities Agreement (FFA) (USEPA, NYSDEC, Army, 1993) signed by the three parties, and this list

subsequently expanded to include 72 sites when the Army completed the "SWMU Classification Report, *Final*" (Parsons, 1994), which was required under the terms of the FFA. Subsequently, when SEDA was approved for closure under BRAC 1995, the Army commissioned an Environmental Baseline Survey (EBS) of the entire Depot, where all property and facilities were evaluated, assessed, and classified in accordance with requirements of the Community Environmental Response Facilitation Act [CERFA 42 U.S.C. 9620(h)(4), (5)]. As a result of this work, additional sites within, and near, the area where the ICs are proposed have been investigated and analytical data are available. These data have been reviewed and the Army believes that they support the proposed boundary for the area where the ICs will be imposed.

A primary criterion used by the Army to define the proposed boundary of the area where the proposed ICs will be applied is the review of data from previous sampling events from SWMUs or EBS sites identified within and near, the bounded area. Specifically, existing analytical data and information from SEADs 2, 9, 17, 25, 26, 49, 50/54, 55, 66, 67, 68, 121B, 121C, 121D, 121E, 121F, 121G, and 121I support the Army's recommendation of the identified boundary. In all cases, the SEADs either define the limit of area requiring land use controls or are sufficiently close to defining the limits given the large buffer area between the outermost sampling points and the nearest boundary. Thus, the Army contends that the proposed boundary for the area where ICs will be implemented is sufficient to ensure that the surrounding areas are suitable for their intended future use. Further, the proposed extent of the area within the bounded area encompasses a number of sites that the Army currently plans to retain pending the completion of ongoing or scheduled investigations and remedial actions. These sites, the "Retained Sites," include: SEAD 1, 2, 5, 16, 17, 25, 26, 39, 40, 50, 54, 59, 67, 71, 120G, 121C, and 121I. Each of these sites is shown on **Figure 5**, highlighted in a dark brown color.

Ensuing paragraphs summarize the bounds of the proposed area that will be covered by the proposed ICs and provide a summary of the existing analytical data and information that the Army believes supports its recommended definition of the area that will be covered by the ICs. The boundary of the area where the Army is proposing to implement land use restrictions is shown in **Figure 6** and is approximately defined by:

1. Northeast Boundary – The former Depot's perimeter security fence line; this segment is supported by data from SEAD-9.
2. East Central Boundary – The inner fence line that separated the former Depot's Administration Area from the area that is designated as the property of the Elliot Acres Family Housing Area to the east; this segment supported by data from SEADs 121G, 121F, 25, and 68.
3. Southeast Boundary – The former Depot's perimeter security fence line to the southeast; this segment supported by data from SEAD-50/54 and SEADs 49 and 55.
4. South Boundary – Equivalent to the northern boundary of the land that was subject of a federal agency to federal agency transfer where the Loran Transmitter is located to the southeast and the boundary that separated the proposed PID Area from the land transferred to New York for the

construction of the Five Points Correctional Facility; this boundary supported by data from SEAD-49, 55 and 26.

5. Southwestern and West Central Boundary – An internal security fence that separates the former warehousing, industrial and administration area from the former Munitions Storage Area to the southwest and along 3rd Street in the west central portion of the site; this boundary supported by data from SEADs 26, 64A, 121I, 121B, 121C and 17.
6. Northwestern Boundary – Along the eastern side of Fayette Road from the west central portion of the site and extending towards the northwest until Fayette Road intersects with West Romulus Road; this portion of the boundary is supported by data from SEADs 2 and 66.
7. Northern Boundary – Along the southern edge of West Romulus Road from the intersection with Fayette Road to the perimeter security fence; this portion of the boundary is supported by data from SEAD-20 and 67.

Additional details of the proposed boundary are provided below.

1. Northeast Boundary

The Army's proposed boundary line in the northeast portion of the PID Area is the former security fence line that separates the bounds of the former Depot from the surrounding community of Romulus to the east. This fence line was emplaced and patrolled by military personnel from the time of the Depot's initial construction until all military operations ceased in 2000.

The eastern edge of SEAD-9 is located approximately 100 feet west of the security fence line that separates the property of the former Depot from property in the neighboring Township of Romulus. Available soil data from SEAD-9, the Old Scrap Wood Site, support the definition of the proposed northeastern boundary for the area. SEAD-9 was investigated as part of the Expanded Site Inspection (ESI) for Eight Moderately Low Priority AOCs, beginning in 1994. As part of this effort, soil and groundwater samples were obtained and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), organochlorine pesticides and polychlorinated biphenyls (pest/PCBs), Target Analyte List (TAL) metals, cyanide and total petroleum hydrocarbons (TPH). Selected VOCs, SVOCs, pest/PCBs, metals, and TPH were detected in the soil, while metals and TPH were detected in the groundwater. Available data were used to perform a human health (industrial and residential scenario) risk assessment, and the results of this analysis were reported in the "Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B, *Final*" (Parsons, 2002). The results of the human health risk assessment showed that the total cancer risk under the five industrial exposure scenarios evaluated were within or below the USEPA's target range (1e-04 to 1e-06). Comparably, the non-cancer risk (hazard index or HI) was less than 1 for all 5 industrial receptor scenarios evaluated. Furthermore, and most importantly, the total cancer and non-cancer risk for adult and child residents were also found to be within or below the USEPA target ranges for residential use. Therefore, this site supports the Army's

proposed placement of the boundary for the sites requiring ICs. Additionally, there has been no evidence to indicate that industrial activities ever were conducted in the area between SEAD-9 and the northeast corner of the Depot.

2. East Central Boundary

The Army's proposed boundary line in the east central portion of the Depot is generally consistent with features that separate the Depot's former administrative, industrial, and warehousing areas from the property of the Elliot Acres Family Housing Area. The line runs along the southern side of South Street, up to the point where it intersects with Administration Avenue. From this point the proposed boundary runs along the eastern side of Administrative Avenue to the point where it intersects with 2nd Street. The boundary then runs along the southern side of 2nd Street and then along open space in a straight line until it again intersects with the perimeter security fence that lies east of the East Patrol Road. From this point, the proposed boundary continues southwardly, running along the perimeter security fence.

