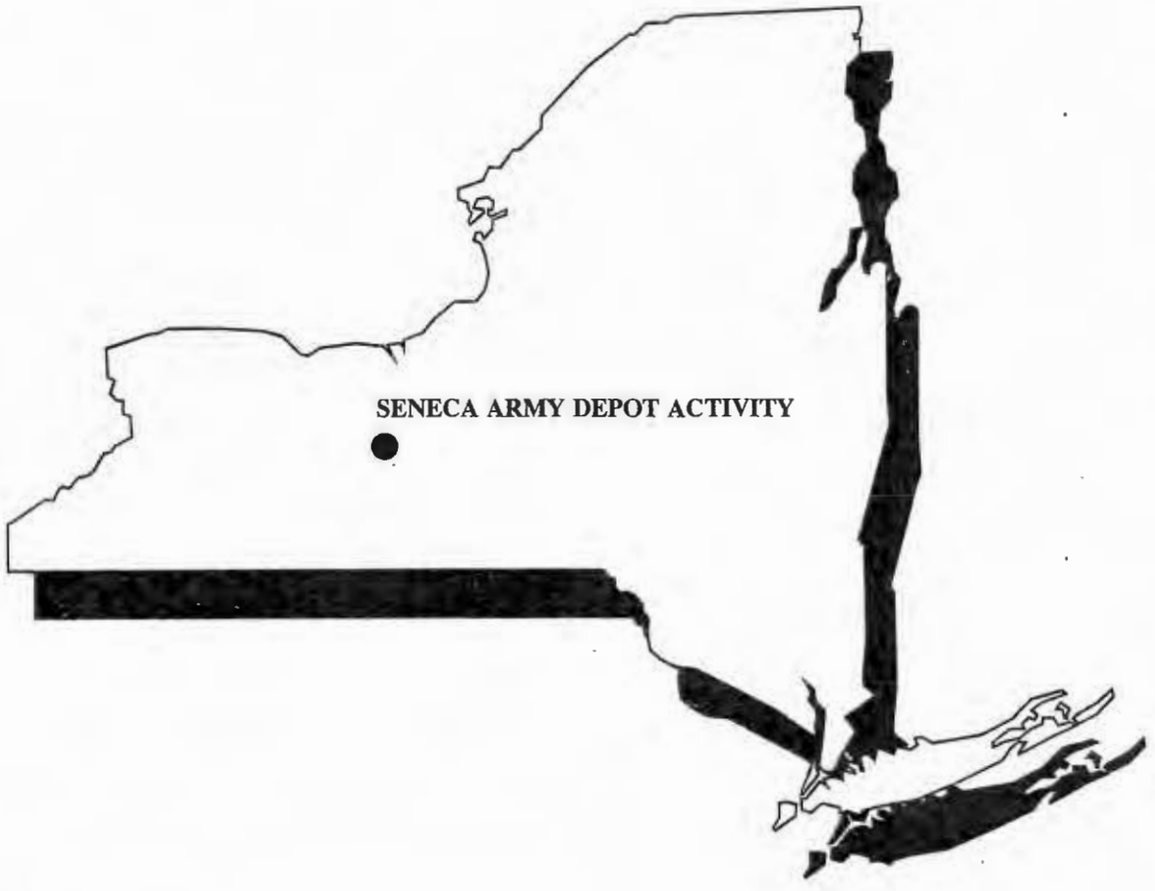
00081

6

U.S. ARMY ENGINEER DIVISION
HUNTSVILLE, ALABAMA



DRAFT
DECISION DOCUMENT
TWENTY-SIX LOW/NO FURTHER ACTION SITES
SEAD 1,2,7,10,18,19,20,21,22,29,30,31,32,35,36,37,42,47, 49,51,53,55,60,61,65, AND 72

CONTRACT NO. DACA87-95-D-0031
DELIVERY ORDER NO. 0021

NOVEMBER 1999

DRAFT DECISION DOCUMENT
NO FURTHER ACTION SITES
SENECA ARMY DEPOT
ROMULUS, NEW YORK

Prepared For:

Seneca Army Depot
Romulus, New York

Prepared By:

Parsons Engineering Science, Inc.
30 Dan Road
Canton, Massachusetts 02021-2809

November 1999

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SECTION 1

INTRODUCTION

1.0 BACKGROUND

Since its inception in 1941, the mission of the Seneca Army Depot Activity (SEDA) has been the management of various military items, including munitions. Management of these items required areas and facilities for storage, quality assurance testing, range testing, munitions washout, deactivation furnaces and other support areas such as ordnance detonation. In addition, administrative and plant operational facilities were also established in support of the depot mission. Waste management was integrated with the SEDA management mission.

Management waste materials produced from these operations has been in accordance with the requirements of the Resource Conservation Recovery Act (RCRA). As part of the requirements of RCRA, the Depot identified a total of 72 Solid Waste Management Units (SWMUs). In 1990, the Depot was included in the federal section of the National Priority List (NPL). As a federal facility listed on the NPL, provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (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 US Army, the US Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (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.

The US Army provided the USEPA and NYSDEC identified all of the SWMUs at the Depot as those sites that would potentially need to be investigated. Following this 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. A total of 25 SWMUs were classified as No Further Action SWMUs based upon historical and available information.

In 1995, the SEDA was designated for closure under the Department of Defense's Base Realignment and Closure (BRAC) process. 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. 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 has required the US Army to finalize decisions and actions for SWMUs, regardless of ranking, so that these sites may be released for non-military use.

Section 10.3 of the FFA describes the process to be followed for those SWMUs that are No Further Action SWMUs. The FFA states, "*No Action SWMUs shall be those SWMUs from which no release of hazardous substances, pollutants, or contaminants has occurred or from which a release of hazardous waste or substances, pollutants, or contaminants has occurred that does not pose a threat to the public health, welfare, or the environment. SWMUs classified as No Action will be identified in the 6 NYCRR Part 373/HSWA permit as No Action SWMUs*". The Depot has withdrawn the RCRA permit, due to base closing, therefore there is document to list these SWMUs as No Action SWMUs. As an alternative to the RCRA permit, this decision document is intended to substitute for the RCRA permit and will document the decisions that had been made pertaining to a finding of No Further Action for these SWMUs.

1.1 OBJECTIVE OF THIS DOCUMENT

This document summarizes available information and data for twenty-five (25) Solid Waste Management Units (SWMUs) that are located at the Seneca Army Depot Activity (SEDA) near Romulus NY, and presents a justification and rationale explaining why these sites are not considered to pose a threat to human health and the environment. Information and data presented serve as the basis of the US Army's determination that the 26 areas identified warrant "No Further Action" and therefore, can be eliminated from ongoing and future environmental studies and solid/hazardous waste investigations required at the depot.

1.2 HISTORIC OVERVIEW

The Seneca Army Depot Activity (SEDA) lies between Cayuga and Seneca Lakes in New York's Finger Lake Region, near the communities of Romulus and Varick, NY. SEDA encompasses approximately 10,600 acres of land and contains more than 900 buildings that provide more than 4.4 million square feet of space, including approximately 1.3 million square feet of storage space. SEDA was originally developed and opened in 1941, and continues in active use today. The depot is currently subject to closure and its operation will cease in September 2000. The mission of the facility throughout its history has included receipt, storage, distribution, maintenance, and demilitarization of conventional ammunition, explosives and special weapons.

Activities conducted at SEDA use chemical materials, and generate wastes that contain hazardous materials. The generation, storage, treatment, shipment, and disposal of hazardous wastes are regulated under the Resource Conservation and Recovery Act – RCRA [42 USC §§ 6901 – 6991, as amended by the Hazardous

and Solid Waste Amendments of 1984, Public Law 98-616]. Activities conducted at SEDA were approved for Part A, interim status in 1980. SEDA submitted a federal Part B permit application for activities and operations in 1986, and a NYSDEC Part 373 permit application for hazardous waste management facilities in 1991.

Since 1978, the potential environmental impacts of operations and activities conducted at SEDA have been subject to review by the US Army, the New York State Department of Environmental Conservation (NYSDEC), and the US Environmental Protections Agency (US EPA). Initially, environmental investigations were conducted under the Department of Defense's (DoD's) Installation Restoration Program (IRP) but subsequently these programs were performed under the Comprehensive Environmental Response, Compensation, and Liability Act – CERCLA [42 U.S.C. §§ 9601 – 9675, as amended by the Superfund Amendments and Reauthorization Act of 1986, Public Law 99 – 499] and RCRA. As a result of these investigations, evidence of hazardous chemical and radioactive constituents and compounds used, stored, and demilitarized at the depot was found in samples of ground water, soil, sediment and surface water collected and characterized.

On July 14, 1989, the US EPA proposed SEDA for inclusion on the National Priority List (NPL) based on a hazard ranking score of 37.3. Supporting its recommendation for listing, the US EPA stated "the Army identified a number of potentially contaminated areas, including an unlined 13-acre landfill in the west-central portion of the depot, where solid waste and incinerator ash were disposed of intermittently for 30 years during 1941-79; two incinerator pits adjacent to the landfill, where refuse was burned at least once a week during 1941-74; a 90-acre open burning/detonation area in the northwest portion of the depot, where explosives and related wastes have been burned and detonated during the past 30 years; and the APE-11236 Deactivation Furnace in the east-central portion of the depot, where small arms are destroyed." The US EPA's recommendation was approved on August 30, 1990, and SEDA was listed in Group 14 on the Federal Section of the NPL.

1.3 FEDERAL FACILITY AGREEMENT

Subsequent to SEDA's placement on the NPL, representatives of the US Army, US EPA, and NYSDEC negotiated a Federal Facility Agreement (Docket Number: II-CERCLA-FFA-00202) to govern and coordinate necessary remedial investigations/feasibility studies (RI/FS) and necessary corrective actions. The general purposes of the Federal Facility Agreement (FFA) are to:

- "Ensure that the environmental impacts associated with past and present activities at the Site are thoroughly investigated and that appropriate remedial action is taken to protect the public health, welfare and the environment;

- Establish a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions at the Site in accordance with CERCLA, the NCP, Superfund guidance and policy, RCRA, RCRA guidance and policy and applicable State law; and,
- Facilitate cooperation, exchange of information and participation on the Parties in such actions."

With specific reference to the procedural framework, terms of the FFA stated that all of the signatory parties intended "to integrate the Army's CERCLA response obligations and RCRA corrective action obligations which relate to the release(s) of hazardous substances, hazardous wastes, pollutants, or contaminants covered by" the Agreement. Therefore, requirements of RCRA were deemed to be an applicable or relevant and appropriate requirement (ARAR) under CERCLA, and actions selected, implemented and completed must be protective of human health and the environment such that remediation of releases shall obviate the need for further corrective action under RCRA. The FFA was finalized in January of 1993.

The FFA also describes a sequential process for the identification, investigation, evaluation, remediation (remediation) and closure of all sites where hazardous waste are known, or suspected, to have been released. A schematic diagram of the defined process is shown in **Figure 1-1**.

The decision process involves implementing a series of baseline actions. Decisions are integrated into the baseline action process to justify the actions that are taken. Supplemental actions, such as collecting additional data, are conducted, where necessary, to provide support for the baseline actions. The final action for each SWMU or AOC involves preparation of either, a decision document, a ROD or a closeout report. These reports provide documentation that site conditions have met the requirements of the decision process. A key aspect of the overall process is that any identified site or unit may exit the process, requiring no further action, after one of six key steps, if site conditions are shown to meet specified decision criteria.

The process is divided into six (6) distinct phases. These include:

1. The Site Classification Phase;
2. The Site Investigation Phase;
3. The Interim Remedial Measures (IRM) Phase;
4. The Remedial Investigation Phase (RI) Phase;
5. The Feasibility Study (FS) Phase; and
6. The Remedial Design/Remedial Action (RD/RA) Phase.

Each phase is further subdivided into a series of actions that result from the decisions. As depicted in **Figure 1-1**, each decision is identified with a letter, whereas each action is identified with a number so that the status of each site can be identified. This provides an easy mechanism to understand what decisions have been made and what decisions need to be made. Each of the six phases of the process allows the site or unit to exit the process. The effort involved in exiting the process is dependent upon