SEAD-121G, a rumored coal ash disposal site, is located south of Building 123 and approximately 100 feet east of the intersection of South Street and Administration Avenue. SEAD-121G was identified as a site that had not been evaluated during preparation of the EBS report (Woodward Clyde, 1996). SEAD-121G was subsequently investigated by the Army and the results of this investigation were presented in the report "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). The site investigation included the performance of geophysical surveys and the collection and analysis of four soil samples for metals and SVOCs. Twenty-three SVOCs, primarily PAHs and phthalates, were detected in the recovered soil samples, but only six of the measured concentrations were found to exceed New York's recommended soil cleanup guidance levels. Specifically, one measured concentration for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and two results for dibenz(a)anthracene exceeded their respective cleanup guidance levels. The first five exceedances observed for the PAHs were collocated in a single surface soil sample where no evidence of coal ash was detected in the sample collected. Coal ash was observed in the lower sample where no PAHs were detected. Thus, no correlation of PAHs to coal ash exists, and the observed PAHs are a result from other anthropogenic sources that are located throughout the PID Area. Nine different metals were detected in the four soil samples, but only three of the measured levels (i.e., 2 for lead, and 1 for thallium) were above New York's recommended soil cleanup guidance values. Both of the lead levels were less that the recommended federal soil cleanup level for residential areas (i.e., 400 mg/Kg). The thallium concentration was similar to levels reported in blank samples collected during the program. Based on these data, no further action or investigations were recommended for SEAD-121G, and thus this indicates that the proposed boundary in this portion of the Depot is appropriate.

SEAD-121F (Building 135) is located approximately 250 feet west of the intersection of South Street and Administration Avenue, immediately south of the westerly continuation of South Street, and 175 feet

west of the IC boundary. SEAD-121F (Building 135) was identified as a site where hazardous substances had been released during preparation of the EBS report (Woodward Clyde, 1996). SEAD-121F was subsequently investigated by the Army and the results of this investigation were presented in the report "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). Three soil samples were collected from within the building, and each sample was analyzed for VOCs, SVOCs, TPH, and lead. Two VOCs, acetone and toluene (suspected laboratory artifacts), were detected in the soil; however, neither compound was found at a level that exceeded its respective recommended soil cleanup guidance value. Twenty-five SVOCs, primarily PAHs and phthalates, were detected in the recovered soil samples, but only three of the measured concentrations were found to exceed New York's recommended soil cleanup guidance levels. Specifically, measured concentrations of benzo(a)pyrene and dibenz(a)anthracene exceeded their respective cleanup guidance levels by less than a factor of two. TPH was also found in each of the collected samples, but the maximum concentration was 419 mg/Kg. There is no recommended federal or State of New York cleanup level for TPH, but residential regulatory cleanup levels specified in other neighboring states are all higher than 500 mg/Kg. Lead was also detected in each sample, but the maximum concentration found is less than the recommended federal soil cleanup for residential areas. Based on these data, no action or investigations were recommended for SEAD-121F.

Available data from SEAD-25, the Fire Training and Demonstration Pad, also supports the proposed east-central boundary definition. SEAD-25 is located immediately west of Administration Avenue across from the Elliot Acres Family Housing Area. No areas of concern were identified in the region between Administration Ave. and the housing area. An ESI was performed at SEAD-25 in 1993 and reported in "Expanded Site Inspection, Seven High Priority SWMUs, SEAD 4, 16, 17, 25, 26, and 45, *Final*" (Parsons, 1995). Components of the ESI included geophysical surveys, surface soil sampling, monitoring well installation and groundwater sampling. Subsequently, a RI was conducted at SEAD-25 in 1995 and the results of this work are documented in the "Remedial Investigation Report at SEAD-25 and SEAD-26, *Final*" (Parsons, 1998). The RI included soil gas and groundwater headspace surveys, surface and subsurface soil sampling, groundwater investigation in both overburden and bedrock aquifers, surface water sampling, and sediment sampling. Samples collected during the ESI and RI were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, herbicides, TAL metals and cyanide, nitrates, and Total Recoverable Petroleum Hydrocarbons (TRPH). Samples of each media were collected from locations along Administration Avenue on the east side of SEAD-25. A summarized version of these data tables will be added to the Proposed Plan and the ROD, presenting only the samples collected on the east side of SEAD-25. Contaminants were found in the soils and sediment in the central and southern portion of SEAD-25 (approximately 300 feet from Administrative Ave.) and a VOC plume was identified within the SWMU, but the groundwater flow is towards the southwesterly direction, which is away from the proposed PID area boundary. Results of an ecological and human health risk assessment completed for SEAD-25 indicate that contaminants found in the sediment and groundwater could pose a risk to human receptors, but these findings are the basis for pending proposed Remedial Actions at the site, as documented in the "Proposed Plan for SEAD-25 and SEAD-26, *Final*" (Parsons, 2002). As is seen from

the review of the summarized data, these results indicate that no analytes were detected in any of the soil, groundwater, sediment, and surface water samples collected from locations along Administration Avenue, which substantiates the appropriateness of the boundary.

Available data from SEAD-68, Building S-335 Old Pest Control Shop, also supports the proposed east-central boundary definition. SEAD-68 was investigated as part of the EBS of Non-Evaluated Sites conducted in 1998. SEAD-68 was identified as a moderate priority site, and the investigation and data are presented in "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). These data were subsequently used in the "Decision Document – Mini Risk Assessment, SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 70, and 120B, *Final*" (Parsons, May 2002) to conduct residential and industrial scenario human health risk assessments. The results of the human health risk assessment showed that the total cancer risk for all industrial receptors were less than the USEPA target range (1e-04 to 1e-06). Comparably, the non-cancer risk (hazard index or HI) was less than 1 for all the industrial receptor scenarios evaluated. Furthermore, and most importantly, the total cancer and non-cancer risk for adult and child residents were also found to be within or below the USEPA target ranges for residential use. No other areas of concern have been identified to the east of SEAD-68, in the area between the SWMU and the boundary of the PID Area.

3. Southeastern Boundary

SEAD-50/54, the Tank Farm, is located in the southeastern corner of the area where the Army has proposed ICs and extends up to the security fence line that separates the property within the former Depot from the properties in the neighboring Township of Romulus. An ESI of these sites was conducted in 1993, and included the collection and analysis of soil, groundwater, surface water, and sediment samples. Results from these samples were first presented in the report for the "Expanded Site Inspection of Eight Moderately Low Priority AOCs, SEADs 5, 9, 12 (A and B), (43, 56, 69), 44 (A and B), 50, 58, 59, *Draft Final*" (Parsons, 1995). Subsequently, these data were presented in the "Action Memorandum and Decision Document, Time-Critical Removal Actions, Four Metals Sites (SEADs 24, 50/54, & 67), *Final*" (Parsons, 2002). Based on these data, the Army recommended and completed a Time-Critical Removal Action of soil and ditch soil contaminated by selected metals and PAH compounds in late 2002 and early 2003. As part of this effort, additional soil samples were collected and analyzed for metals and PAHs to confirm that the extent of the excavation was sufficient to eliminate any immediate threat identified at the sites. Data from these additional analyses were presented in the "Completion Report for the Time-Critical Removal Action at the Tank Farm (SEAD-50/54), *Final*" (Weston Solutions, Inc., 2003). The conclusion drawn from a review of the soil data indicated that identified concentrations of three key metal contaminants (i.e., arsenic, mercury, zinc) had been reduced throughout the site to levels that were consistent with New York's recommended soil cleanup criteria levels.

The location of the southeastern boundary is also supported by available data from SEADs 49 and 55 presented below.

4. Southern Boundary

Available data from SEAD-49, Building 356 – Columbite Ore Storage Area, supports the proposed southern boundary definition. SEAD-49, which is located immediately north of the land that was included in the federal agency to federal agency transfer, stored Columbite ore. Once the ore was moved out of Building 356, the building was swept clean. In 1993, NYSDEC and NYSDOH performed a radiological survey of SEAD-49, which concluded that there were no residual levels of radiological activity above typical background levels. The results of the survey are presented in the "Decision Document, Twenty-Two No Further Action Sites, Seneca Army Depot activity, *Final*" (Parsons, 2002). SEAD-49 was first proposed as a No Action SWMU in the Final SWMU Classification Report (Parsons, 1994). The recommendation for No Action is the approved remedy for SEAD-49, as documented in the "Record of Decision, Twenty No Action SWMUs and Eight No Further Action SWMUs, *Final*" (Parsons, 2003).

Available data from SEAD-55, Building 357 – Tannin Storage, further supports the proposed southern boundary definition. SEAD-55, which is located next to SEAD-49 to its west, stored Columbite ore and Tannin. Once both the ore and Tannin were removed from Building 357, the building was swept clean and there was no evidence of a Tannin release. In 1993, NYSDEC and NYSDOH performed a radiological survey of SEAD-55, which concluded that there were no residual levels of radiological activity above typical background levels. The results of the survey are presented in the "Decision Document, Twenty-Two No Further Action Sites, Seneca Army Depot activity, *Final*" (Parsons, 2002). SEAD-55 was first proposed as a No Action SWMU in the Final SWMU Classification Report (Parsons, 1994). The recommendation for No Action is the approved remedy for SEAD-55, as documented in the "Record of Decision for Twenty No Action SWMUs and Eight No Further Action SWMUs, *Final*" (Parsons, 2003). No areas of concern have been identified in the region east of SEADs 49 and 55, between Buildings 356 and 357 and the SEDA security fence.

Available data from SEAD-26, the Fire Training Pit and Area, which is located near the south-central to southwestern border of the area where the Army has proposed that ICs will be imposed, also supports the placement of the recommended boundary. SEAD-26 is located within a distance of between 500 (west) and 1300 (south) feet of the varying segments of the proposed IC boundary. Based on the results of the RI performed in this area ["Remedial Investigation Report at the Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area, *Final*" (Parsons, 1998)], the Army has determined that the most significant impact to the soil results from SVOCs, including predominantly benzo- or "carcinogenic-" PAHs, being present in the surface and subsurface soil. Other chemical constituents, including VOCs, metals, pesticides, PCBs and nitroaromatics, were also found in the surface and subsurface soil, but concentrations detected for these chemicals were all below New York recommended soil cleanup

guidance levels. Chemical contaminants, principally including fuel-type constituents (e.g., benzene, toluene, xylene, naphthalene, etc.), were also detected in groundwater at SEAD-26 at concentrations that exceeded New York GA groundwater standards. However, the identified extent of the fuel-type constituents was very limited, restricted to a single well located near the middle of the SWMU. Data collected during the RI have been used to conduct industrial and residential scenario risk assessments for the site. The results of the baseline risk assessment at SEAD-26 indicate that the cancer risks for all of the receptors evaluated were within the USEPA target risk range. Table 7-4 within the "Record of Decision (ROD), The Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area (SEAD-26), *Draft Final*" (Parsons, 2003) provides the results for total carcinogenic and non-carcinogenic risks. With respect to noncarcinogenic risk, the child receptor under the future residential scenario had a HI that slightly exceeded the target value (1.3) due to dermal contact with groundwater and ingestion of site soils. The current site worker did not exhibit excess risk of cancer above the USEPA target range or a potential for adverse non-carcinogenic health threats. Based on this determination, the Army has recommended that a remedial action including the excavation of surface soils containing total carcinogenic PAH concentrations above 10 ppm be performed, and that semi-annual groundwater monitoring be performed to monitor whether there is any expansion of the isolated groundwater plume. The soil excavation is limited to an estimated 1050 cubic yards, and this soil is scheduled to be removed from four discrete areas within the SEAD; thus, each of these locations is at least 500 feet away from the nearest proposed boundary of the area to be covered by the proposed ICs within the PID Area.

The location of the proposed southern boundary is also supported by data from SEAd-50/54 summarized above.

5. Southwestern and West Central Boundary

The Army's proposed boundary line in the southwestern and west central portion of the Depot runs along an fence line that separates the Depot's former industrial and warehousing areas from property that formerly was within the Depot's Munitions Storage Area. At the point where this fence crosses over 3rd Street, the proposed boundary runs along the southern edge of 3rd Street to the point where it intersects Fayette Road.

SEAD-64A is located west of SEAD-26, between it and part of the Army's proposed westerly border of the area where the proposed ICs will be implemented. As is discussed earlier in this document, contaminants identified in the soil at SEAD-64A do not pose a threat to residential populations, but the calculated non-cancer risk hazard index is driven by the concentration of manganese identified in the groundwater. However, due to the presence of a potable water distribution system within the PID Area, this concern does not affect the Army recommended location of the boundary for the imposition of the ICs. Further, the geological formation of silty clay glacial till restricts the migration of contaminants as evident by the adjacent site, SEAD-26. This further supports the proposed boundary for the IC.

Available data from SEAD-121I, the Rumored Cosmoline Oil Disposal Area, supports the proposed location of the IC area boundary lines on both the eastern and western sides of the PID Area, within the central portion of the PID Area. SEAD-121I was first investigated as part of the EBS of Non-Evaluated Sites conducted in 1998. The SWMU was identified as a low priority site, and the initial investigation and data are summarized in "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). Additional fieldwork was conducted at SEAD-121I in 2002-2003, which included surface soil, surface water, and ditch soil sampling. The data from the recent sampling activities are presented in "Field Sampling Report at Two EBS Sites in the Planned Industrial Development Area, *Draft*" (Parsons, 2003). Soil samples collected between SEAD-121I and the eastern boundary of the area where the Army proposes to implement ICs indicate the presence of many compounds, dominated by SVOCs and metals. The identified PAHs were present at concentrations in excess of New York's recommended soil cleanup criteria values, but at collected concentrations much lower than the 10 ppm combined threshold that has been proposed for the cleanup at SEAD-26 and below the levels that were found not to pose any risk to residents at SEAD-9 (summarized above). However, the random distribution of total PAHs within SEAD-121I and around the border of the identified SEAD suggests that there is not a focused definitive source of the identified PAHs, and that they most likely result for a combination of typical industrial/commercial operations (e.g., shipping, receiving, transportation, maintenance, roofing, paving, etc.) that have been performed within this area, and which continue to be conducted in this area. Similarly, with the exception of samples collected in the vicinity of railroad tracks, roadways, and identified strategic ore piles that are staged in SEAD-121I, metals concentrations found are generally consistent throughout SEAD-121I and the area to the east and west of the site.