NO	NO
	1
A	2
	3
B	4
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C	
D	6
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E	8
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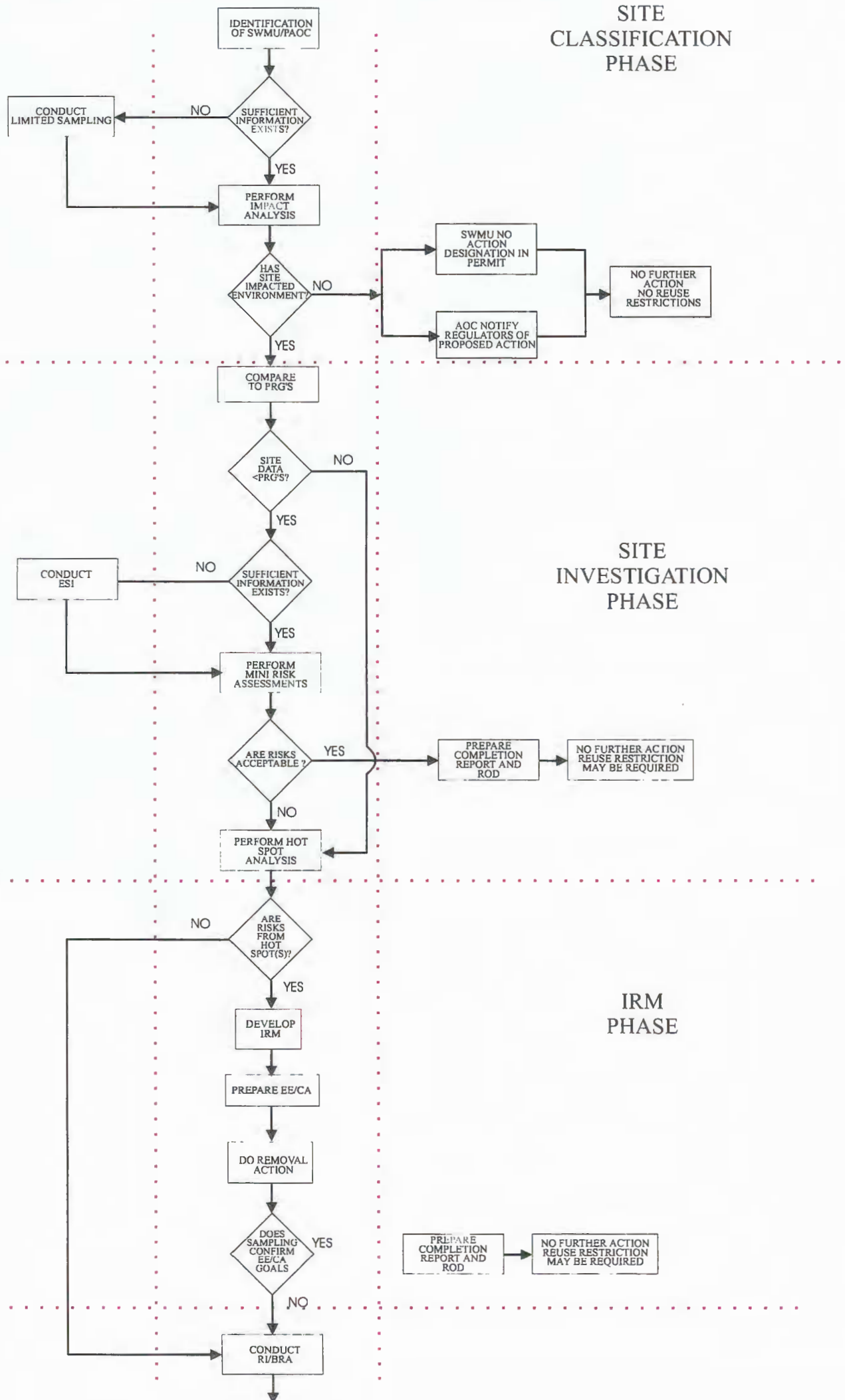
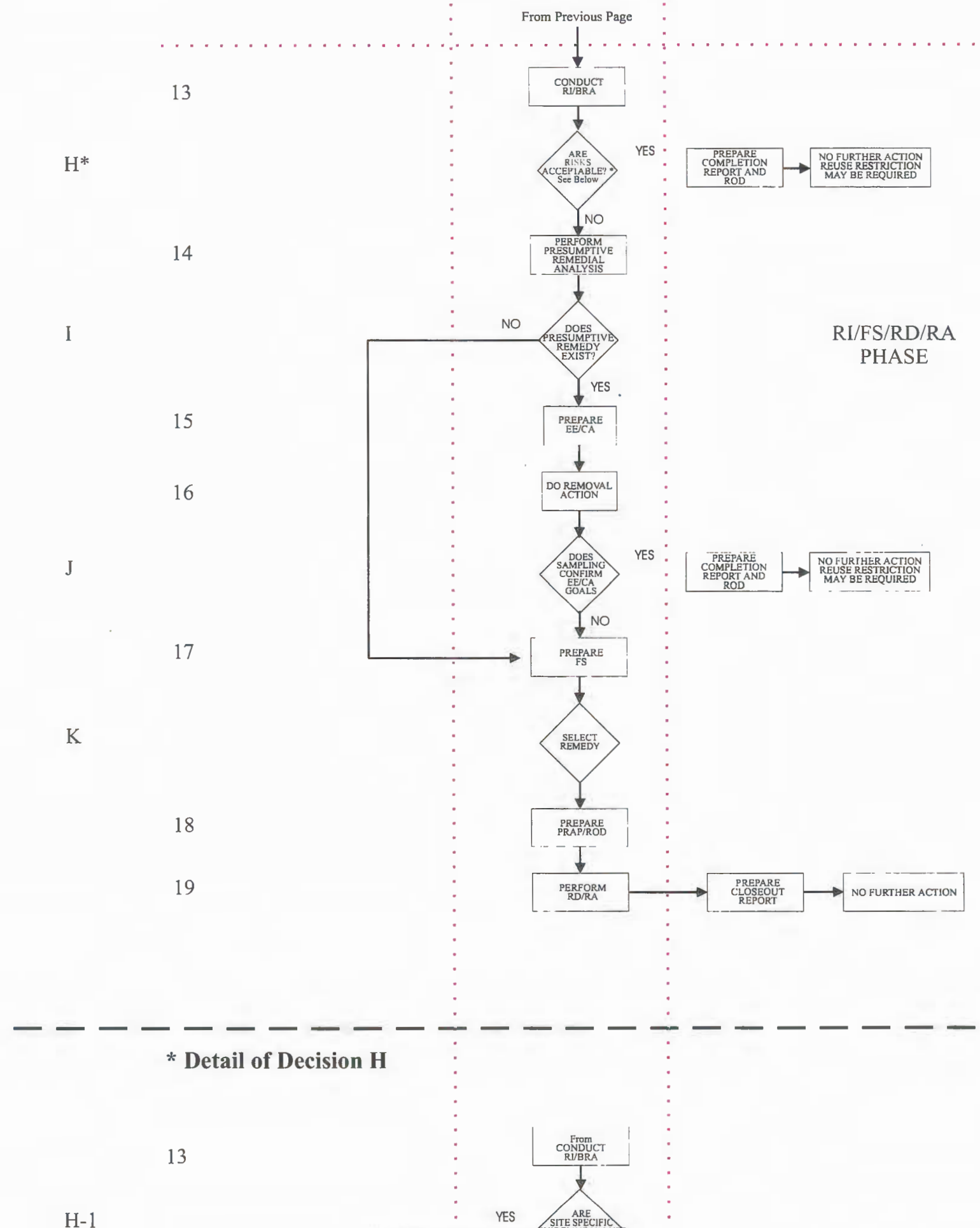
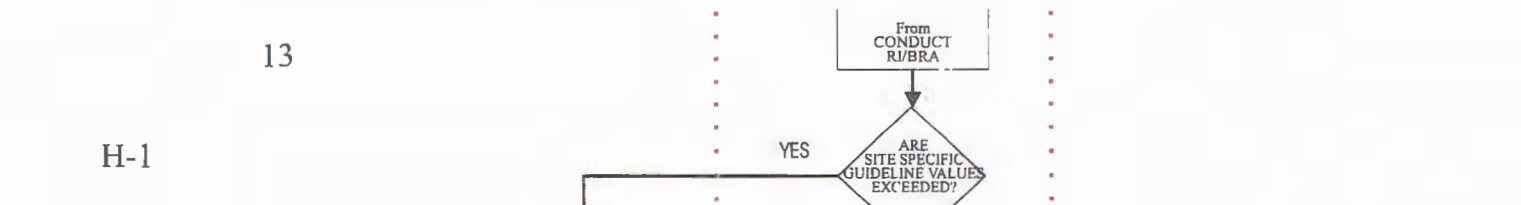
G	
	13



NO NO



*** Detail of Decision H**



the phase involved and the information required documenting that conditions are within the required limits. In one case, this may involve a comparison of available data to an appropriate State and Federal Standard, Guideline and Criteria (SGC), while in another, this may involve completion of a remedial action or an Interim Remedial Measure (IRM).

The first phase of the overall process is the site classification phase. Site classification begins with an initial identification of a site and ends with a determination of whether the site has impacted the environment or not. The key decision point in the site classification phase involves determining whether or not site conditions have impacted the environment. In many instances, this decision may be based on historical records or an understanding of the processes involved, without collecting additional field data. In other instances, this decision requires some limited sampling and analysis. If no impact is shown, no further action is required and unrestricted use of the site or unit is allowed.

The second phase is the Site Investigation Phase. This phase involves collection of data as part of an Expanded Site Inspection (ESI), as shown in Action 6 of **Figure 1-1**. The resulting ESI data are then evaluated to determine whether a threat exists at the site or unit. This determination is based upon direct comparisons of the site data to background or an appropriate State and/or Federal Standards, Guidelines and Criteria (SGC). Exceedances of an appropriate standard, guideline, or criteria are used to indicate that a threat exists. A quantitative risk analysis is not performed to quantify the threat. Professional judgments are also used to evaluate the significance of the exceedances and are incorporated into the recommendations for either no further action or additional evaluations, as shown in Decision No. E.

Each medium has unique Standards, Guidelines and Criteria (SGC) that are used for comparison. For example, soil data are typically compared to background concentrations, or the NYSDEC Technical Administrative Guidance Memorandums (TAGM) value. If none of the resulting data exceeds the SGC criteria, then the recommendation for the site is No Further Action (NFA). However, if exceedances of TAGMs or other media specific SGC are noted then further evaluation of the data is required.

When exceedances of a SCG are noted, then a "mini" risk assessment may be performed to assess whether a contaminant actually poses a risk. Performance of the mini-risk assessment provides a mechanism to quantitatively determine a risk value that can be used to support recommendations for future action. One such future action alternative may be "no further action," while the other is more steps are needed.

The mini-risk assessment uses procedures that are generally identical to those that would be used for a Baseline Risk Assessment (BRA), but substitutes the maximum detected concentration for each chemical as the Exposure Point Concentration (EPC) instead of the Upper 95th Confidence Limit of the mean value. This replacement is made due to the uncertainties associated with evaluating a site with the smaller ESI database. If the results of the mini-risk assessment indicate an acceptable risk, i.e.,

carcinogenic risks are less than 1E-04 or the HI is less than 1, then the site conditions meet the requirements for no further action. When appropriate, the basis of the no further action decision is documented in a Decision Document. Otherwise, the site conditions are not acceptable and the site enters the Interim Remedial Measure (IRM) phase, Decision No. E in **Figure 1-1.**

The IRM phase involves evaluating whether the site can attain a no further action designation via implementation of an IRM. An IRM is most likely to be a non-time critical removal action and is generally considered appropriate if:

- The problems can be attributed to discrete soil or sediment "hot spots";
- The extent of soil or sediment to be excavated is less than 1000 cubic yards (yd^3);
- The technologies are limited to "low tech" technologies such as off-site disposal or capping;
- The pollutants involved are amenable to technologies such as off-site disposal or capping; and
- Groundwater or surface water conditions are acceptable.

If deemed appropriate, an IRM can be used to eliminate a site from further consideration by preparing an Engineering Evaluation/Cost Analysis (EE/CA). The EE/CA is the decision document that presents the goals and rational for implementing the IRM and discusses the evaluations conducted in support of the IRM. After the removal action is performed, confirmatory sampling is required to document the effectiveness of the IRM in attaining the IRM goals. This information is then documented in the project completion report and the ROD.

If the conditions of the site are such that the problems are not readily solvable via an IRM then the site moves into the RI phase. This phase is identical to the process described by CERCLA and involves a multi-media sampling effort and Baseline Risk Assessment (BRA). The results of the BRA may support a no further action if the risk conditions are below the EPA target limits for risk. Otherwise, the site enters the FS stage.

The FS phase involves an initial evaluation of presumptive remedies. Presumptive remedies include a variety of technologies for both groundwater and soil such as bioventing, off-site disposal, capping or deed restriction for soils and alternative water supply, air sparging, zero-valence iron treatment or natural attenuation with monitoring for groundwater. If presumptive remedies are not appropriate, then an FS is prepared.

The final phase is the preparation of a remedial design and implementation of the remedial action. Both the FS and the RD/RA will follow guidance provided by both the US EPA and the NYSDEC.

A Decision Document is similar to a Record of Decision (ROD). Each are required to document the decisions made to support final site closure. RODs are required following completion of an RI/FS.

Decision Documents are prepared, prior to an RI/FS, when the site conditions are determined not to pose a continual threat to human health and the environment due to either a removal action or following an initial site investigation.

1.4 BASE REALIGNMENT AND CLOSURE (BRAC)

The major portion of SEDA was approved for the 1995 Base Realignment and Closure (BRAC) list in October of 1995. The mission closure date for the facility is scheduled for September 30, 1999, with an installation closure date of September 30, 2000. A small enclave at SEDA will remain open after 2000, and be used to store hazardous materials and ores.

Woodward-Clyde Federal Services was retained to prepare an Environmental Baseline Survey for SEDA. Under this process, Woodward-Clyde was charged with the initial classification of discrete areas of the depot into one of seven standard environmental condition of property area types consistent with the Community Environmental Response Facilitation Act (CERFA – Public Law 102-426), which amends Section 120 of CERCLA. The results of Woodward-Clyde's effort were documented in the U.S. Army Base Realignment and Closure 95 Program Report that was issued on October 30, 1996. This report served as part of the basis for subsequent decisions made regarding land use.

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

- housing;
- institutional;
- industrial;
- warehousing;
- conservation/recreational land;
- an area designated for a future prison;
- an area for an airfield, special events, institutional, and training; and
- an area to be transferred from one federal entity to another (i.e., an area for the existing navigational LORAN transmitter).

A map summarizing the currently recommended future land use for areas at SEDA is presented as **Figure 1-2**.

N

PLANNED INDUSTRIAL DEVELOPMENT (PID)

HOUSING

WAREHOUSE

FED TO FED TRANSFER

INSTITUTIONAL

PRISON

CONSERVATION/ RECREATION

HOUSING

AIRFIELD SPECIAL EVENTS, INSTITUTIONAL AND TRAINING

-2800 0 2800 5600

SCALE 1" = 2800'

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY

DEPT.	Dwg. No.
ENVIRONMENTAL ENGINEERING	736026-01001

FIGURE 1.2
NO ACTION SITES
FUTURE LAND USE

SCALE	DATE	REV
AS NOTED	NOVEMBER 1999	A

R:\SENECA\RISK\NOACT.DWG

1.5 ENVIRONMENTAL SETTING

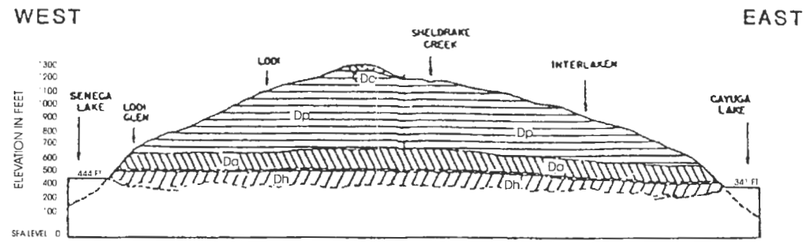
1.5.1 Geology

SEDA is located within one distinct unit of glacial till that covers the entire area between the western shore of Lake Cayuga and the eastern shore of Lake Seneca. The till is consistent across the entire depot although it ranges in thickness from less than 2 feet to as much as 15 feet with the average being only a few feet thick. This till is generally characterized by brown to gray-brown silt, clay and fine sand with few fine to coarse gravel-sized inclusions of weathered shale. Larger diameter weathered shale clasts (as large as 6-inches in diameter) are more prevalent in basal portions of the till and are probably rip-up clasts removed by the active glacier during the late Pleistocene era. The general Unified Soil Classification System (USCS) description of the till on-site is as follows: Clay-silt, brown; slightly plastic, small percentage of fine to medium sand, small percentage of fine to coarse gravel-sized gray shale clasts, dense and mostly dry in place, till, (ML). Grain size analyses performed by **Metcalf & Eddy (1989)** on glacial till samples collected during the installation of monitoring wells at SEDA show a wide distribution of grain sizes. The glacial tills in this area have a high percentage of silt and clay with trace amounts of fine gravel. A zone of gray weathered shale of variable thickness is present below the till in almost all locations at SEDA. This zone is characterized by fissile shale with a large amount of brown interstitial silt and clay.

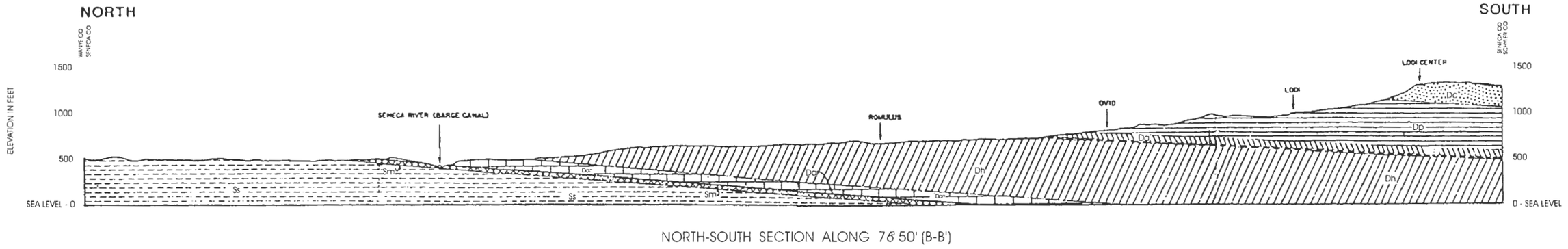
This underlying bedrock below weathered shale is a member of the Ludlowville Formation of the Devonian age Hamilton Group. The Hamilton Group, 600 to 1,500 feet thick, is divided into four formations. They are, from oldest to youngest, the Marcellus, Skaneateles, Ludlowville, and Moscow formations. The western portion of SEDA is generally located in the Ludlowville Formation while the eastern portion is located in the younger Moscow Formation. The Ludlowville and Moscow formations are characterized by gray, calcareous shales, mudstones and thin limestones with numerous zones of abundant invertebrate fossils. The Ludlowville Formation is known to contain brachiopods, bivalves, trilobites, corals and bryozoans (Gray, 1991). In contrast, the lower two formations (Skaneateles and Marcellus) consist largely of black and dark gray sparsely fossiliferous shales (Brett et al., 1991). Locally, the shale is soft, gray, and fissile. **Figure 1-3** displays the stratigraphic section of Paleozoic rocks of Central New York. Three known predominant joint directions, N60^{o}E, N30^{o}W, and N20^{o}E are present within this unit (**Mozola, 1952**).