Soil samples were collected at three locations within the bottom of a man-made drainage ditch excavated to bedrock located approximately 700 feet west of the identified SEAD, and upgradient of the proposed IC area boundary and were found to contain few analytes at levels of interest (low levels of acetone, which is identified as an artifact of sampling, a few PAHs, and metals). All metals detected in the drainage ditch soil samples to the west of SEAD-121I were less than the concentrations found in samples collected from within the bounds of SEAD-121I, and at levels that are not different from the background levels determined at the Depot.

Data from SEAD-121B, the area to the north of Building 325 (PCB Oil Spill), adds further evidence to the definition of the western boundary of the PID Area, which is approximately 350 feet west of the SWMU. SEAD-121B is located along Avenue A in the southwestern portion of the PID Area. After the initial EBS report (Woodward Clyde, 1996) was completed in 1995, additional sites were selected for assessment of their environmental condition. SEAD-121B was investigated as part of the Environmental Baseline Survey of Non-Evaluated Sites conducted in 1998. SEAD-121B was identified as a low priority site, and the investigation and data are summarized in "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). As part of this

effort, three surface soil samples and one subsurface soil sample were collected in the area, and each sample was analyzed for VOCs, SVOCs, PCBs, and TPH. Two VOCs, acetone and toluene, were detected in the soil; however, neither compound exceeded its respective New York recommended soil cleanup criteria value. The SVOCs detected in the soils samples included PAHs and five phthalate compounds. Seven PAHs were detected above their respective New York recommended soil cleanup criteria levels. The presence of PAHs is typical of light industrial activity. Only one PCB compound was detected, and this was found at a concentration below its recommended soil cleanup level. TPH was found in three samples with a maximum detection of 1360 mg/kg. There is no New York State soil cleanup criteria for TPH. Based on the data, the Army recommended no action for SEAD-121B.

SEAD-121C, the Defense Reutilization and Marketing Office (DRMO) Yard, is located in the central portion of the proposed area where ICs are recommended by the Army. The western most tip of SEAD-121C is located approximately 1400 feet east of the Army's proposed western boundary line for the PID IC area and the former Munitions Storage Area. Available sampling and analysis data from SEAD-121C support the proposed western boundary definition separating the PID Area from the Munitions Storage Area. SEAD-121C was investigated as part of the Environmental Baseline Survey of Non-Evaluated Sites conducted in 1998, and the results of this work are summarized in "Investigation of Environmental Baseline Survey Non-Evaluated Sites at the Seneca Army Depot Activity (SEDA), *Final*" (Parsons, 1999). Additional fieldwork was conducted at SEAD-121C in 2002-2003, including surface and subsurface soil, groundwater, surface water, and ditch soil sampling and analysis. The data from the recent sampling activities and the original EBS effort completed in 1998, are presented in "Field Sampling Report at Two EBS Sites in the Planned Industrial Development Area, *Draft*" (Parsons, 2003). The general results of this sampling indicate that surface and subsurface soils contain varying levels of TCL and TAL constituents, dominated by metals and PAH compounds. However, this data also indicates that the highest levels of identified PAH and metal (i.e., copper, lead, and zinc) contaminants are located within the defined bounds of SEAD-121C in a few isolated areas where heavy historic operations have been conducted. One exception to this is an anomalous level of PAHs, which is located to the south and east of the SEAD, which is away from the direction of the proposed boundary line.

SEAD-17 is located in the central portion of the area where the Army has recommended that ICs be imposed. The western edge of SEAD-17 is located approximately 1500 feet east of the west central portion of the proposed boundary for the area to be covered by the ICs. SEAD-17 is one of the sites that the Army will retain pending completion of proposed remedial actions. Recently, the Army issued the "Proposed Plan for the Abandoned Deactivation Furnace (SEAD-16) and the Active Deactivation Furnace (SEAD-17), *Revised Final*" (Parsons, 2003) which identifies site conditions at SEAD-17 and presents the proposed plan for pending remedial action at the site. Within this document, the Army states "the primary COCs at the Active Deactivation Furnace (SEAD-17) are the metals antimony, arsenic, copper, lead, mercury, and zinc in soils. PAHs and pesticides found in sediments are also of significance. All of these contaminants are likely to have been released to the environment during the Active Deactivation Furnace's period of operation (approximately 1962 to 1989)."

Based on the data obtained from SEAD-17, the Army has delineated the area that it proposes to be subject to remedial action at SEAD-17, in order to eliminate the threat that has been identified. At present, the area requiring the proposed removal action is limited to an area that is more than 1000 feet east of the proposed boundary for the area where the ICs will be imposed. Furthermore, available data provided in the RI Report for SEAD-17, indicate that identified concentrations for the identified risk driving chemicals are decreasing as one moves from the site towards the Army's proposed boundary for the area where ICs will be imposed. This is consistent with the supposition that the contamination is a result of surface deposition of the contamination resulting from fugitive emissions of the deactivation of ammunition through the furnace. An analysis of the prevailing winds demonstrate that the wind direction flows in the opposite direction from the proposed boundary, which adds further evidence supporting the Army position that the boundary proposed does not have contamination that would require restrictions.

6. Northwestern Boundary

Fayette Road is an existing man-made feature that separates the Planned Industrial/Office Development Area from the Conservation/Recreational Area to the west and northwest. Historically, Fayette Road represented the western most extent of the land that the Army previously used for industrial/commercial/institutional activities around the Main Gate of the former Depot operation.

SEAD-2, the Transformer Storage Building (Building 301), is located approximately 100 feet due east of a portion of the proposed western boundary line separating the area where ICs will be implemented and land that was recently transferred to the SCIDA for recreational/conservation use. SEAD-2 is another one of the sites that is being retained by the Army pending the completion of remedial actions, in this case, a final RCRA closure. Closure was performed in the second quarter of 2003, and the report, "RCRA Closure Report, Building 307, Hazardous Waste Container Storage Facility; Building 301, Transformer Storage Building, *Draft*" (Parsons, 2003), was submitted to NYSDEC for review/comment/approval in the third quarter of 2003. Within the report, the Army indicates that soil samples were collected and analyzed for VOCs, SVOCs, metals, and PCBs, and that no VOCs or PCBs were detected in materials surrounding the building at levels exceeding state recommended soil cleanup objectives. Thirteen SVOCs and six metals were detected at concentrations greater than recommended soil cleanup levels.

The report also indicates that:

> "The surface surrounding Building 301 was comprised of a tar/asphalt and gravel material on the north, east and west sides …. The south side surface was grassy. On the east side, the surface soil samples were collected within 7 feet of the railroad tracks … and sample location 07 and 08 were 3 feet and 1.5 feet from the railroad tracks, respectively. Additionally, all samples were collected from within 2 feet of the Building 301 wall, with the exception of sample 04, which was approximately 8 feet from the wall. Sample 04 was moved 8 feet from the wall to avoid a concrete pad so that native soils could be sampled."

> "The field crew removed the top cover of asphalt/tar and attempted to only sample the underling soil. Attempts were made to remove any asphalt/tar material before collecting the sample."

Given this additional information, the Army considers the identified contamination to be associated with anthropogenic conditions and not directly associated to any release within the identified SWMU. Regulatory review of this site is still pending.

SEAD-66, the Pesticide Storage Area near Building 5 and 6, is located approximately 400 feet east of Fayette Road and is the only identified SWMU within the immediate area. As is presented and discussed earlier within this document, eight soil samples were collected and analyzed for pesticides from SEAD-66. The results of the residential scenario risk assessment indicate that there is a slightly elevated non-cancer hazard index for a child resident based on the inordinately high concentration of 4,4`-DDT reported from a single sample at the site. However, as is also discussed, the surrounding samples show considerably lower concentrations of the same compound, suggesting that this sample is an outlier of the data set and therefore, not representative of the conditions that exist throughout the area of SEAD-66. Given this discrepancy and the presence of the surrounding data, the use of Fayette Road as the proposed northwestern boundary of the area is appropriate and supported.

7. Northern Boundary

West Romulus Road is an existing man-made feature that separates the Planned Industrial/Office Development Area from the Conservation/Recreational Area to the north. Historically, West Romulus Road represents the northern most extent of the land that the Army previously used for industrial/commercial/institutional activities around the Main Gate of the former Depot operation. The designation of West Romulus Road as the northern-most boundary is supported by existing information from two historic SWMUs (SEADs 20 and 67) that are located near this feature. SEAD-20, Sewage Treatment Plant No. 4, is located immediately south of West Romulus Road, near the center of this portion of the proposed boundary. SEAD-20 is no longer operated by the Army, and has been turned over to the county and continues to operate as a sewage treatment plant that is subject to regulation under the Clean Water Act. Previously, SEAD-20 was listed by the Army as a No Action Site in the Final SWMU Classification Report (Parsons, 1995). This designation was recently verified and reiterated in the "Record of Decision for Twenty No Action SWMUs and Eight No Further Action SWMUs, *Final*" (Parsons, 2003), as there was no evidence found that any releases have occurred from this facility that would indicate that hazardous materials or wastes had been released to the environment.

SEAD-67, the Dump Site East of Sewage Treatment Plant No. 4, is also located immediately south of West Romulus Road, just to the east of SEAD-20. SEAD-67 is comprised of five undocumented waste piles and two undocumented earthen berm structures that were found at this location. An ESI of these structures was conducted in 1993 and included the collection and analysis of soil, groundwater, surface water, and sediment samples. Results from these samples were first presented in the report for the

"Expanded Site Inspection of Seven Low Priority AOCs (SEAD-60, 62, 63, 64 (A, B, C, and D), 67, 70 and 71" (Parsons 1996). Subsequently, these data were presented in the "Action Memorandum and Decision Document, Time-Critical Removal Actions, Four Metals Sites (SEADs 24, 50/54, & 67), *Final*" (Parsons, 2002), and they are again presented in **Tables C-15**, **C-16**, **C-17,** and **C-18** of this document. The available soil data suggested that the soil piles and berm structures contained trace levels of contaminants, most notably mercury, at levels above recommended soil cleanup guidance levels. Mercury was not present in the native soil surrounding the piles and the berm structures. Additionally, there was an indication that slightly elevated levels of PAHs were also present in the materials contained in the piles, but not in the surrounding soils. Available data from the other environmental matrices indicate that the mercury observed in the soil piles has not migrated away from the piles and berm structures. Samples collected during the Site Investigation from the drainage ditch immediately north of the site are consistent with the upgradient / background soil sample taken at the site, which demonstrates that no migration of the contaminants from the piles has occurred. The use of West Romulus Road as the boundary of the IC is supported and appropriate as demonstrated by the findings at this site.

The Army shall implement, maintain, monitor, report on, and enforce the land use restrictions according to the PID Area Remedial Design (RD) Plan. The PID Area RD Plan includes: a Site Description, the IC Land Use Restrictions, the IC Mechanism to ensure that the land use restrictions are not violated in the future, and Reporting/Notification requirements. A copy of the PID Area Remedial Design (RD) Plan will be available at the Information Repository at SEDA. The Army also provides the CERCLA covenant as shown here: "The Grantor hereby covenants that:

a. On those portions of the Property where there was the storage and release of hazardous substances, all remedial actions necessary to protect human health and the environment with respect to any such hazardous substances remaining on the Property has been taken before the date of conveyance hereunder; and

b. Any additional remedial, response or corrective action found to be necessary with regard to any hazardous substances remaining on the Property after the date of this Deed that resulted from past activities of the Grantor shall be conducted by the Grantor. This covenant shall not apply to the extent that such remedial, response or corrective actions are caused by activities of the Grantee, its successors, or assigns."

This covenant protects the future owner of the property should contamination be identified that is not currently known. This insures that the Army will remain involved should a decision made as part of this ROD be found to be in error. The Army contends that with the placement of the IC on the parcel with the boundaries as established is protective of human health and the environment. The rationale is supportive and the covenant is protective. The existing data and site evaluations support the appropriateness of these boundaries.

Comment:

Tables 5 & 6: These risk assessment revisions should be purged from the document. See comment for Section 4.1 above.

Response:

Agreed. The new data will be removed from the Proposed Plan and the Record of Decision.

Comments from State of New York Department of Health
Redline/Strikeout Version Draft Final Record of Decision Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas; Seneca Army Depot Activity, Romulus New York

Dated: March 18, 2004
Date of Response: March 24, 2004

I have reviewed the March 12th email from Jeff Adams (Parsons) of the Redline/Strikeout Version for the above named document and have the following comments:

Comment:

Page 1-1, Site Assessment – please replace "welfare" with "health" .

Response:

Agreed, the word "welfare" has been replaced with the word "health."