1.5.2 Hydrogeology

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



EAST-WEST SECTION ALONG A- A'



NORTH-SOUTH SECTION ALONG 76° 50' (B-B')

LEGEND

	Dc	WISCOY SHALE NUNDA SANDSTONE WEST HILL FORMATION GRIMES SANDSTONE	DEVONIAN
UPPER DEVONIAN	Dp	HATCH SHALE CASHAQUA SHALE	
	Da	GENESEE GROUP: WEST RIVER SHALE GENESEO SHALE	
		TULLY LIMESTONE	
MIDDLE DEVONIAN	Dh	HAMILTON GROUP: MOSCOW SHALE LUDLOWVILLE SHALE SKANEATELES SHALE MARCELLUS SHALE	
MIDDLE OR LOWER DEVONIAN	Don	ONONDAGA LIMESTONE	
LOWER DEVONIAN	Do	ORISKANY SANDSTONE	
SILURIAN (UPPER)	Sm	MANLIUS AND RONDOUT LIMESTONES AND COBLESKILL DOLOMITE	SILURIAN
	Ss	SALINA FORMATION INCLUDING BERTIE LIMESTONE MEMBER AND CAMILLUSSHALE MEMBER	

SCALE
1 0 1 2 3 MILES

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

K:\GRAPHICS\SENECA\GEOXSEC CDR(CVM)

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA army DEPOT ACTIVITY
DECISION DOCUMENT

DEPT ENVIRONMENTAL ENGINEERING | DWG NO 7346026-01001

FIGURE 1-3

REGIONAL GEOLOGIC CROSS SECTIONS

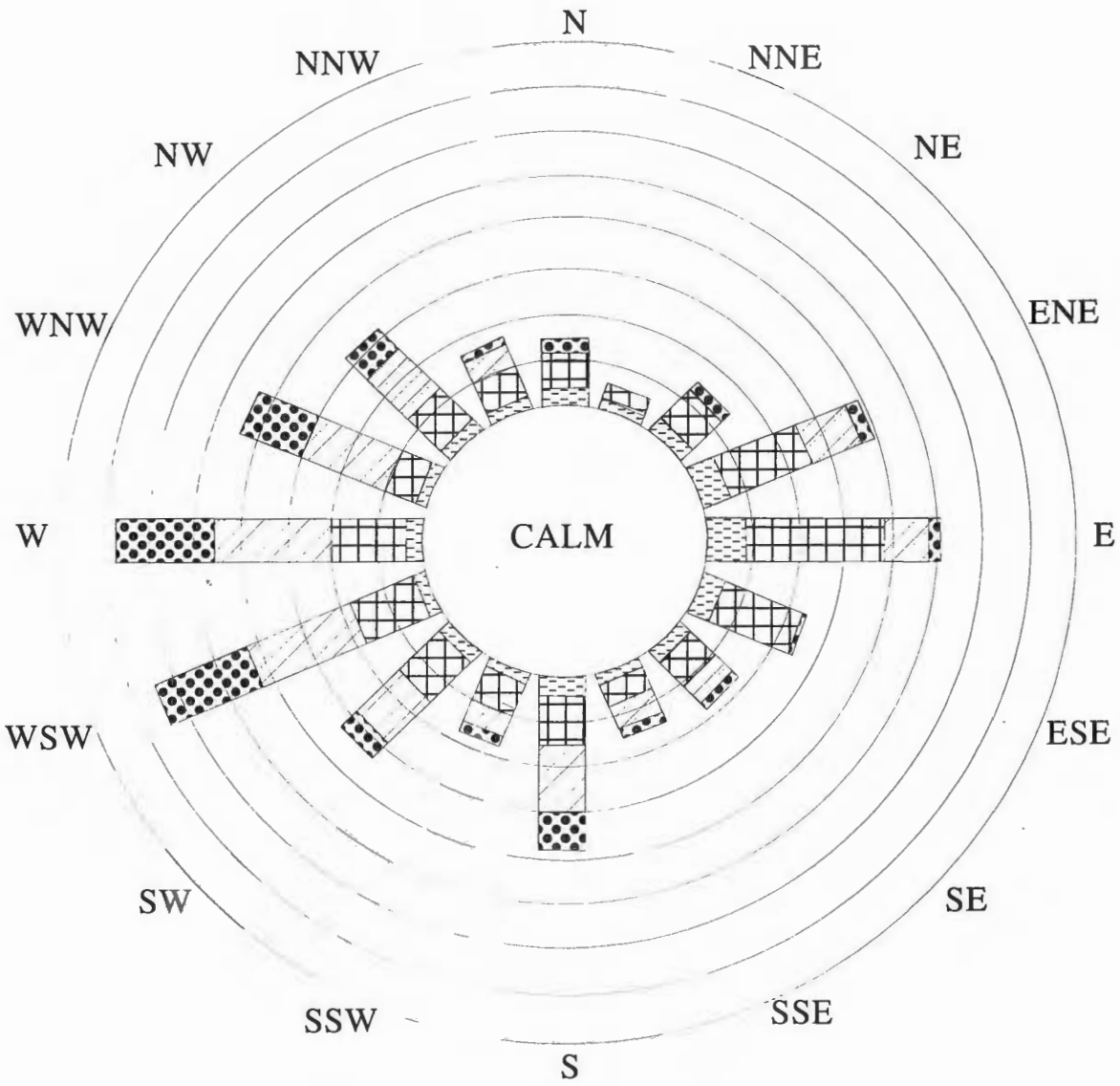
SCALE AS NOTED | DATE AUGUST 1990

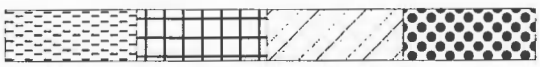
For mid-Devonian shales such as those of the Hamilton Group, the average yields (which are less than 15 gpm) are consistent with what would be expected for shales **(LaSala, 1968)**. The deeper portions of the bedrock, (at depths greater than 235 feet) have provided yields of up to 150 gpm. At these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

Surface drainage from SEDA flows to four creeks. In the southern portion of the depot, the surface drainage flows through ditches and streams into Indian and Silver Creeks. These creeks then flow into Seneca Lake just south of the SEDA airfield. The central part and administration area of SEDA drain into Kendaia Creek. Kendaia Creek discharges into Seneca Lake near the Lake Housing Area. The majority of the northwestern and north-central portion of SEDA drain into Reeder Creek. The northeastern portion of the depot, which includes a marshy area called the Duck Ponds, drains into Kendaia Creek and then flows north into the Cayuga-Seneca Canal and to Cayuga Lake

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

Regional precipitation is derived principally from cyclonic storms that pass from the interior of the country through the St. Lawrence Valley. With local influence derived from lakes Seneca, Cayuga, and Ontario providing some lake effect snows, leading to a significant amount of the winter precipitation and a moderate the local climate. Wind velocities are moderate, but during the winter months, there are numerous days with sufficient winds to cause blowing and drifting snow. The most frequently occurring wind directions are westerly and west southwesterly (**Figure 1-4**).





NOTE: EACH DIVISION IS 2% OF TOTAL TIME

INSTALLATION: SENECA ARMY DEPOT
LOCATION OF DATA: SYRACUSE, NEW YORK
SOURCE: MODIFIED FROM:
US ARMY ENVIRONMENTAL
HYGIENE AGENCY

PARSONS
PARSONS ENGINEERING-SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY
DECISION DOCUMENT

DEPT ENVIRONMENTAL ENGINEERING | DWG NO 734516-01001

FIGURE 1-4

WIND ROSE
SYRACUSE, NEW YORK

SCALE NA | DATE JULY 1999

R:\GRAPHICS\SENECA\WINDROSE.CDR(CVM)

1.6 SOLID WASTE MANAGEMENT UNIT CLASSIFICATION

As mandated by the EPA Region II and by NYSDEC, the U.S. Army Corps of Engineers commissioned the "Solid Waste Management Unit Classification Report" at SEDA (ERCE 1991). This report was finalized by Parsons on June 10, 1994. The goals of this work was to evaluate the effects of past solid waste management practices at identified SWMUs and to classify each SWMU as an area where "No Action is Required" or as an "Area of Concern" where additional investigations and studies were required. Areas of Concern include both (a) SWMUs where releases of hazardous substances may have occurred and (b) locations where there has been a threat of a release into the environment of a hazardous substance or constituent (including radionuclides). AOCs included former spill areas, landfills, surface impoundments, waste piles, land treatment units, transfer stations, wastewater treatment units, incinerators, container storage areas, scrap yards, cesspools and tanks with associated piping that are known to have caused a release into the environment or whose integrity has not been verified.

A total of 69 SWMUs and AOCs were originally identified in the ERCE SWMU Classification Report. Following the completion of the ERCE report, three additional SWMUs were added by the Army, bringing the total number of SWMUs listed at SEDA to 72.

A recommended classification for all SWMUs was presented in the final SWMU Classification Report (Parsons, 1994). At this time, the Army identified 24 of the original SWMUs as sites that required "no further action" based on existing information. Furthermore, 13 other SWMUs were designated as High Priority sites; 3 were designated as Moderate Priority sites; 11 were designated as Moderately Low Priority sites; and 21 were designated as Low Priority sites.

In response to the BRAC closure process, the Army has refocused its efforts and is investigating and evaluating sites that are located within parcels that have the greatest reuse potential under the BRAC future land use designation. This effort encourages the reuse of the facility through land transfer or lease prior to the end of the military mission at the Depot. The Army will continue to close sites after the military mission is complete.

The goal of this document with respect to 26 of these SWMUs is to:

1 assemble and summarize all of the currently known information about the SWMU;
2 compare the available data and information with applicable guidance levels and standards and assess if there is an indication of potential threats to human health and the environment at the site;
3 provide a recommendation, and a justification and rationale to substantiate the proposed classification of the SWMU to the "No Action" status.

The list of the affected SWMUs is provided in Table **1-1**. If the Army's designation of "No Further Action" is accepted, these sites may be released for future land-use.

Additional information clarifying and substantiating recommendations pertinent to individual SWMUs is provided in the following sections of this Report.

TABLE 1-1
NO ACTION SWMUs

SWMU NUMBER	1994 PRIORITY RANKING	CURRENT PRIORITY / BASIS	SWMU DESCRIPTION
SEAD-1	No Action	No Action / No Change	Building 307 – Hazardous Waste Container Storage Facility
SEAD-2	No Action	No Action / No Change	Building 301 – PCB Transformer Storage Facility
SEAD-7	No Action	No Action / No Change	Shale Pit
SEAD-10	No Action	No Action / No Change	Present Scrap Wood Site
SEAD-18	No Action	No Action / No Change	Building 709 – Classified Document Incinerator
SEAD-19	No Action	No Action / No Change	Building 801 – Classified Document Incinerator
SEAD-20	No Action	No Action / No Change	Sewage Treatment Plant No. 4
SEAD-21	No Action	No Action / No Change	Sewage Treatment Plant No. 715
SEAD-22	No Action	No Action / No Change	Sewage Treatment Plant No. 314
SEAD-29	No Action	No Action / No Change	Building 732 – Underground Waste Oil Tank
SEAD-30	No Action	No Action / No Change	Building 118 – Underground Waste Oil Tank
SEAD-31	No Action	No Action / No Change	Building 117 – Underground Waste Oil Tank

TABLE 1-1
NO ACTION SWMUs
(continued)

SWMU NUMBER	1995 PRIORITY RANKING	CURRENT PRIORITY / BASIS	SWMU DESCRIPTION
SEAD-32	Low	No Action / Limited Investigation	Building 718 – Underground Waste Oil Tanks
SEAD-35	No Action	No Action / No Change	Building 718 – Waste Oil-Burning Boilers (3 units)
SEAD-36	No Action	No Action / No Change	Building 121 – Waste Oil-Burning Boilers (2 units)
SEAD-37	No Action	No Action / No Change	Building 319 – Waste Oil-Burning Boilers (2 units)
SEAD-42	No Action	No Action / No Change	Building 106 – Preventive Medicine Laboratory
SEAD-47	No Action	No Action / No Change	Buildings 321 and 806 - Radiation Calibration Source Storage
SEAD-49	No Action	No Action / No Change	Building 356 – Columbite Ore Storage
SEAD-51	No Action	No Action / No Change	Herbicide Usage - Perimeter of High Security Area
SEAD-53	No Action	No Action / No Change	Munitions Storage Igloos
SEAD-55	No Action	No Action / No Change	Building 357 – Tannin Storage
SEAD-60	Low	No Action / "Removal Action"	Oil Discharge Adjacent to Building 609
SEAD-61	No Action	No Action / No Change	Building 718 – Underground Waste Oil Tank
SEAD-65	No Action	No Action / No Change	Acid Storage Areas
SEAD-72	No Action	No Action / No Change	Building 803 – Mixed Waste Storage Facility

SECTION 2

SWMU DISCUSSIONS

2.0 INTRODUCTION

The following sections present and summarize available information pertinent to each of the 25 SWMUs that the Army proposes as requiring "No Further Action" under CERCLA.

2.1 SEAD-01: BUILDING 307 – HAZARDOUS WASTE CONTAINER STORAGE FACILITY

2.1.1 Site Description

The Army constructed Building 307, the Hazardous Waste Container Storage Facility, in 1981 for the purpose of storing hazardous materials that were generated throughout the depot. This unit was specifically identified in the RCRA Part B permit application (# NY0213820830) as a hazardous waste treatment, storage, or disposal unit. The building is located in the east central portion of SEDA, in an area where the future land use has been designated for planned industrial development subsequent to base closure. The location of this SWMU is shown on **Figure 2-1**.

The 40 by 50-foot building consists of a 6-inch thick, monolithic concrete slab floor surrounded by a 6-inch high containment curb. The floor of the building has been sealed to prevent seepage of spilled materials into the concrete floor. Other than that portion of the floor that is covered by the access/egress ramp, the floor of the building is not sloped nor does it contain any collection sumps or drains. The roof of the building is constructed of corrugated zinc-coated steel with single sheets extending from the center ridge of the building to the outside edge. Corrugated steel sheets cover the sides of the building extending from 1 foot below the 2 by 12-inch headers to 6 inches below the top of the curb. A passive ventilation system is provided via the opening at the top of the walls to prevent heat and chemical fume buildup. The only entrance into the building is through a sliding corrugated-steel door located on the south side of the building. A 10-foot wide concrete access/egress ramp extends 10 feet beyond the exterior of the building and 8 feet into the building's interior. The ramp inside the building slopes back into the containment area, while the ramp outside the building slopes back towards the road. The peak of the ramp sits atop the containment wall. A plan view of the building is shown in **Figure 2-2.** The facility conforms to hazardous waste storage regulations in the State of New York. The regulations that determine the design and operation of a hazardous waste storage facility are NY Regulations NYCRR Title 6, Section 373-2.9f.