Comment:

Page 1-2, Land Use Controls, bullet #2 – the term "cleanup levels" is very vague. I believe it should be replaced with the actual goal of Class GA groundwater standards. This reference should also be included on page 5-1, Scope and Role and again on page 9-1, Selected Remedy.

Response:

Agreed, the term "cleanup levels" has been replaced with the phrase "Class GA Groundwater Standards."

Comment:

Page 1-4, top of the page – the statements "…transfers of certain property by deed will include a covenant by the United States that all remedial action…a covenant by the United States to undertake…" is also very vague. To whom or what entity does the term "United States " refer to? Is it the United States Army, Department of Defense, EPA, etc.? Clarification is requested.

Response:

Agreed. The phrase "United States" has been changed to "United States of America through the Secretary of the Army."

Comment:

Page 1-7, State Concurrence – revision to this paragraph is needed. I am not sure what the statement "forwarded to the USEPA a letter of concurrence regarding the selection of a remedial action in the future" means. What remedial action in the future?

Response:

Agree. The phrase "forwarded to the USEPA a letter of concurrence regarding the selection of a remedial action in the future" has been changed to "forwarded to the USEPA a letter of concurrence regarding the selection of a remedial action."

Comment:

Page 3-3, 3 rd paragraph – I suggest the first sentence be reworded to "There are also SWMUs that are located in the PID area that are discussed in a No Action/No Further Action Sites Record of Decision."

Response:

Agree. The sentence has been reworded.

Comment:

Page 4-1, Community Participation – the statement "Copies of the RI/FS report, the Proposed Plan…" is erroneous as these sites did not have a RI/FS performed. I suggest including a reference to the Decision Document/Mini Risk Assessment instead. This reference to an RI/FS is also found in the 2nd paragraph also. In the 3 rd paragraph, replace "…Native American Stakeholders will be consistent …" with "…Native American Stakeholders is consistent…".

Response:

Agree. The reference to the RI/FS has been replaced by a reference to the Decision Document/Mini-Risk Assessment. The phrase "Native American Stakeholders will be consistent…" has been changed to "Native American Stakeholders is consistent…".

Comment:

Clarification is requested why SEAD 120G, Mounds at the Duck Pond has been removed from the retained sites listed on page 5-2 and why SEAD-121J, Mounds Area, site 109(7) has been added.

Response:

The term "SEAD 120G, Mounds at the Duck Pond" was originated by the Army in its Investigation of Environmental Baseline Survey Non-Evaluated Sites" which was implemented after the Army issued the Environmental Baseline Survey Report (Woodward Clyde, 1996) for the Seneca Army Depot in 1996. As this phrase originated, it referred to four discrete parcels of land, Sites 109(7), 110(7), 111(7) and 112(7), that had been identified and briefly described in the Woodward Clyde Report. Each of these sites

are only described as “mounds” or “earthen mounds” of unknown origin, perhaps associated with one or more small arms firing ranges that were reported to have existed in these areas based on interviews with Depot personnel. Sites 110(7), 111(7), and 112(7) are all located in the northeast portion of the former Depot, in rough proximity to the Duck Pond. Site 109(7) is located in the east-central portion of the Depot. Site 109(7) is the only mound that is located within the Planned Industrial/Office Development Area that is the topic of the Record of Decision under consideration; thus, it has been separated from the other three mound sites [i.e., 110(7), 111(7), and 112(7)] and designated as SEAD-121J for clarity. This site is being retained by the Army pending the completion of further investigations that have been proposed to the EPA and the NYSDEC.

Comments from US Environmental Protection Agency, Region 2
Draft Final Record of Decision Sites Requiring Institutional Controls
in the Planned Industrial/Office Development or Warehousing Areas;
Seneca Army Depot Activity, Romulus New York

Dated: March 30, 2004 via Email
Date of Response: April 2, 2004

EPA Comments on Draft Final ROD for the PID

Comment:

Page 1-1: Please add Aand EPA=s@ after A(Army=s) because the Army is not statutorily empowered to select remedies without EPA concurrence.

Response:

Agreed. The phrase has been changed to read "This decision document presents the U.S. Army's and EPA's selected remedy…."

Comment:

Page 1-2: In paragraph below the LUC bullets, there is a statement that states ICs "will be prepared as a component of the Remedial Design." It the reviewer's understanding that ICs is the only component.

Response:

Agreed. The sentence has been changed to read "A LUC Remedial Design for the Sites Requiring Institutional Controls in the Planned Industrial/Office or Warehousing Area ("PID Area"), which will comply with New York State requirements outlined in Environmental Conservation Law (ECL) Article 27, Section 1318: *Institutional and Engineering Controls*, will be prepared."

Comment:

Page 1-3: Please add CERCLA reference and requirement for the 5-year review. Note that 5-year review is not considered an IC.

Response:

Agreed. The CERCLA reference and the objectives of the 5-year reviews has been added to the text on pages 1-2 and 1-3.

Comment:

Page 1-4: Please delete "As has been mentioned earlier," from the beginning of the 2nd ¶. This is the first time you mention what is included within this paragraph.

Response:

Agreed. The phrase has been eliminated.

Comment:

Page 2-2: Please reference the State certification letter at the end of the 1st ¶.

Response:

Agreed. A reference has been added to the text, and to the administrative record listing provided in Appendix A to document the State's acceptance letter of the RCRA Closure at SEAD-27..

Comment:

Page 5-1: There seems to be a misplaced bullet in the paragraph containing the SEAD-5 reference.

Response:

Reviewed base copy of the document, did not see any misplaced bullet.

Comment:

Page 7-3: It is the reviewer's understanding that the T-Sump area is now designated as SEAD-121J and will undergo further investigation. If so, delete the discussion and include the above-mentioned information.

Response:

Disagree. The T-Sump area is not identified as SEAD-121J. SEAD-121J is the Mound Area located at EBS location 109(7). Site 109(7) (SEAD-121J) is the subject of a pending investigation to determine the contents of the earthen berm. The T-sump is not subject of any continuing investigation at this time. The referenced discussion has been left within the document as it was.

Comment:

Appendices: It is recommended that the protocol for the establishment of boundaries for the retained sites be included as an appendix and referenced within the document.

Response:

Agreed. The protocol that the Army used to establish boundaries within the PID Area has bee added to Appendix C. It is also introduced within Section 1 of the ROD.

Comments from US Environmental Protection Agency, Region 2
Provided by Julio Vazquez via Email and entitled" More PID ROD"
Draft Final Record of Decision Sites Requiring Institutional Controls
in the Planned Industrial/Office Development or Warehousing Areas;
Seneca Army Depot Activity, Romulus New York

Dated: March 30, 2004 via Email
Date of Response: April 5, 2004

Comment:

On Figure 1-2, I think the reference to "no residential activity, should include the other activities "childcare, playgrounds, elementary and secondary schools". Also, I do not see the restriction or 64A about no unauthorized excavation.