N

PLANNED INDUSTRIAL DEVELOPMENT (PID)

INSTITUTIONAL

WAREHOUSE

HOUSING

FED TO FED TRANSFER

PRISON

CONSERVATION/ RECREATION

HOUSING

AIRFIELD SPECIAL EVENTS, INSTITUTIONAL AND TRAINING

SEAD-47
SEAD-72
SEAD-19
SEAD-29
SEAD-32, 35 & 61
SEAD-18
SEAD-7
SEAD-21
SEAD-51
SEAD-53
SEAD-20
SEAD-10
SEAD-37
SEAD-31
SEAD-42
SEAD-30
SEAD-36
SEAD-1
SEAD-47
SEAD-22
SEAD-49
SEAD-55
SEAD-2
SEAD-60
SEAD-65

-2800 0 2800 5600

SCALE 1" = 2800'

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

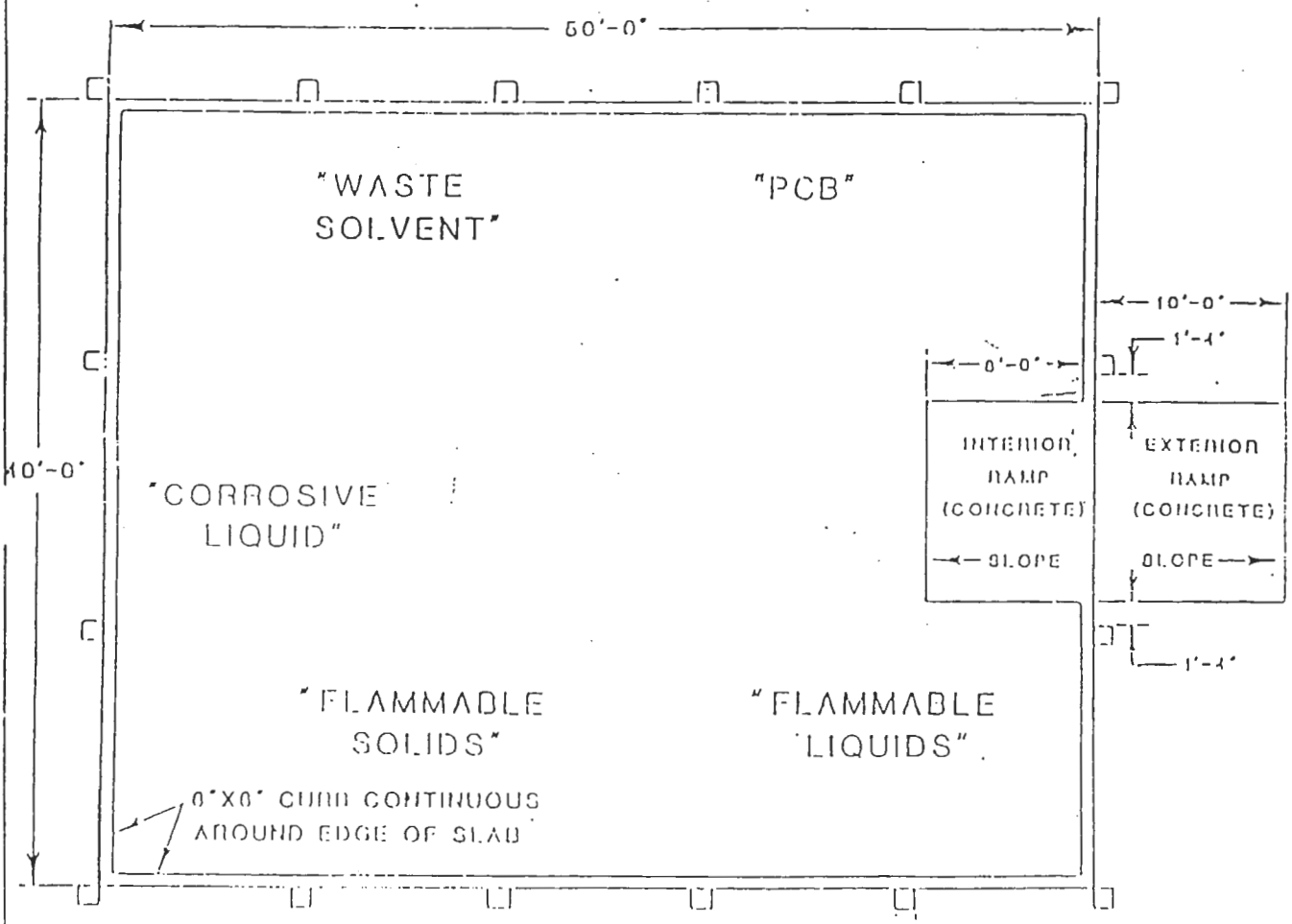
SENECA ARMY DEPOT ACTIVITY

DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No. 736026-01001

FIGURE 1.2
NO ACTION SITES

SCALE AS NOTED | DATE NOVEMBER 1999 | REV A

R:\SENECA\RISK\NFACT.DWG



SOURCE: REFERENCE 3

ERC Environmental and Energy Services Co.

PLAN VIEW OF HAZARDOUS WASTE CONTAINER STORAGE FACILITY

FIGURE 2.2

2.1.2 Historic Operations

Building 307 has been used as a storage area for liquid and solid, hazardous wastes since the time of its construction in 1981. Waste materials stored in the building over time include polychlorinated biphenyls (PCBs), waste solvents, corrosive liquids, flammable solids and flammable liquids. Waste materials generated in the shops located throughout the base are transported to Building 307, and stored inside the building in drums. Transport and storage devices used include new DOT-approved, 55-gallon drums and 5-gallon pails. The total storage capacity of the building is 300, 55-gallon drums or 16,500 gallons of material. The quantity of individual classes (i.e., waste solvents, corrosive liquids, PCBs, etc.) of waste present in the building at any given time is closely monitored and regulated.

Once transported to the building, the drums are stored until disposal contracts are procured for their removal from the building. Regular weekly inspections are made by the Facility Environmental Engineer (FEE) and personnel of the fire department located on the depot.

Based on the visual site inspections, performed on September 14, and November 27, 1990, the building was in good structural condition and was managed appropriately as a storage facility. No evidence of a release was noted during any of the inspections at this facility.

2.1.3 Regulatory Status

SEAD-01 continues to function as a storage area for hazardous waste materials in accordance with interim status provisions of RCRA. Inspection reports for the facility and its operations are available in the offices of environmental management personnel at SEDA. Subsequent to the cessation of storage of hazardous waste materials in SEAD-01, this operating unit will be subject to RCRA closure and post-closure requirements identified under existing federal (40 CFR 265) and state (6 NYCRR Part 373).

2.1.4 Recommended Action

The Army proposes SEAD-01 as a "No Further Action" site under CERCLA.

2.1.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 Hazardous waste have been stored and not disposed of in the building.
2 There is no historic evidence of a release from the building; any historic spills have been contained within the building and cleaned up in accordance with specified protocols.

3 The building continues to operate under interim status provisions of RCRA.

4 The building is subject to closure and post-closure provisions identified under RCRA which will be invoked at the time of the operations termination.

2.2 SEAD-02: BUILDING 301 – PCB TRANSFORMER STORAGE FACILITY

2.2.1 Site Description

The Army has used Building 301 as a Polychlorinated Biphenyl (PCB) Storage Facility since approximately 1980. The building was upgraded in 1986 to meet conforming storage requirements. The building, which is designated as SEAD-02, is located in east central portion of the facility, near the munitions igloo storage area, in land where the future land use is designated as the site of planned industrial development. The location of this SWMU is shown on **Figure 2-1**.

2.2.2 Historic Operations

Waste oils containing PCBs from machines processed in industrial plant equipment and materials contaminated with PCBs during the cleanup of the machines are stored in Building 307 (SEAD-01). Building 301 (SEAD-02) is used for the storage of materials associated with unserviceable transformers of PCBs. Decommissioned transformer units and other suspected PCB-contaminated electrical equipment are delivered to the building by linemen. Sampling is conducted by the environmental coordinator to determine the concentrations of PCBs in the units and contaminated electrical equipment. The items are then disposed of by the Defense, Reutilization and Marketing Office (DRMO). Inspections are conducted regularly by the environmental coordinator and the fire department onsite at the Depot.

Building 301 measures 35 feet 4 inches long by 23 feet 4 inches wide, and the main structure is bounded partially on two sides, and completely on the third side by a loading dock or platform the measures 6 feet 4 inches in width. The floor of the building consists of a 6-inch thick, monolithic concrete slab floor with a 6-inch curb. The slab, containment curb, and the access/egress ramp that is located at the overhead door entry are monolithic. The concrete floor is not sloped, and contains no sumps or drainage points. The estimated containment volume of the building is estimated to be approximately 7,500 gallons.

The roof and walls of the building prevent the accumulation of precipitation inside the building. The building is covered by a roof constructed of pre-cast concrete planks supported by steel trusses. The concrete planks are covered by a gravel and tar coating. The roof is flat and slightly pitched to promote precipitation runoff.

The 12-foot high walls are made of 1/2-inch thick scored tile. As is shown in **Figure 2-3**, the building has four windows and two roll-up doors. Ventilation in the building is passive as there is no electrical hook-up currently in place at the building.

Upon the transport of a PCB containing unit to Building 301, it is inspected and if it is found to be leaking, it is placed into an overpack drum and surrounded by absorbent material. All leakage from the unit would be captured via application of absorbent which would be swept-up, containerized and sent to Building 307 (SEAD-01) for storage pending disposal. Units not found to be leaking at the time of delivery to Building 301 are placed on pallets and stored pending sampling of the fluid and determination of the concentration of PCBs contained. Units found to contain PCB concentrations above 50 parts per million (ppm) are drained and the drained fluid is captured and transported to Building 307 for storage pending disposal. Units containing less that 50 ppm concentrations of PCBs are stored in Building 301 pending their final disposal by the Army.

2.2.3 Available Analytical Data

Soil samples were collected during the upgrade of the SWMU's floor in 1986. The collected samples were analyzed for PCB content and the data obtained is presented in **Table 2-1**. As shown, all samples contained levels of less than 1.0 mg/Kg of total PCBs.

2.2.4 Regulatory Status

SEAD-02 is specifically listed in the RCRA Part B Permit Application (NY# 0213820830) as a hazardous waste treatment, storage and disposal unit.

2.2.5 Recommended Action

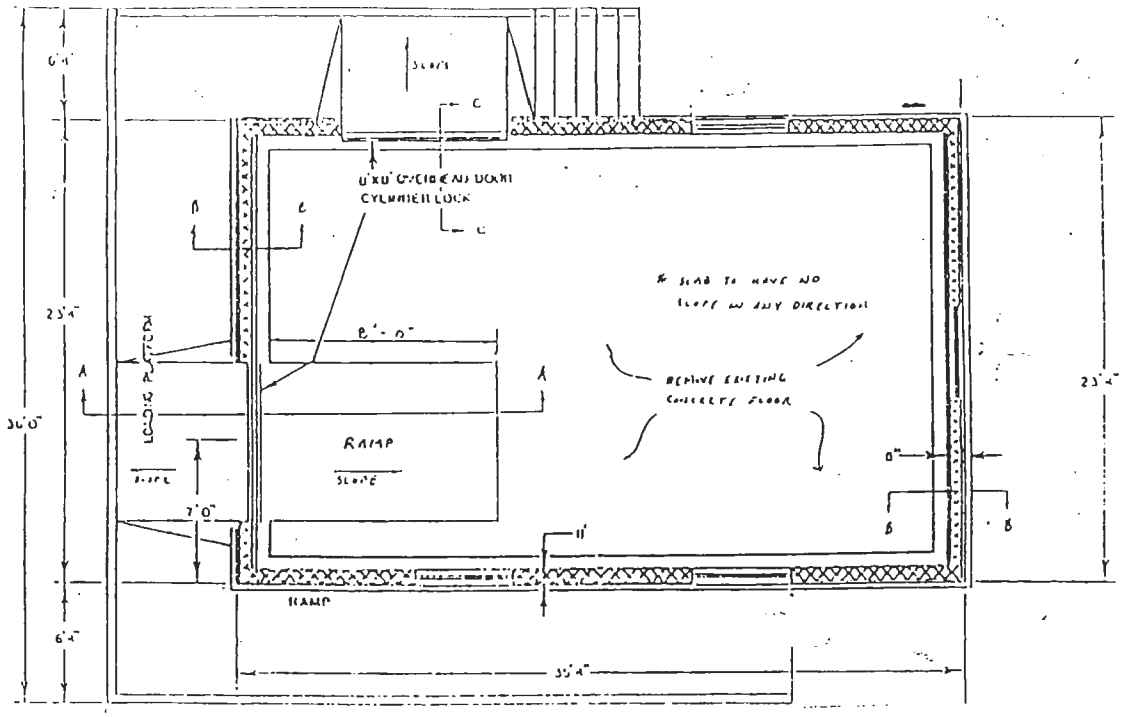
The Army proposes that "No Further Action" is required at SEAD-02 under CERCLA.

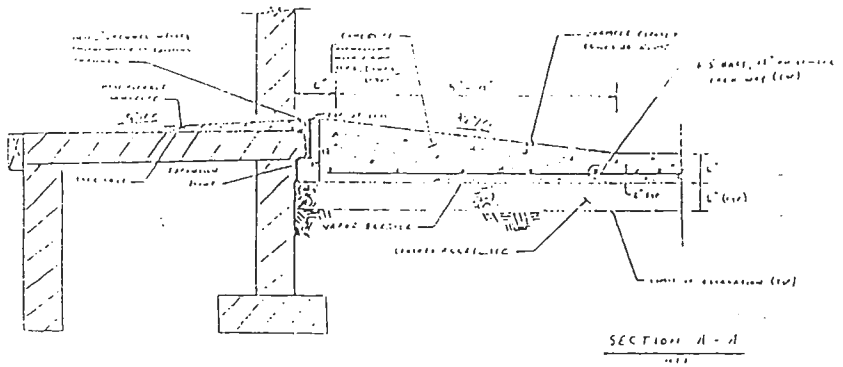
2.2.6 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 Hazardous waste have been stored and not disposed of in the building.

2 Based on the visual site inspections, performed on September 14, and November 27, 1990, the building was in good structural condition and was managed appropriately as a storage facility.





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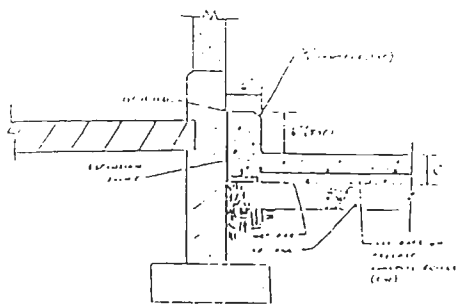

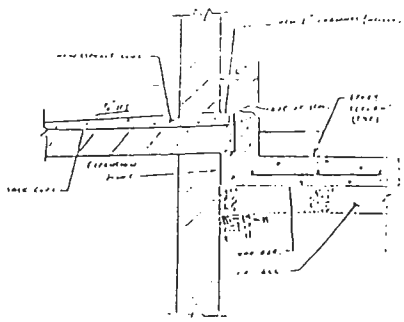

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PLAN VIEW AND SECTIONS OF PCB TRANSFORMER STORAGE FACILITY

FIGURE 2.3

Table 2-1

PCB ANALYSIS RESULTS FROM BUILDING 301

Parameter	#1 NW Corner	#2 NE Corner	#3 SW Corner	#4 SE Corner	Units
PCB 1221	<0.02	<0.50	<0.50	<0.50	mg/kg
PCB 1232	<0.02	<0.50	<0.50	<0.50	mg/kg
PCB 1016	<0.02	<0.50	<0.50	<0.50	mg/kg
PCB 1242	<0.02	<0.50	<0.50	<0.50	mg/kg
PCB 1248	<0.02	<0.50	<0.50	<0.50	mg/kg
PCB 1254	0.21	<0.50	<0.50	0.94	mg/kg
PCB 1260	<0.02	<0.50	<0.50	<0.50	mg/kg
PCB 1262	<0.02	<0.50	<0.50	<0.50	mg/kg
PCB 1268	<0.02	<0.50	<0.50	<0.50	mg/kg
Total PCBs	0.21	<0.50	<0.50	0.94	mg/kg

3 There is no historic evidence or record of a release from the building; historic sampling conducted in 1986 at the time of the upgrade of the facility indicated less than 1 ppm concentrations of total PCBs in soils collected from beneath the area of the slab.

4 The building continues to operate under interim status provisions of RCRA, and as such is subject to closure provisions identified in those regulations at the time of the facility's termination of use.

2.3 SEAD-07: SHALE PIT

2.3.1 Site Description

SEAD-07 is an excavation pit that is known as the "Shale Pit" and covers an area approximately two acres in size. SEAD-07 is located north of the north patrol road in the northwestern corner of SEDA. This SWMU is located in a portion of the facility whose future land use has been designated for institutional development. The location of this SWMU is shown on **Figure 2-1**.

2.3.2 Historic Operations

The Shale Pit was first created in 1987 and it was used to dispose construction debris from Depot building activities. Excavation of the pit was terminated above the regional ground water table. As developed, the Shale Pit holds only concrete, asphalt and wood debris that has been moved from base building/demolition activities and placed within the pit. No cover material has been applied to the debris subsequent to its placement in the pit. Construction debris placed into the pit is considered inert and does not contain chemicals that could lead to contamination. Based on a site inspection conducted on September 13, 1990, 50 percent of the pit was filled with construction debris.

2.3.3 Regulatory Status

Activities conducted in SEAD-07 are exempt from regulation by the State of New York, Subpart 360-7 of the New York Solid Waste Regulations which states that "sites at which only recognizable uncontaminated concrete, asphalt pavement, brick, soil or stone is placed are exempt from regulation" (Section 360-7.1 (b)(i)).

2.3.4 Recommended Action

The Army proposes that "No Further Action" is required at this SWMU under CERCLA.

2.3.5 Justification and Rationale of Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 Only construction debris have been placed in the pit, and the disposed debris is believed to be relatively inert and free of chemicals that could cause contamination.
2 Although storm water does percolate through the disposed debris and enter the underlying soils, the run-off is believed to be free of chemicals that would cause contamination.
3 Construction debris that is free of chemical contamination is exempt from regulation under New York State hazardous waste regulations (NYCRR Section 360-7.1 (b)(i)).

2.4 SEAD-10: SCRAP WOOD PILE

2.4.1 Description

SEAD-10 was primarily used for the storage of scrap wood generated from site activities. The Scrap Wood Pile encompassed an area measuring approximately 250 feet by 185 feet that is located on the south side of East Kendaia Road near Building 113. This area is designated for planned industrial development pending Depot closure. The location of this SWMU is shown on **Figure 2-1**.

2.4.2 Historic Operations

Use of the wood pile began in 1986 and continues to exist in its present location today. Scrap wood from various depot activities is segregated, stored in piles and is then sold to Depot employees and the public. The storage area is divided into three sections: 1) an area for scrap wood (west pile; 130 feet by 185 feet); 2) an area for disposal of wooden pallets (middle pile; 60 feet by 185 feet); and 3) an area for pressure treated wood and poles (east pile; 60 feet by 185 feet).

SEDA's fire department periodically uses wood from the scrap wood pile as fuel for fire training exercises. Whenever fire training exercises have been conducted in the past, the State of New York is notified prior to any burning.

2.4.3 Available Analytical Data

Samples of the ash produced by the combustion of scrap wood in SEAD-10 were collected on September 29, 1992 and analyzed for TCLP constituents prior to their disposal by Waste Management – Syracuse NY. The results of these analyses are provided in **Appendix A**, and indicate that none of the measured levels exceeded any regulatory limit.

2.4.4 Recommended Action

The Army proposes that SEAD-10 be listed as a "No Further Action" site under CERCLA.

2.4.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 Typically, scrap wood has been stored in this area pending subsequent sale to Depot personnel or the public.
2 The scrap wood placed in the SWMU is chemically inert.
3 Fire training exercises were occasionally completed using scrap wood, but the residual ash was collected, analyzed and found not to meet or exceed any of the Toxicity Characteristic levels defined in 40 CFR 261.24.

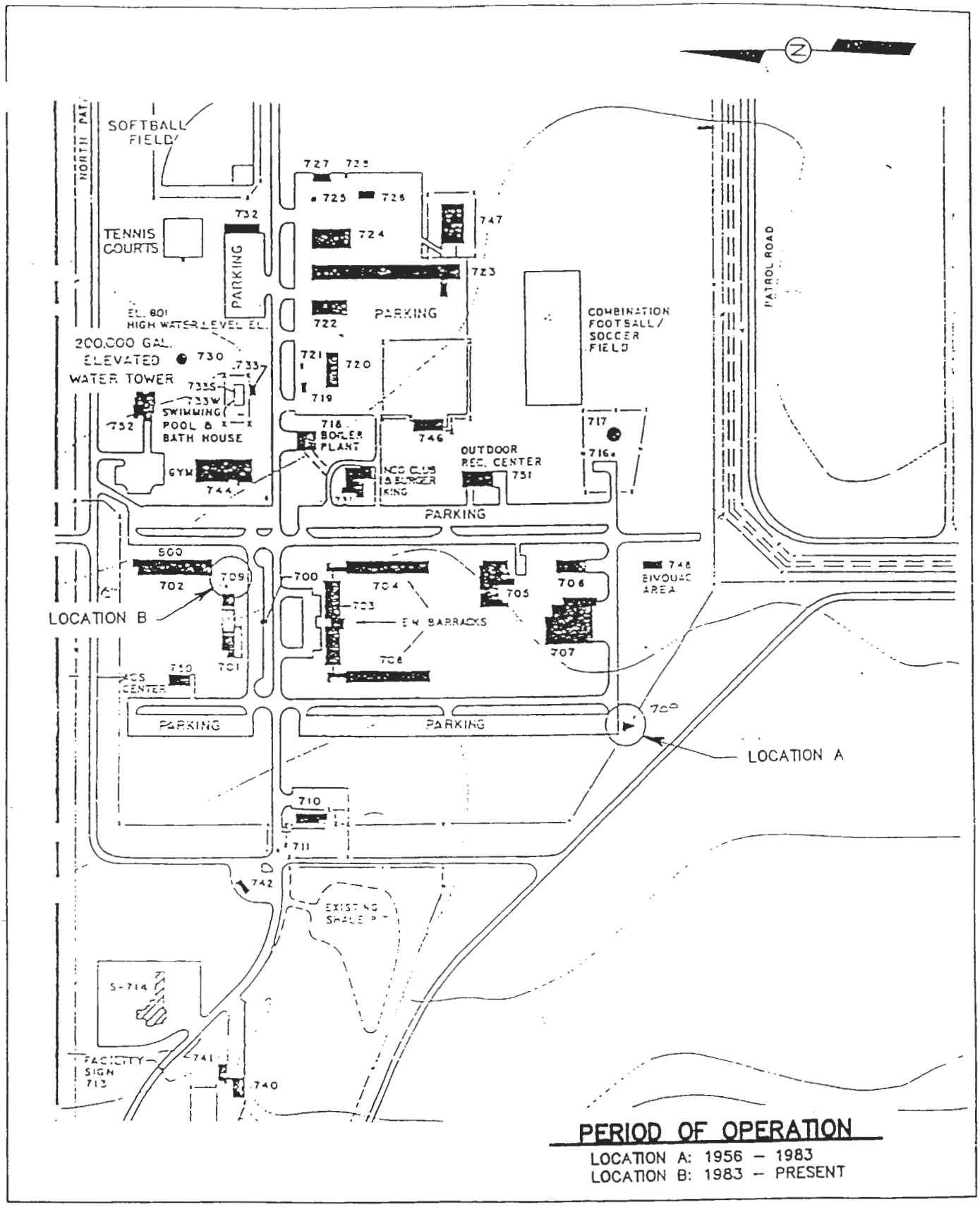
2.5 SEAD-18: BUILDING 709 – CLASSIFIED DOCUMENT INCINERATOR

2.5.1 Site Description

The Classified Document Incinerator is located in Building 709. The current Building 709 is located in the north-central portion of SEDA, where the proposed future land use for the site is designated as institutional. SEAD-18 has actually been located at two separate places within the north-central portion of SEDA during its time of existence. Between 1956 and 1983, the original Building 709 was located southwest of Building 707 at the edge of the parking lot near the North Patrol Road. In 1983, the original Building 709 was torn down, and a new building, also designated as Building 709, was constructed in an area between Building 701 and 702. The location of the existing SEAD-18 is shown on **Figure 2-1,** and on **Figure 2-4** as location "B," while the former location of Building 709 is shown as location "A" on **Figure 2-4**.

2.5.2 Historic Operations

The existing incinerator is the single chamber, propane-fired Washburn and Granger model S-200. As designed and built, this incinerator does not include any air pollution control devices. The incinerator has a rated capacity of 96 pounds per hour (lb/hr) with normal charging rates of 30-40 pounds per day (lbs./day) of classified paper documents. During its use, personnel of SEDA indicate that it was used to burn predominantly paper wastes with some plastic and possibly glass wastes intermixed. The incinerator is currently not in use, so it is no longer permitted to operate.



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LOCATION OF CLASSIFIED DOCUMENT INCINERATOR

FIGURE 2.4

When the incinerator was in use, generated ash was collected and buried in local landfills. Originally, some of the ash may have been disposed at the onsite Ash Landfill (SEAD-06), but most recently it was sent off-site to a local municipal landfill. According to SEDA personnel, the ash recovered from the incinerator was tested for EP Toxicity prior to disposal, and the analytical results indicated that none of the measured levels failed criteria in effect at the time. Copies of the analytical data were not available from the army at the time of this document.

2.5.3 Regulatory Status

The incinerator is no longer in use; thus, its permit to operate has been allowed to expire.

2.5.4 Recommended Action

The Army recommends that this SWMU be designated as a "No Further Action" site under CERCLA.

2.5.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and data:

1 The unit is no longer used for the incineration of classified documents or other materials.
2 The primary migration pathway for releases from this unit was into the air, and this pathway no longer exists due to the shutdown of the process.
3 There is no continuing or historic exposure potential due to collection and controlled disposal of ash produced from the incineration process.
4 According to SEDA personnel, generated ash was analyzed for EP Toxicity metals prior to disposal and no violations of the existing criteria in effect at the time of disposal were observed.

2.6 SEAD-19: BUILDING 801 – FORMER CLASSIFIED DOCUMENT INCINERATOR

2.6.1 Site Description

Between 1956 and 1983, SEDA operated a Classified Document Incinerator in Building 801, which is located in the north-central portion of the depot. The land in this portion of the Depot is designated as conservation/recreational land for future use. The location of the SEAD-19 is shown on **Figure 2-1.**

2.6.2 Historic Operations

The incinerator located at Building 801 was used to incinerate classified documents. The incinerator is a single chamber, propane-fired Washburn and Granger model S-200. As built, the incinerator does not include any air pollution control devices. It has a rated capacity of 96 lb/hr of refuse, but during its use it had a normal charging level of 30-40 pounds per day (lbs/day) of classified paper documents. Personnel of SEDA indicate that it has been used to burn predominantly paper wastes (95%) with some microfilm intermixed.

The incinerator currently is not in use. When the incinerator was in use, generated ash was collected and buried in local landfills. Originally, some of the ash may have been disposed at the onsite Ash Landfill (SEAD-06), but most recently it was sent off-site to a local municipal landfill. According to SEDA personnel, the ash recovered from the incinerator was tested for EP Toxicity prior to disposal, and the analytical results indicated that none of the measured levels failed criteria in effect at the time. Copies of the analytical data are not available.

2.6.3 Regulatory Status

Although the incinerator is not currently in use, it is covered by Certificate to Permit Regulated Activities C453089-00460801BNR. Building 801 is located within the part of the site that is currently being investigated under the SEAD-12 program.

2.6.4 Recommended Action

The Army recommends that this SWMU be designated as a "No Further Action" site under CERCLA.

2.6.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and data:

1 While the incinerator still exists, it is no longer used for disposal of classified documents.
2 The primary former migration pathway for releases from this unit was into the air, and this pathway no longer is viable since the unit is inactive.
3 There is no continuing or historic exposure potential due to collection and controlled disposal of ash produced from the incineration process.
4 According to SEDA personnel, the ash was analyzed for EP Toxicity metals and no violations of the established criteria were observed.

2.7 SEAD-20: SEWAGE TREATMENT PLANT (STP) NO. 4.

2.7.1 Site Description

Sewage Treatment Plant No. 4 is located on the south side of west Romulus Road in the east central portion of SEDA. Land surrounding this facility is slated for planned industrial development (PID) subsequent to base closure. The location of SEAD-20 is shown on **Figure 2-1**.

2.7.2 Historic Operations

The wastewater treatment plant was designed for a maximum flow capacity of 250,000 gallons per day. Flow received includes domestic wastewater with a very small component of industrial discharges that consist primarily of boiler plant blowdown. The majority of wastewater treated is discharged from the administration area, the warehouse area, the Military Elliot Acres Housing Complex, and the adjacent civilian communities of Romulus and Varick, New York.

Sewage Treatment Plant No. 4 was put online in 1942. Current unit operations include a bar screen, a wet well, a dual-chambered Imhoff tank, a covered trickling filter with plastic media, a secondary clarifier, and two sludge drying beds (each measuring approximately 35 feet by 35 feet). The wetlands on the depot are used as a substitute for in-situ tertiary treatment. Sludge generated in the wastewater treatment plant is periodically removed from the drying beds and is stored in the sewage sludge waste piles at SEAD-05.

2.7.3 Regulatory Status

Sewage Treatment Plant No. 4 is currently operating under two permit authorizations; its State Pollutant Discharge Elimination System (SPDES) number is NY0021296 and its NYSDEC identification number is 8-4530-00006/00035 which expires on May 1, 2004. Based on information collected in 1994, there was no evidence of SPDES violations in the prior three years of its operation.

2.7.4 Recommended Action

The Army recommends that this SWMU be designated as a "No Further Action" site under CERCLA.

2.7.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 The plant has historically, and continues, to operate under State and SPDES wastewater permit authorizations.
2 No evidence of any release was found based on historic information.
3 Domestic wastewater, and not hazardous waste, is treated at the plant.
4 Generated sludge is moved to another location (SEAD-05) for storage and disposal once it is removed from the sludge drying beds.

2.8 SEAD-21: SEWAGE TREATMENT PLANT NO. 715

2.8.1 Site Description

Sewage Treatment Plant No. 715 is located in the north-central portion of SEDA, west of the north gate where the perimeter fence and the north patrol road split. The treatment plant is within the area designated for institutional use after the depot's closure. The location of SEAD-21 is shown on **Figure 2-1**.

2.8.2 Historic Operations

Sewage Treatment Plant No. 715 had a permitted capacity of 300,000 gallons of wastewater per day. The design capacity of the facility was 750,000 gallons per day. The treatment plant began operations in 1956. The plant is currently off line and has been shut-down since January 1 1996 when the troop barracks located in the northern portion of SEDA were closed. During the period of its operation, the wastewater treatment plant only received domestic-type wastewater.

The plant's equipment inventory consists of a grinder pump and comminutor, a primary settling chamber, two rotating biological contractors (RBCs), a secondary clarifier, sand filters, a sludge holding tank, a sludge digestion tank (old Imhoff tank), and two concrete-lined sludge drying beds with gravel and sand floors (approximately 40 feet by 15 feet each). Sludge produced by the treatment of wastewater was periodically removed and placed in the sewage sludge waste piles (SEAD-05).

The treated effluent from this unit was discharged into Reeder Creek. A review of historic operational records maintained for this facility indicated that violations of the facilities SPDES permit were recorded in 1986 when excessive levels of biological oxygen demand and total suspended solids were recorded in the plants effluent. No other SPDES violations were recorded for the facility prior to its closure in 1996.

2.8.3 Regulatory Status

Sewage Treatment Plant No. 715 was designed to receive domestic wastewater from the troop area at the north end of the depot only. The operation of this facility was regulated under NYSDEC authorization number 8-4530-00006/0003 that will expire on May 1, 2004 and under SPDES Permit No. NY0021296.

2.8.4 Recommended Action

The Army proposes this site as a "No Further Action" site under CERCLA

2.8.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 The wastewater treatment plant is no longer operational, and has been closed since January 1, 1996.
2 Operations of the wastewater treatment plant were monitored under State Pollutant Discharge Elimination System regulations and guidelines.
3 Few violations of the facility's operating permit were recorded during its 40 years of operations. These violations were reported to the regulating authority in accordance with permit requirements.
4 Only domestic type wastewater was treated in the treatment facility.
5 Sludge was removed from the drying beds and placed in SEAD-05.

2.9 SEAD-22: SEWAGE TREATMENT PLANT NO. 314

2.9.1 Site Description

Sewage Treatment Plant No. 314 was located in the east central part of SEDA in land whose future land use has been designated as the site of planned industrial development. **Figure 2-1** shows the location of SEAD-22.

2.9.2 Historic Operations

The original wastewater treatment facility was originally constructed in 1941, at the time of the base's inception, and continued to operate until October of 1978. In 1978, the former treatment plant was converted to a lift station servicing Sewage Treatment Plant No. 4 (SEAD-20). The lift station now occupies the site of the former wastewater treatment plant.

The old wastewater treatment plant included a bar screen, an Imhoff tank, a 30-foot diameter trickling filter, a secondary clarifier, a chlorination chamber, and a sludge drying bed. The rated flow capacity of the treatment plant was 100,000 gallons per day of wastewater. All of the wastewater that was treated at the old wastewater treatment plant originated from domestic-type sources; no industrial wastewater was ever treated in the facility. Once treated, the effluent was discharged to Kendaia Creek. Based on historic information, there is no evidence that a release of solid or hazardous waste ever occurred from the facility.

The site is presently occupied by a lift station that pumps wastewater to STP No. 4. All components of the original wastewater treatment operation have been removed or filled and covered with shale and soil. The area is grassy, but several pieces of the former facility's foundation are still evident at the site.

2.9.3 Regulatory Status

No SPDES Permit was required during the time of the treatment plant's operation.

2.9.4 Recommended Action

The Army proposes this SWMU as a "No Further Action" site under CERCLA.