Response:

Agreed. Changes have been made to the legend of Figure 1-2 to reflect the land use restriction language that is contained within the main body of the ROD text. Additionally, the prohibition to digging at SEAD-64A has also been added.

Comments from US Environmental Protection Agency, Region 2
Provided by Julio Vazquez via Email and entitled" More from EPA-HQ"
Draft Final Record of Decision Sites Requiring Institutional Controls
in the Planned Industrial/Office Development or Warehousing Areas;
Seneca Army Depot Activity, Romulus New York

Dated: March 31, 2004 via Email
Date of Response: April 5, 2004

Comment:

1. Page 1-1, "Statement of Basis and Purpose" first sentence : This decision document presents the U.S. Army's and EPA's selected remedy....

I believe we have worked this out with Army HQ. Please make this change, it is very important because it mirrors the statute and avoids creating false expectations about the EPA's role.

Response:

Agreed. The requested change has been made.

Comment:

2. Page 1-1, last sentence of first full paragraph under "Statement of Basis and Purpose": This is an old comment. The sentence states that NYSDEC presumably concurs with the selected remedial action and the 3rd full paragraph, same section, states that NYSDEC has concurred with the remedy. I would delete the last part of the last sentence in the first full paragraph after the semicolon.

Response:

Agreed. The last part of the identified sentence has been deleted.

Comment:

3. On page 5-1, the ROD uses odd language in the first full paragraph following the 3 bullets at the top of the page: "The Army "proposes"...." The reason I noticed this is because of language on page 5-2 which states that the Army will evaluate the needs for land use restrictions in each of these areas on a site-by-site basis. This sounds a little odd in the actual decision document.

Response:

The identified sentence has been changed to read "The Army intends to place institutional controls in the form of land use restrictions on these areas. Specifically, for SEAD-27, SEAD-64A and SEAD-66, the Army intend to impose the following restrictions:"

Comment:

4. The LUC restrictions on page 9-1 do not exactly match the remedial action objectives on page 8-1. In particular, I am referring to the first bullet on pages 8-1 and 9-1. They should mirror each other in this instance.

Response:

Agreed. The land use restrictions cited on Page 8-1 and 9-1 now mirror each other.

Comments from US Environmental Protection Agency, Region 2 Provided by Julio Vazquez via Email and entitled "Re: IC ROD" Draft Final Record of Decision Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas; Seneca Army Depot Activity, Romulus New York

Dated: June 3, 2004 via Email
Date of Response: June 24, 2004

Comment:

Page 7-3: Is the Army planning to further investigate the T-Sump site (is it SEAD-121C?). You had some TCE hits at this site, and your response indicates that no further investigation is planned.

Response:

Additional sampling will be considered in association with potential continuing investigations in the vicinity of the DRMO Yard, SEAD-121C.

As a point of clarification, Trichloroethene (TCE) has never been identified at the T-Sump site; the compounds detected at the T-Sump were 1,1,1-Trichloroethane (1,1,1-TCA), Bromodichloromethane, Bromoform and Dibromochloromethane. Of these four compounds, only the 1,1,1-TCA was found at a concentration above New York State's GA Groundwater Standards. The other three compounds are trihalomethanes and could be associated with potable tap water that was used in the building. These data were collected in 1995 and were reported as part of the Final Report for the Building 360 Closure. T-Sump samples originated from a sump that is within Building 360 and may represent water that is not in contact with the underlying groundwater. Groundwater sampling performed in 2002 and 2003 for wells within the DRMO Yard (SEAD-121C) and upgradient of Building 360 do not show any evidence that 1,1,1,-TCA is present in the upgradient or downgradient groundwater. Trace levels of vinyl chloride at estimated levels were reported in the well upgradient of Building 360.

Comment:

Appendices: The protocol included was not the one I requested. I was looking for the protocol used to define the boundaries for the RETAINED SITES. You included the protocol for the sites to be transferred.

Response:

The protocol used by the Army to determine the boundaries for the retained sites has been added as a new **Appendix D** within the ROD. The prior **Appendices D** and **E** contained in the April 2004 version of the IC Site ROD have now been designated as **Appendix E** and **F**, respectively. References to the prior versions (April 2004) **Appendices D** and **E** within the body of the ROD have been updated in accordance with the revisions made to the Appendices highlighted above. A reference to the new **Appendix D** (Retained Site protocol) has been inserted into Section 1 of the ROD.

APPENDIX F
Summary of ARARs for the Selected Remedy

Site Requiring Institutional Controls in the Planned Industrial/Office Development and Warehousing Area

Seneca Army Depot Activity
Romulus, Seneca County, New York

APPENDIX F: SUMMARY OF ARARS FOR THE SELECTED REMEDY

F.1 ARAR-BASED REMEDIAL OBJECTIVES

The investigation and cleanup of the Planned Industrial/Office Development and Warehousing Area (PID Area) at the Seneca Army Depot Activity falls under the jurisdiction of both the State of New York regulations (administered by NYSDEC) and Federal regulations (administered by USEPA Region II). Three categories of potentially applicable state and federal requirements are reviewed separately in the subsequent subsections. The three categories of Applicable or Relevant and Appropriate Requirements (ARARs) are chemical specific, location specific and action specific. A brief regulatory discussion of ARARs is given below.

In 40 CFR §300.5, USEPA defines applicable requirements as those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental, or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. Relevant and appropriate requirements are defined as those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

Any standard, requirement, criterion, or limitation under any federal or state environmental or facility siting law may be either applicable or relevant and appropriate to a specific action; they can not be both. The only state laws that may become ARARs are those promulgated such that they are legally enforceable and generally applicable and equivalent to or more stringent than federal laws. A determination of applicability is made for the requirements as a whole, whereas a determination of relevance and appropriateness may be made for only specific portions of a requirement. An action must comply with relevant and appropriate requirements to the same extent as an applicable requirement with regard to substantive conditions, but need not comply with the administrative conditions of the requirement.

As mentioned earlier in this section, three categories of ARARs were analyzed. They are as follows: chemical-specific, location-specific, and action-specific. Chemical-specific ARARs address certain contaminants or a class of contaminants and relate to the level of contamination allowed for a specific pollutant in various environmental media (water, soil, air). Chemical-specific ARARs are identified below, sub-divided into media-specific sections.

Location-specific ARARs are based on the specific setting and nature of the site. Action-specific ARARs relate to specific actions proposed for implementation at a site. Both location-specific and action-specific ARARs are independent of the media. In addition to ARARs, advisories, criteria or guidance may be evaluated as "To Be Considered" (TBC) regulatory items. CERCLA indicates that the TBC category could include advisories, criteria or guidance that were developed by USEPA, other federal agencies or states that may be useful in developing CERCLA remedies. These advisories, criteria or guidance are not promulgated and, therefore, are not legally enforceable standards such as ARARs.