2.9.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 The operation of the former wastewater treatment plant has been terminated, and all parts of the original operation have been removed or filled and covered with shale and soil.
2 No evidence or information of any historic release exists for the former facility.
3 The former plant only treated domestic wastewater from the warehouse area.

2.10 SEAD-29: BUILDING 732 – UNDERGROUND WASTE OIL TANK.

2.10.1 Site Description

SEAD-29 is a former 550-gallon, underground waste-oil storage tank that was used to store waste oil generated from the automotive maintenance shop. The tank was located on the southeast side of Building 732 that is within the northern portion of SEDA. This land is designated for future institutional use subsequent to base closure. The location of SEAD-29 is shown on **Figure 2-1**.

2.10.2 Historic Operations

The tank was originally installed in 1981 and was constructed of fiberglass with galvanized steel piping. The waste oil stored in the tank was used as a fuel supplement in the boiler located in Building 718 (SEAD-32 and SEAD-61). Previously, it was also used as a fuel supplement for the boilers located in Buildings 319 (SEAD-37) and 121 (SEAD-36). The tank was pressure tested on September 23, 1992 and received a rating of + 0.012 gallons per hour and was deemed to be tight. The tank was decommissioned on

July 13, 1993, when the contents of the tank were pumped-out, leaving no more than 1 inch of used oil in the bottom. The tank was removed from the ground by a private contractor and all discolored soil surrounding the location of the former tank was removed and disposed of in accordance with applicable regulations.

Evidence of possible releases from tank filling operations was observed during a site inspection conducted in 1990. However, at the time of the inspection the extent of the observed releases was assessed to be surficial. Since the time of the visual site inspection, SEDA personnel have reported that the surficial soils have been removed and disposed of appropriately.

2.10.3 Regulatory Status

New York State's tank designation for this unit was 8-416418-059 prior to its removal. The tank is no longer in place in the ground

2.10.4 Recommended Action

The Army proposes SEAD-29 as a "No Further Action" site under CERCLA.

2.10.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA for the following reasons:

1 The tank was removed by the army's internal tank removal team, at which time all discolored soil observed was excavated and removed.
2 Surficial soil observed to be stained during the site inspection of 1990 was excavated and removed in accordance with applicable regulations.

2.11 SEAD-30: BUILDING 118 – UNDERGROUND WASTE OIL TANK (REMOVED).

2.11.1 Site Description

SEAD-30 is a former underground waste oil storage tank that was located on the southern side of Building 118 at the intersection of South street and Second Avenue in the central eastern portion of SEDA. This location is in the part of the depot where the future use is planned industrial development. The location of SEAD-30 is shown on **Figure 2-1**.

2.11.2 Historic Operations

The tank was originally installed in 1941 and it was used to store used automotive oil generated from depot vehicle maintenance activities. The waste oil held in this tank was used as a fuel supplement in the boilers located in Buildings 718 (SEAD-32 and SEAD-61), 319 (SEAD-37) and 121 (SEAD-37). The 550-gallon tank was fabricated of steel and it was buried approximately sixteen inches below the surface in native, overburden materials that were grass covered. Galvanized piping was used for the transfer of fluids to and from the tank. The tank was removed from the ground in 1992. Based on available information, there was no evidence of any release around the tank at the time of its removal.

2.11.3 Regulatory Status

This tank was identified as EPA Tank #118; its State of New York identification number was 208.

2.11.4 Recommended Action

The Army proposes SEAD-30 as a "No Further Action" site under CERCLA.

2.11. 5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information:

1 The tank was removed from the ground in 1992.
2 At the time of its removal, there was no evidence of any release to the ground surrounding the tank. The tank removal was overseen by a NYSDEC representative who did not require any confirmation soil sampling when the excavation was open.

2.12 SEAD-31: BUILDING 117 – UNDERGROUND WASTE OIL TANK.

2.12.1 Site Description

SEAD-31 is an underground waste oil storage tank that is located on the southwest side of Building 117 between Second and Third Avenue. This site is located in the east central portion of SEDA, in an area slated for planned industrial development subsequent to base closure. The location of SEDA-31 is displayed on **Figure 2-1**.

The underground tank is of fiberglass construction and is equipped with galvanized steel piping. The tank has a capacity of 2,005 gallons and is buried approximately four feet underground in native soil. The

ground surface above the tank is grass covered, and the tank site is surrounded by Building 117 on one side, grass on one side, and asphalt pavement on two sides.

2.12.2 Historic Operations

Waste oil is stored in the tank for latter use as a fuel supplement in the boiler located at Building 718 (SEAD-35). Previously, it was also used as a fuel supplement in the boilers located in Buildings 319 (SEAD-37) and 121 (SEAD-36). The 2,005 gallon waste oil tank is still active and was last tightness tested in 1996. According to SEDA personnel, the tank passed the 1996 test. The next test is scheduled for completion in 2001.

2.12.3 Regulatory Status

The tank is still operational, although it is not in active use. The NYSDEC identification number for the tank is NYS 8-416418-025, while the and US EPA number is 117.

2.12.4 Recommended Action

The Army proposes SEAD-31 as a "No Further Action" site under CERCLA.

2.12.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information:

1 No evidence of a release of waste oil to the soil or the groundwater has been reported and the tank has passed all previous tightness tests.
2 Operation of the tank continues to be monitored and overseen under State of New York Spill Prevention regulation.

2.13 SEAD-32 BUILDING 718 – UNDERGROUND WASTE OIL TANKS

2.13.1 Site Description

SEAD-32 is comprised of two underground waste oil storage tanks (Tanks A and B). No regulatory permit numbers are available for these units. Tank A has a maximum storage capacity of 40,000 gallons, while Tank B has a maximum storage capacity of 20,000 gallons. These tanks are currently used for the storage of virgin Number 6 fuel oil. The location of SEAD-32 is shown on **Figure 2-1.**

2.13.2 Historic Operations

Between 1956 and the present day, the underground tanks of SEAD-32 have primarily been used for the storage fuel oil (usually Number 6 fuel oil), which was sometimes blended with waste oil. Prior to 1981, SEDA disposed of waste oil through various practices (such as burning in open fires during fire training practices). With the initiation of RCRA, this practice changed and SEDA tried, whenever possible, to reclaim waste oil for its energy value as a fuel supplement. After 1981, SEDA routinely blended small quantities of the waste oil (200 to 400 gallon batches) into the underground storage tanks whenever a bulk (i.e., 7,000 gallon) delivery of No. 6 virgin fuel was scheduled. The combined fuel/waste oil mixture was then pumped off and used as fuel for space heat or hot water. In 1989, the practice of blending waste and virgin oil in SEAD-32 tanks was discontinued when a new 10,000 gallon dual walled fiberglass waste-oil tank with an interstitial space monitoring system was constructed at Building 718 (SEAD-61).

2.13.3 Summary of Available Data

A limited site investigation was performed in the area of SEAD-32 in 1994 to investigate the possibility of a possible release of oil to the soil or ground water. Two soil borings and two ground water wells were installed and sampled as part of this investigation

The results of the soil sampling indicated that only low levels of Total Petroleum Hydrocarbons (90 and 81 parts per million), and one hit of Methylene Chloride (at location SB32-2, and at a level of 1 ug/Kg which is well below NYSDEC's TAGM level of 100 ug/Kg) were found in soil. No other volatile organic compound was detected in either of the samples analyzed. The single detection of Methylene Chloride is believed to be a laboratory artifact due to it's extremely low concentration.

The results of the ground water investigation indicated that no Volatile Organic Compounds (VOCs) were detected in ground water, while only one well contained TPH (MW32-1 at 0.69 ppm) TPH . See **Appendix B** for data tables from this sampling event.

2.13.4 Regulatory Status

The government agency that regulates this unit is NYSDEC's Region 8 Water Division with input from the Federal Projects Section, Division of Hazardous Waste Remediation, Control Office.

2.13.5 Recommended Action

The Army proposes that SEAD-32 be classified as a "No Further Action" site under CERCLA.

2.13.6 Justification and Rationale for Recommendation

This SWMU is designated as a " No Further Action" site under CERCLA based on the following information:

1. The tank is still actively used, but only used for the storage of virgin Number 6 fuel oil that is used for heating.
2. Only low levels of TPH (i.e., less than 100 ppm) and very low levels of Methylene Chloride (i.e., 1 ppb) were detected in soil samples during the 1994 sampling event. The detected level of Methylene Chloride is well below the NYSDEC TAGM level (i.e., 100 ppb) and there is no published TAGM for TPH.
3. Only one low level of TPH (0.69 ppm) was detected in the ground water collected during the site investigation. There is no TAGM for TPH in ground water.

2.14 SEAD-35: BUILDING 718 - WASTE OIL-BURNING BOILERS.

2.14.1 Site Description

Building 718 is located in the north central portion of SEDA in an area where the future land use is designated as institutional. Building 718 contains three boilers, all of which are designed to burn oil or waste-oil. All three of the boilers are rated at 10 MBtu/hr capacity, and the stated combustion rate for each of the units is 15.5 gallons per hour.

2.14.2 Historic Operations

Waste oil was burned in the three boilers between the dates of 1982 to 1989. These units were originally used to burn waste oil for heat that was used for space heating and for the production of hot water. There is no information available to indicate that waste-oil was released from any of the boilers during the period of their use. The boilers remain functional today, but they are not used to burn waste oil due to difficulties associated with properly balancing fuel blends and combustion conditions. These burners have not been used since 1996 when the building they are located in was shut-down.

2.14.3 Regulatory Status

All units listed here were regulated under NYDSDEC Division of Air Resources Emission Point Source Permit Identification Number 453089-0046-07183.

2.14.4 Recommended Action

The Army proposes the three burners as a "No Further Action" site under CERCLA

2.14.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 There is no evidence that a release of solid waste occurred from any of the boilers during the period of their operation.
2 The units have not been used to burn waste oil since 1989.
3 Air discharges from these units are regulated by the Division of Air Resources and are subject to review by that authority.

2.15 SEAD-36: BUILDING 121 - WASTE OIL-BURNING BOILERS

2.15.1 Site Description

Building 121 is located in the east central portion of SEDA in an area of the site where the future land use is designated as planned industrial development. Building 121 contains three boilers, two that are capable of burning waste-oil while the third was originally designed to burn coal. All three of the boilers are rated at 6.6 MBtu/hr capacity, and the stated combustion rate of oil for the two waste-oil fired units is 10.6 gallons per hour. No fuel consumption rate capacity is available for the coal-fired unit.

2.15.2 Historic Operation

Waste oil was burned in the two waste oil-burning boilers between the dates of 1982 to 1989. Waste oil was never fired in the coal-fired unit. The boilers were originally used to produce heat that was used for space heating and the production of hot water. There is no information available to indicate that waste oil was released by any of the burners during the periods of their use. The boilers remain functional today, but they are not used to burn waste oil due to difficulties associated with properly balancing the fuel blend and combustion conditions. Number 6 oil is the only fuel burned in these boilers today.

2.15.3 Regulatory Status

All of these units are regulated under NYDSDEC Division of Air Resources Emission Point Source Permit Identification Number 453089-0046-00121.

2.15.4 Recommended Action

The Army proposes this SWMU as a "No Further Action" site under CERCLA

2.15.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA for the following reasons:

1 There is no evidence that a release of solid waste occurred from any boiler during the period of their operation.
2 The units have not been used to burn waste oil since 1989.
3 Air discharges from these units are regulated by the Division of Air Resources and are subject to review by that authority.

2.16 SEAD-37: BUILDING 319 - WASTE OIL-BURNING BOILERS.

2.16.1 Site Description

Building 319 which contains two waste oil burning boilers is located in the east central portion of SEDA in a part of the site where the future land use is designated as planned industrial development. The location of SEAD-37 is shown on **Figure 2-1**.

2.16.2 Historic Operations

Boilers A and B have rated capacities of 12.0 and 16.1 MBtu/hr, respectively. Each boiler has a combustion rate of 32.9 gallons per hour. Both of these units were used between 1982 and 1989 for the combustion of waste-oil and the recovery of heat for space heating and hot water production. There is no information available to indicate that waste-oil was released by either of the burners during the periods of their use. The boilers remain functional today, but they are not used to burn waste oil due to difficulties associated with properly balancing fuel blend and combustion conditions. These units currently only fire Number 6 fuel oil.

2.16.3 Regulatory Status

The identified SWMU includes two permitted waste oil-burning boilers. The NYSDEC Division of Air Resources Identification Number for these units is 453089-0046-00319.

2.16.4 Recommended Action

The Army proposes this SWMU as a "No Further Action" site under CERCLA.

2.16.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA for the following reasons:

1 There is no evidence that a release of solid or hazardous waste occurred from either boiler during the period of their operation.
2 The boilers have been not been used to burn waste-oil since 1989.
3 Air discharges from these units are regulated by the Division of Air Resources and are subject to review by that authority.

2.17 SEAD-42: BUILDING 106 – PREVENTATIVE MEDICINE LABORATORY

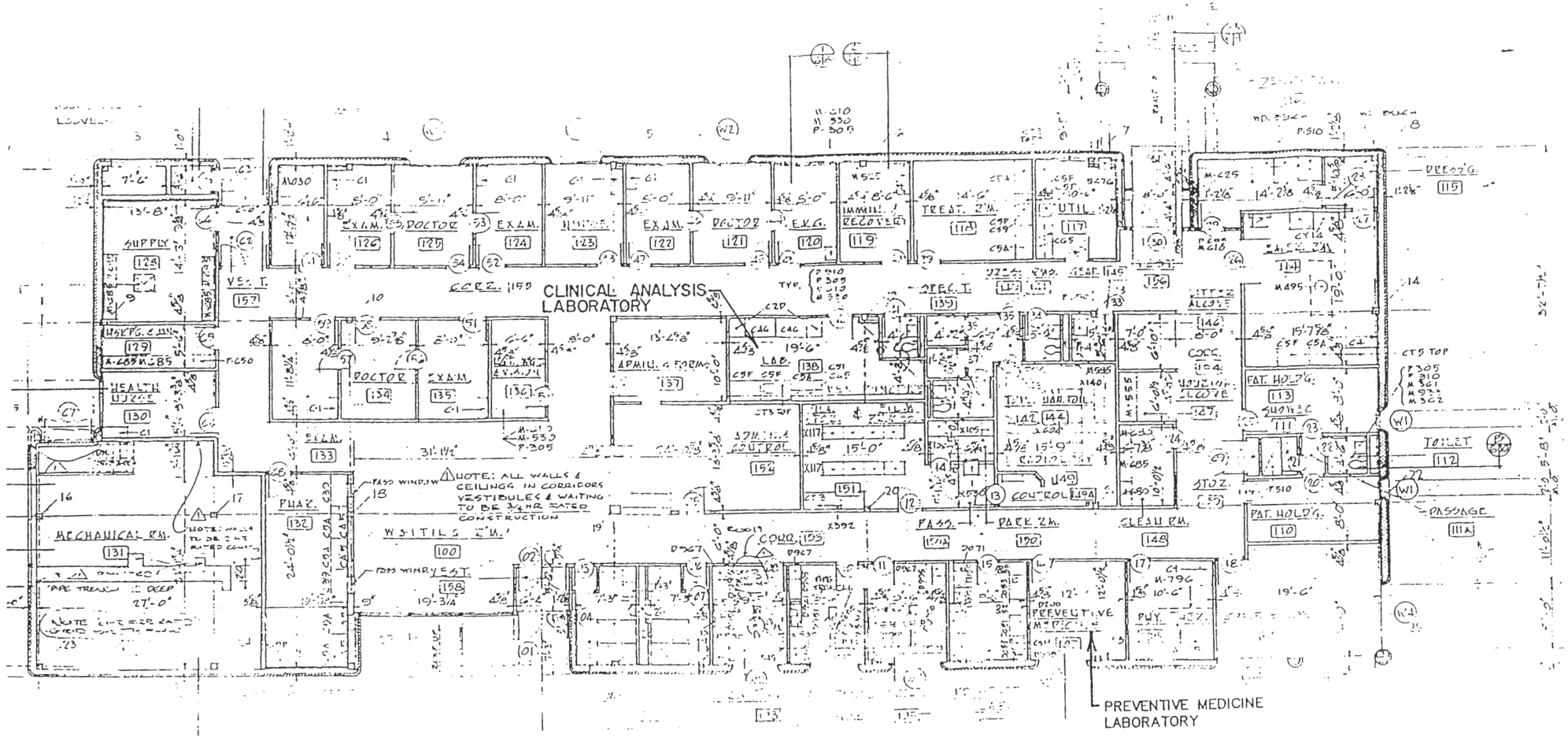
2.17.1 Site Description

According to information provided in a USATHAMA published site inspection report (USATHAMA, 1980), Building 106 once housed a Preventative Medicine Laboratory. Building 106 is a brick building that measures 167 feet long by 63 feet wide and was constructed in approximately 1975. This building is located in the east, central portion of SEDA, in the area designated for planned industrial development. The location of Building 106 is displayed on **Figure 2-1**.

2.17.2 Historic Operations

Reportedly, the Preventive Medicine Laboratory was located in the northeast section of Building 106 and is believed to have measured 12 feet by 28 feet in size. A plan of Building 106 is shown in **Figure 2-5**. Based on information provided in the 1980 USATHAMA report, clinical laboratory work and potable water analyses were performed in the laboratory.

However, a site inspection and interview performed on November 28, 1990 was unable to confirm the accuracy of the prior information. At this time, Building 106 personnel were asked questions pertaining to the location of the Preventive Medicine Laboratory. Personnel stated that they were unaware of this laboratory. They further stated that the laboratory used for clinical analyses was not the area shown as the Preventive Medicine Laboratory on the construction drawings, but was the area located southwest of the Preventive Medicine Laboratory (see **Figure 2-5).** They also stated that potable water analyses were not conducted in the building and samples were shipped to Fort Drum for analysis.



FIRST FLOOR PLAN

NOTE

DRAWING ADAPTED FROM BUILDING 106 FLOOR PLAN
SHEET 6 OF 25, FILE NO. 7527-1706,
BY DEPARTMENT OF THE ARMY, NEW YORK DISTRICT,
CORPS OF ENGINEERS, NEW YORK, NEW YORK.
DATED JANUARY 16, 1975.

PLAN VIEW OF BUILDING 106
MEDICAL - DENTAL CLINIC

SCALE NONE

PREPARED FOR. U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE DIVISION

ERCE
3325 PERIMETER HILL DRIVE • NASHVILLE, TENNESSEE 37211

PROJ D063-001 | DATE SEPTEMBER 1999 | FIGURE 2.5

2.17. 3 Regulatory Status

Infectious wastes are generated in Building 106, a by-product of the clinical laboratory work. These materials are regulated by the County Health Department (Geneva District Office – NY Regulations Title 6 Section 364.9) and by US Army Rules and Regulations. Review of available information indicates that there is no evidence of any waste release from the operations conducted in Building 106.

2.17.4 Recommended Action

The Army proposes that SEAD-42 be classified as a "No Further Action" site under CERCLA.

2.17.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information:

1 There is no evidence or data to indicate that a release of solid waste has ever occurred at any location in the building.
2 The exact nature and location of operations conducted in the facility remain uncertain based on a review of available information.

2.18 SEAD-47: BUILDINGS 321 AND 806 – RADIATION CALIBRATION SOURCE STORAGE

2.18.1 Site Description

Building 321 is located in the east central portion of SEDA, in land that is designated for future use as a site of planned industrial development. Building 806 is located in the north, central portion of the base, in land whose future land use is designated as conservation/recreational land. **Figure 2-1** shows the location of the two buildings comprising this SWMU.

2.18.2 Historic Operations

Both of these buildings were sites where radiation calibration sources were stored. Stored calibration sources include cobalt-60, uranium-235, radium-226, strontium-yttrium-90, and plutonium-239 isotopes.

Building 321 measures approximately 200 feet by 60 feet. The building's floor is of concrete construction and the walls are of concrete block construction. The building has two docks measuring approximately 200 feet long by 6 feet wide, each. The docks are located on the east and west sides of the building.

Building 806 is a concrete block structure that measures approximately 100 feet by 40 feet in size. This building has a concrete floor. This building is located in the "Q" and is encompassed in the area that is currently under investigation as part of the ongoing SEAD-12 RI/FS activity.

Calibration sources are no longer present in either of the buildings. Sources were removed from Building 806 in the 1991 to 1993 time frame, while sources were removed from Building 321 in the 1997 to 1998 time period.

2.18.3 Summary of Available Data

An area including the footprint of Building 806 is currently being investigated by the Army under the SEAD 12 and SEAD-63 Project Scoping Plan (Parsons, June 1998). As part of this work, detailed investigations of SEAD-12 (Building-804 and associated Radiological Burial Site) including geophysical investigations (1996); radiological scans and surface water and sediment sampling (1997); surface and subsurface soil sampling and duct and drain investigations (1998); and building wipes and shallow soil sampling (1999) were completed. Wipe samples of the floor drains and vents in Building 806 were made and results of these samples indicate that no radiological measurements above typical limit of detection values were obtained. Tabulated results from the wipe samples and of the radiological scanning are provided in **Table 2-2**.

2.18.4 Regulatory Status

There were no applicable regulatory permits for either of these facilities.

2.18.5 Recommended Action

The Army proposes that these two buildings be designated as "No Further Action" sites under CERCLA.

2.18.6 Justification and Rationale for Recommendation

These buildings are designated as "No Further Action" sites under CERCLA based on the following information:

1 Both buildings were only used to store calibration standards containing radioactive material.
2 Storage activities previously conducted in both buildings were terminated during the 1990s.
3 Building 806 is located in the "Q" and is currently subject to further investigation under the ongoing, expanded RI/FS for SEAD-12.
4 Available radiological screening data indicate that there is no evidence of radioactive materials release or residual contamination within Building 806.

Table 2-2

Radiological Data for Building 806

Identification		DPM		
		Alpha	Beta	Gamma
806V1A	124145	0.0	3.4	0.0
806V2	124146	0.0	0.0	0.0
806V3	124147	0.0	0.0	0.0
806V4	124148	0.0	2.8	0.0
806V5	124149	0.0	0.0	0.0
806V6	124150	0.0	0.0	0.0
806V7	124151	0.0	0.0	0.0
806V8	124152	1.0	4.3	0.0
806V9	124153	0.0	0.0	0.0
806V10	124154	0.0	4.3	0.0
806V11	124155	0.0	2.8	0.0
806V12	124156	0.0	5.2	0.0
806V1B	124157	0.0	2.8	0.0
806D1	124158	0.0	0.0	0.0
806V13	124159	0.0	2.8	0.0
806V14	124160	0.0	0.0	0.0
806V15	124161	0.0	6.6	0.0
806V16	124162	0.0	0.0	0.0
806V19	124163	0.0	2.8	0.0

2.19 SEAD-49: BUILDING 356 – COLUMBITE ORE STORAGE AREA.

2.19.1 Site Description

SEAD-49 is located in the southeastern portion of SEDA in a parcel of land whose future use is designated as warehousing space. Building 356 is a concrete block warehouse with concrete floors. The warehouse measures 200 feet wide by 1000 feet long and is divided into 5 separate cells. Each cell is separated from the next by a concrete masonry firewall.

2.19.2 Historic Operations

Columbite ore, a mixture of the oxides of iron, manganese, niobium, and tantalum, was stored in Buildings 324, 357, and 356 at SEDA. Although neither niobium nor tantalum has any naturally occurring radioactive isotopes, radium-226 and thorium-232 may be present in the mixture as impurities.

Available information indicates that the Columbite ore were stored in Building 324 from 1954 to 1973, Building 357 from 1954 to 1984 or 1985, and Building 356 from 1984 to 1993. The ore was originally kept in burlap bags, but later it was stored in 55-gallon drums. The ore originally stored in Building 324 was moved to Building 357 in 1973 and Building 324 was swept clean. The Columbite ore was removed from Building 357 in 1984 or 1985, and again the building was swept clean. In May 1993, all of the Columbite Ore (5,284 drums) was transferred from Building 356 to a DLA facility in Binghamton, New York. Subsequent to this time, Building 356 was cleaned.

No evidence or record of a release of Columbite ore was observed or was found. Personnel of NYSDEC and NYSDOH performed a radiological survey of SEAD-49 (including Buildings 324, 356, and 357) in June of 1993, approximately two weeks after the Columbite ore had been removed. The results of these surveys are presented in **Appendix C**. Based on these results, NYSDEC personnel recommended a "No Action" classification for SEAD-49.

Subsequent to the removal of the Columbite ore, and NYSDEC's recommendation of "No Action", SEDA reported three separate releases of Diethylenetriamine in Building 356. These all occurred in June of 1995. One of the three events involved a volume of three gallons (Spill No. 9503157), while the other two involved a total of two quarts. Each of the spill ocurred inside 40-foot steel containers that were being off-loaded into Building 356. These spills were cleaned-up and the reported case is closed.

2.19.3 Regulatory Status

The units were designed in accordance with specifications of the Atomic Energy Act; handling and use of radioactive materials are regulated under Title 10 Code of Federal Regulations. SEDA's Nuclear Regulatory Commission regulatory permit ID number is license #SUC-1275.

2.19.4 Recommended Action

The Army proposes this SWMU as a "No Further Action" under CERCLA.

2.19.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 The Columbite ore was stored, and not treated nor disposed, in Building 356 or either of the other buildings.
2 The Columbite ore was removed from Building 356 in May of 1993 and sent to another off-site facility for deposition.
3 No evidence or data of a release of radioactive materials were found in the review of available information and data at the facility.
4 NYSDEC personnel recommended a "No Action" status for the SWMU based on the results of a field screening survey.

2.20 SEAD-51: HERBICIDE USAGE AREA – PERIMETER OF HIGH SECURITY AREA

2.20.1 Site Description

Herbicides were applied to a 50-foot wide strip of land that surrounds the entire Exclusion Area (the "Q") that is located at the northern end of SEDA. The zone that was treated with herbicide is in the immediate vicinity of three security fences that encompass the Exclusion Area. This area encompasses land whose future land use is designated as conservation/recreational. The location of SEAD-51 is shown of **Figure 2-1**.

2.20.2 Historic Operations

The herbicide treatment was used to maintain clear line-of-sight in the area of the security fence, and to eliminate vegetation that may overgrow and breach the security of the fences. SEDA no longer applies herbicide to this area and this practice was discontinued in roughly 1996. Since terminating the herbicide

application, weeds and vegetation have begun to recover the area surrounding the security fences. Herbicides previously used in the vicinity of the security fence included Borocil (a soil sterilant), 2,4-D and 2,4,5-T.

The application of herbicides was a planned operation and it was completed by personnel who were licensed to apply the material. Review of available information indicates that there is no evidence of unplanned applications or releases of herbicides in the area of the Exclusion Zone security fences.

2.20.3 Available Analytical Data

In 1983, a monitoring program was conducted to evaluate the distribution of herbicides in various components of the environment. No herbicides were found in the air at the time of sample collection. Of the sixteen soil samples collected, only three contained herbicides (2,4-D: 0.04 ppm, 0.078 ppm, and 0.055 ppm; 2,4,5-T: 0.008 ppm and 0.011 ppm). EPA's health-based criteria for 2,4-D and 2,4,5-T in soils are 800 ppm and 200 ppm, respectively (see **Appendix B** for health-based criteria). Thus, the concentrations measured in soils in 1983 are below the recommended criteria for soils. The analysis results for the 1983 survey are shown in **Table 2-3**.

2.20.4 Regulatory Status

A regulatory permit number for this area is not applicable.

2.20.5 Recommended Action

The Army proposes that SEAD-051 be classified as a "No Further Action" site under CERCLA.

2.20.6 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and data:

1 The application of herbicides was a planned activity, using a commercially available material that had been developed and intended for the specific use.
2 The application of herbicides was done by personnel who are licensed by the state.
3 Prior test results indicate that herbicides detected were only found at levels below US EPA's health-based criteria for soils.

Table 2-3
ANALYSIS RESULTS OF SAMPLES COLLECTED IN THE HERBICIDE USAGE AREA

Sample Type and Location (1)	Pesticide Concentration	Sample Type and Location	Pesticide Concentration
Soil, SW corner Inner fence Surface	ND(2)	Soil, South Boundary Fresh excavation Surface	2,4-D 0.055 ppm 2,4,5-T 0.011 ppm
Soil, SW corner Inner fence 3" depth	ND(2)	Soil, NE corner Outer fence Surface	ND(2)
Soil, NW corner Inner fence Surface	ND(2)	Soil, NE corner Outer fence 6" depth	ND(2)
Soil, NW corner Inner fence 3" depth	ND(2)	Soil, NE corner Outer fence 12" depth	ND(2)
Soil, SE corner Inner fence Surface	2,4-D 0.04 ppm 2,4,5-T 0.008 ppm	Soil, NW corner Outer fence Surface	ND(2)
Soil, SE corner Inner fence 4" depth	ND(2)	Soil, NW corner Outer fence 3" depth	ND(2)
Soil, NE corner Inner fence Surface	ND(2)	Water, SW Corner Inner fence	ND(2)
Soil, NE corner Inner fence 4" depth	ND(2)	Air, NW Corner Inner fence	ND(2)
Soil, Middle east side Inner fence Surface	2,4-D 0.078 ppm	Air, SE Corner Inner fence	ND(2)
Soil, Middle east side Inner fence 4" depth	ND(2)		

(1) Samples were collected August 10-11, 1983. Two air samples, 16 soil samples, and one water sample were collected from the area between the fences of the high security area at SEAD.
(2) No pesticides detected at the lower limits of detectability.

2.21 SEAD-53: MUNITIONS STORAGE IGLOOS

2.21.1 Site Description

The Munitions Storage Igloos are located within the central portion of the SEDA and encompass a part of the base that runs roughly 4.5 miles north-to-south and 1 mile east-to-west. The planned land use for all of this area is designated as conservation/recreational land.

2.21.2 Historic Operation

Usable munitions and other supplies were stored in the igloos between the time of depot inception (1941) and the current day. All munitions stored in the igloo storage area are expected to be removed by the end of the year. Available information and data do not indicate that there is evidence of any past releases or discharges of material from the area of the igloos.

2.21.3 Regulatory Status

The storage igloos are not regulated under any permit number.

2.21.4 Recommended Action

The Army proposes SEAD-53 as a "No Further Action" site under CERCLA.

2.21.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 Usable materials and munitions, and not waste materials, were stored in the igloos between 1941 and the current date.
2 All munitions are scheduled to be removed by the end of this year.
3 There is no available information or data to indicate that any release of stored material to the environment ever occurred in the past.

2.22 SEAD-55: BUILDING 357 – TANNIN STORAGE.

2.22.1 Site Description

Building 357 is located in the southwestern portion of SEDA, in land whose future planned use is designated as warehousing subsequent to the closure of the base. The location of SEAD-55 is presented on **Figure 2-1**.

Building 357 is a concrete block warehouse built on a concrete foundation that measures 200 feet wide by 1000 feet long and consists of five (5) separate sections. The individual sections are divided by a concrete masonry firewall.

2.22.2 Historic Operation

SEDA used Tannin as a chemical treatment additive for its boiler plant water. Tannin was received as a dry solid in bags, and was stored as a raw material in Section 2 of Building 357 on pallets. Storage of Tannin in Building 357 began in approximately 1978, and continued through approximately 1994. Subsequent to the termination of storage of Tannin in this facility, the building was swept clean. Prior to 1978, Tannin was stored in another area at the Depot.

No evidence or records of a release of Tannin were observed or found. As Tannin was stored in bags grouped together in wooden frames, it is unlikely that a release could have occurred during storage. If a bag did break, and Tannin was released, the release would be contained by the concrete floor and could be cleaned up according to proper procedures.

2.22.3 Regulatory Status

This area is not regulated by any current permit number other than NYSDEC Division 8.

2.22.4 Recommended Action

The Army proposes that this SWMU be classified as a "No Further Action" site under CERCLA

2.22.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and observations:

1 The Tannin that was stored was a raw material and not a waste product.
2 Any spill or release occurring in the warehouse would be captured by the concrete floor and could be easily contained and cleaned.
3 No historic evidence of a release of Tannin has been found in records or information available at the base.