The NCP §300.430 (P)(5)(ii)(B) requires that the selected remedy attains federal and state ARARs, or obtains a waiver of an ARAR.

F.2 CHEMICAL-SPECIFIC ARARs

Chemical-specific ARARs are usually health or risk-based standards limiting the concentration of a chemical found in, or discharged to, the environment. They govern the extent of site remediation by providing actual cleanup levels, or the basis for calculating such levels for specific media. Specific chemical-specific ARARs for the PID Area Sites are:

Federal

- 40 CFR Part 141 (applicable): National Primary Drinking Water Regulations. This part establishes primary drinking water regulators pursuant to Section 1412 of the Public Health Service Act as amended by the Safe Drinking Water Act.

- 40 CFR Part 141.11 (applicable): Maximum Inorganic Chemical Contaminant Levels. This section establishes maximum contaminant levels (MCLs) for inorganic chemicals in drinking water.

- 40 CFR Part 141.12 (applicable): Maximum Organic Chemical Contaminant Levels. This section establishes MCLs for organic chemicals in drinking water.

- 40 CFR Part 264 Subpart F (applicable): Releases from Solid Waste Management Units. Standards for protection of groundwater are established under this citation. This ARAR is applicable to long-term monitoring of the site.

New York State:

- 6 NYCRR subparts 701 and 702 (applicable): These subparts provide classification definitions for surface water and groundwaters and describe procedures that may be used to obtain guidelines or standards that will be protective of human health and aquatic life.

- 6 NYCRR subpart 703 (applicable): This subpart establishes groundwater standards specified to protect groundwater for drinking water purposes.

- 6 NYCRR subpart 373-2.6 and 373-2.11 (applicable): This regulation requires groundwater monitoring for releases from solid waste management units.

- 6 NYCRR subpart 373-2 (applicable): This regulation establishes post closure care and groundwater monitoring requirements.

- 6 NYCRR Part 5 (relevant and appropriate): This regulation establishes criteria for drinking water supplies. Specifically, NYSDOH has established MCLs for water. Consideration: These criteria are relevant and appropriate to drinking water sources in NY State.

- NYSDEC TOGS 1.1.1 (relevant and appropriate): This document compiles water quality standards and guidance values for use in NYSDEC programs.

F.3 LOCATION-SPECIFIC ARARS

Location-specific ARARs may serve to limit contaminant concentrations, or even to restrict or to require some forms of remedial action in environmentally or historically sensitive areas at a site, such as natural features (including wetlands, flood-plains, and sensitive ecosystems) and manmade features (including landfills, disposal areas, and places of historic or archaeological significance). These ARARs generally restrict the concentration of hazardous substances or the conduct of activities based solely on the particular characteristics or location of the site.

Potential federal and State location-specific ARARs considered in connection with this response action include the following:

Federal:

- 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 Requirements and 100-year Floodplains (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).

New York State:

- 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).

- New York State Solid Waste Management Facilities (6 NYCRR 360)

- New York State Inactive Hazardous Waste Disposal Sites (6 NYCRR 375).

- Endangered and Threatened Species of Fish and Wildlife, Species of Special Concern Requirements (6 NYCRR part 182).

- New York State Flood Hazard Area Construction Standards.

F.4 ACTION-SPECIFIC ARARS

Action-specific ARARs are usually technology or activity-based requirements or limitations that control actions involving specific substances. Action-specific ARARs generally set performance or design standards, controls, or restrictions on particular types of activities. To develop technically feasible alternatives, applicable performance or design standards must be considered during the development of all response action alternatives.

Potential federal and state action specific ARARs considered in connection with this response action include the following:

Federal:

- RCRA Subtitle C Hazardous Waste Treatment Facility Design and Operating Standards for Treatment and Disposal systems, (i.e., landfill, incinerators, tanks, containers, etc.) (40 CFR parts 264 and 265); RCRA section 3004(o), 42 USC 6924(o) (RCRA statutory minimum technology requirements).

- RCRA, Subtitle C, Closure and Post-Closure Standards (40 CFR 264, Subpart G).

- RCRA Groundwater Monitoring and Protection Standards (40 CFR, Subpart F).

- 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).

- Safe Drinking Water Act, Underground Injection Control Requirements (40 CFR parts 144 and 146).

- 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).

New York State:

- New York State Environmental Conservation Law (ECL) Article 27, Section 1318: Institutional and Engineering Control**s** paragraphs (a) and (c).

- 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 RCRA Hazardous Management Standards for Hazardous Waste Treatment Facilities (*i.e.,* landfills, incinerators, tanks, containers, etc.) and Minimum Technology Requirements (6 NYCRR 370-373).

- New York State Solid Waste Management and Siting Restrictions (6 NYCRR 360-361).

- New York State RCRA Generator and Transporter Requirements for Manifesting Waste for Off-Site Disposal (6 NYCRR 364 and 372).

F.5 TO BE CONSIDERED (TBC) CRITERIA AND GUIDANCE

Federal:

- EPA OSWER 7/99 (TBC): A Guide to Preparing Superfund Proposed Plans, Records of Decision and Other Remedy Decision Documents.

New York State:

- NYSDEC Technical and Administrative Guidance Manuals (TAGMs) (TBCs): The New York State rules for inactive hazardous waste disposal sites are provided in these documents.

TAGM #	TAGM Title
4015	Policy Regarding Alteration of Groundwater Samples Collected for Metals Analysis (Issued 9/30/88)
4030	Selection of Remedial Actions at Inactive Hazardous Waste Sites (Revised 5/15/90)
4031	Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites (Issued 10/27/89)

4042	Interim Remedial Measures (Revised 6/01/92)
4044	Accelerated Remedial Actions at Class 2, Non-RCRA Regulated Landfills (Issued 3/09/92)
4046	Determination of Soil Cleanup Objectives and Cleanup Levels (Revised 1/24/94) See Also: Series of memos consolidating TAGM 4046 & STARS #1 and updates dated 12/20/00, 4/10/01, and 7/10/01
4047	Priority Ranking System for Class 2 Inactive Hazardous Waste Sites (Issued 12/9/92)
4048	Interim Remedial Measures - Procedures (Issued 12/9/92)
4051	Early Design Strategy (Issued 8/02/93)
4056	Remedial Action by PRPs (Issued 4/07/95)
4058	Environmental Restoration (Brownfields) - Investigation and Remediation Projects (Revised 12/22/97)
4059	Making Changes To Selected Remedies (Issued 5/04/98)