2.23 SEAD-60: OIL DISCHARGE AREA ADJACENT TO BUILDING 609

2.23.1 Site Description

This SWMU is located in the southeastern portion of SEDA in a portion of the site whose future land use is designated as institutional (i.e., Prison). The location of this spill is shown on **Figure 2-1**.

Evidence of the spill in this area was first observed in 1989. The noted area measured approximately 25 feet long by 10 feet wide and was adjacent to Boiler Building 609.

2.23.2 Historic Operations

SEDA personnel reported that the spill area was caused by a release from a pipe that was located inside of Building 609.

2.23.3 Summary of Available Analytical Data

An expanded site inspection of SEAD-60 was performed in 1994 (Parsons, April 1995). Under this effort, a total of nine soil samples were obtained from the area of the former spill. Additionally, three ground water, three surface water and three sediment samples were collected from the area surrounding the spill. Samples were analyzed for volatile, semi-volatile, polychlorinated biphenyls and pesticides, metals and total petroleum hydrocarbons. Resulting data for the soils indicated that there was evidence of semivolatile organic compounds including polynuclear aromatic hydrocarbons, polychlorinated biphenyls, total petroleum hydrocarbons and metals present in the soils, especially in the shallower soils that were collected. Ground water samples indicated the presence of two volatile organic compounds, one pesticide, total petroleum hydrocarbons and several metals; however, in many cases the highest hits that were found were seen in the sample collected from the upgradient well. Metals were the only species detected in the surface water samples. Sediment results contain many of the same compound, but at signigficantly lower levels than were seen in the soil samples. All of the data are presented in tabular form located in **Appendix E.**

Base on these results, a removal action of soil from the area of the oil discharge was performed. On March 3 and 4, 1999 approximately 150 cubic yards of soil from the spill area were excavated and stockpiled in the

vicinity of the APE 1236 deactivation furnace (SEAD-17). This soil will be used as the feed stock for a low temperature thermal desorption demonstration scheduled for the APE system.

2.23.4 Regulatory Status

NYSDEC visited SEAD-60 on June 7, 1999, and closed out the site. SEDA received documentation of the acceptability of the close-out of the facility by NYSDEC in a letter dated July 13, 1999.

2.23.5 Recommended Action

The Army proposes that this SWMU be designated as a "No Further Action" site under CERCLA.

2.23.6 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and data:

1 A soil excavation and removal action was completed in March of 1999, and the soil is pending treatment at the APE 1236 system. Once the soil is treated, it will be tested and if it is found to be of suitable quality, it will be returned to SWMU-60 for replacement.

2 NYSDEC personnel visited the site and closed it out (pending thermal processing of the soil) in June 1999.

3 Available analytical data indicates that the oil did not adversely affect the ground water, surface water or sediment downgradient of the site of the spill.

2.24 SEAD-61: BUILDING 718 – UNDERGROUND WASTE OIL STORAGE TANK

2.24.1 Site Description

SEAD-61 is an underground waste oil storage tank that is located near Building 781 in the north-central portion of SEDA. The tank is of double-wall fiberglass tank construction and has a maximum storage capacity of 10,000 gallons. As designed and constructed, the tank meets the specifications of 6 NYCRR Part 614. The tank was installed in 1989 and remains in the ground to this day; however, this tank was pumped empty in approximately 1996.

2.24.2 Historic Operations

This tank was used for the storage of waste oil prior to its burning in the adjacent boiler plant, located in Building 718.

2.24.3 Regulatory Status

This tank is subject to the requirements of NYS underground storage tank regulations as specified in 6 NYCCR Part 614. Its NYS Petroleum bulk storage number is 8-416418-038. The operations of this tank continue to be regulated by NYSDEC under 6NYSDEC Part 614.

2.24.4 Recommended Action

The Army proposes that this SWMU be designated as a "No Further Action" site under CERCLA.

2.24.5 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA based on the following information and data:

1 There is no evidence that a release of waste oil has occurred at this facility.
2 This tank is regulated under the NYS underground storage tank program which requires immediate notification, response and clean-up in the event of a release of its contents.
3 The tank no longer contains petroleum product.

2.25 SEAD-65: ACID STORAGE AREAS.

2.25.1 Site Description

SEAD-065 consists of three separate areas, each of which is located near the western border of SEDA. All of these areas are located in a portion of SEDA that is projected to become conservation/recreation land subsequent to SEDA's closure. The location of these three areas is shown on **Figure 2-1**.

SEAD-65A measured approximately 120 feet by 130 feet and is the most southerly located of the three areas. During a site inspection (November 27, 1990), portions of a concrete foundation were observed in this area. Otherwise, the area was covered with scrub brush and weed vegetation.

SEAD-65 B measured approximately 65 feet by 100 feet and is the centrally located of the three areas. Remnants of a concrete foundation were also found at this site during the site inspection, but again the areas were primarily observed to be covered with a weed and wild grass covering.

SEAD-65 C was approximately 50 feet by 100 feet in size and is the most northerly located of the three former areas. A flagpole and a concrete pad were found in this area on the day of inspection (November 27,

1990). However, like the other two portions of this SWMU, the area was found to be predominantly overlain by natural scrub brush and grass vegetation.

2.25.2 Historic Operations

Each of these areas reportedly was used for the storage of acids, although no information is available to conclusively determine whether acid storage was actually performed in these areas, and if storage was done, when each of the areas was used.

No evidence of any releases was observed in any of the three areas during the 1990 inspections. In a December 29, 1992 letter to SEDA, personnel of the US EPA recommended measuring the pH of surface soils in the three acid storage areas.

2.25.3 Available Analytical Data

A limited site inspection was performed in 1993 and surficial soil samples (0 to 6 inches) were collected from fifteen locations in the vicinity of the three acid storage areas. At each of the former site one sample was collected from the four corners of the area while the last sample was collected from the approximate center of each area. These samples were analyzed in the field for pH using SW-846 Method 9045B. The results of these tests are presented on **Table 2-4** and all samples tested were found to have a pH in the range of 6.59 to 8.09. These levels of pH are in the normal range for soils and do not constitute evidence of a release.

2.25.4 Regulatory Status

The areas comprising this SWMU are only subject to review under CERCLA.

2.25.5 Recommended Action

The Army proposes that these three areas be designated as "No Further Action" sites under CERCLA.

2.25.6 Justification and Rationale for Recommendation

These areas are designated as a "No Further Action" sites based on the following information and data:

1 There is no documented historic information or data to substantiate that acidic materials were ever stored in any part of the three areas.

2 There are no historic records to indicate that a release of acid materials occurred in the three areas.

TABLE 2-4
SOIL ANALYTICAL RESULTS

Sample No.	Sample Location	Control Temp °C	pH	Comments
65-A1	NW Corner-Location A	21.1	7.29	High Clay Content
65-A2	NE Corner-Location A	21.1	7.16	
65-A3	Center-Location A	21.2	7.74	
65-A4	SE Corner-Location A	21.1	7.81	High Clay Content
65-A5	SW Corner-Location A	21.1	7.27	
65-A2 (Dup)	Duplicate of 65-A2	20.9	7.24	
65-B1	W Corner-Location B	20.8	7.51	
65-B2	N Corner-Location B	20.8	7.82	
65-B3	Center-Location B	20.9	8.09	High Clay Content
65-B4	E Corner-Location B	20.7	7.79	
65-B5	S Corner-Location B	20.8	7.67	
65-C1	W Corner-Location C	20.8	7.58	
65-C2	N Corner-Location C	20.7	7.57	High Clay Content
65-C3	Center-Location C	20.6	7.92	High Clay Content
65-C4	E Corner-Location C	20.7	6.59	High Clay Content
65-C5	S Corner-Location C	20.7	6.94	

3 Available data from limited sampling do not indicate that residual acid materials are present in the soil in any of the three areas where the acid was reportedly held.

4 Each of the areas currently sits fallow, and each is covered by scrub brush and weeds. There were no obvious signs of stressed vegetation observed during the 1990 or recent site inspections.

2.26 SEAD-72: BUILDING 803 – MIXED WASTE STORAGE FACILITY

2.26.1 Site Description

The Army constructed Building 803, the Mixed Waste Storage Facility in 1958. This facility is located at the northern end of the facility in a portion of the site where the planned future land use is conservation/recreational. This building is also located in the area of the ongoing SEAD-12 Expanded Site Investigation.

Building 803 (SEAD-72) is approximately 35 by 25-feet in size and is built atop and into a mound of earth. The building consists of four below grade interior vaults, each measuring approximately 10 feet by 13 feet in size, each separated from each other and the outside by concrete walls that are 18 inches thick. The structure also includes false windows, and false and operating doors. The structure is covered by a concrete roof, and the floors of structure are not sloped nor are drains present (**Figure 2-6**).

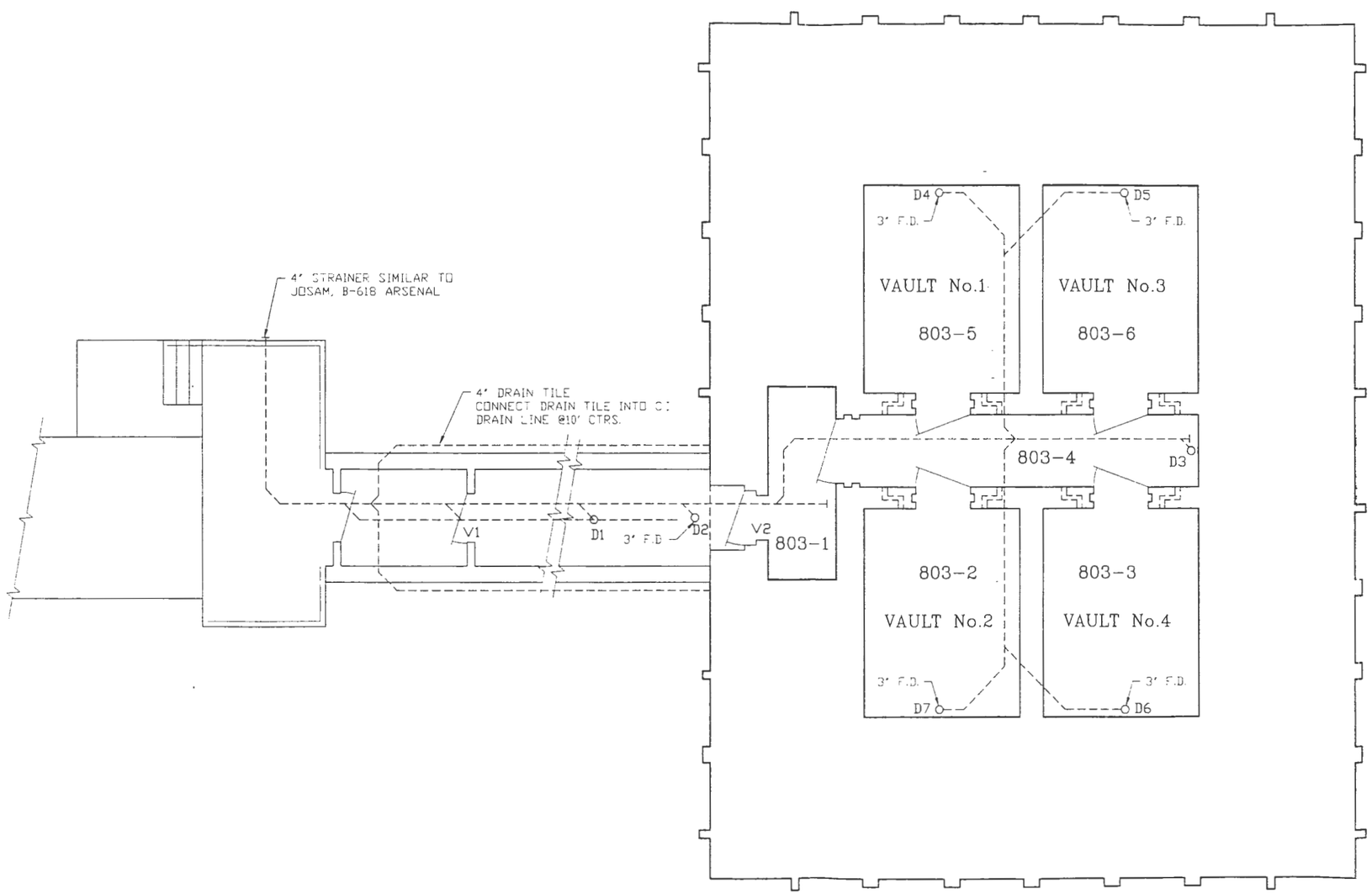
2.26.2 Historic Operations

Mixed waste generated by the cleaning and maintenance of mission components in neighboring buildings were transported to Building for storage prior to shipment off-site. Mixed wastes were stored in new, removable head type, 55-gallon drums that conformed to appropriate DOT specifications for containers holding hazardous waste in transport. The mixed waste consisted of paper wipes containing isopropanol, freon, trichloroethylene, acetone or toluene and low-level radioactive components. The wipes were segregated by solvent type, bagged, sealed with tape, double bagged, taped again, labeled for identification, then placed in the drum. At any one time, the building could hold a maximum of 96, 55-gallon drums (24 per cell) if the drums were double stacked in each vault. According to the Army, Building 803 has not been used for storage of mixed waste materials since 1996.

2.26.3 Summary of Available Data

During an inspection conducted in 1993, each of the cells was found to contain floor drains, but all of the drains were observed to be plugged shut. Searches of information at the base and in state records did not show any evidence of historic release. Additionally, radiological monitoring conducted by NYSDEC in 1993 did not show any significant deviations from background levels measured during the site survey. This

N



BLDG. 803
APPROX. SCALE: 1" = 4'-0"

NOTE(S):

BUILDING INFORMATION REFERENCED FROM BLACK & VEATCH CONSULTING ENGINEERS. DRAWING NO. Y2-300, MAY 2, 1955. REVISED RECORD WORK AS-BUILT 9/5/58.

NOTE(S):

*THIS DRAWING IS PRESENTED IN 1/2 SIZE. SO YOUR SCALE IS 1/2 OF WHAT IS MARKED. i.e. IF THE SCALE IS MARKED 1" = 4'-0" THAN THE TRUE SCALE OF THE DRAWING IS 1" = 2'0".

FEET 0 3 6
METERS 0 1 2

0 4' 8' 12'
(APPROX. SCALE FT.)

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY

DEPT: ENVIRONMENTAL ENGINEERING | DWG NO: 730047-01001

FIGURE 2.6
BUILDING 803

AS NOTED | SEPTEMBER 1989 | A

monitoring included building 803. A summary of the site radiological survey results obtained by NYSDEC are provided in an interoffice memo from Gary Baker (Principal Radiological Health Specialist, Bureau Environmental Radiation Protection) to William Condon (Chief, Environmental Radiation Section, Bureau Environmental Radiaition Protection) dated September 7, 1993, which is included in **Table 2-5** and also in **Appendix B.**

An area encompassing the footprint of SEAD-72 is currently being investigated by the Army under the SEAD 12 and SEAD-63 Project Scoping Plan (Parsons, June 1998). As part of this work, detailed investigations of SEAD-12 (Building-804 and associated Radiological Burial Site) including geophysical investigations (1996); radiological scans and surface water and sediment sampling (1997); surface and subsurface soil sampling and duct and drain investigations (1998); and building wipes and shallow soil sampling (1999) are being completed. Wipe samples of the floor drains and vents in Building 803 were made and results of these samples indicate that no radiological measurements above typical limit of detection values were obtained. Furthermore, radiological scans performed inside and exterior of Building 803 do not show any indication of unusual radiological activity (i.e., no measurement of radiation found at a level of greater than 1.5 times background). Results from the wipe samples and of the radiological scanning are provided in **Tables 2-5** and **Appendix F**.

2.26.4 Regulatory Status

As constructed, Building 803 meets requirements for conforming storage status for mixed waste storage facilities as defined in 6 NYCRR Part 373. This facility was designated as a RCRA unit in SEDA's Part B RCRA Permit Application and is a unit that remains regulated under RCRA interim status provisions (Facility Number # NY0213820830). Its operation is overseen by NYSDEC's Division of Hazardous Substances. Closure under RCRA is still pending.

The site of Building 803 is currently being investigated under an RI/FS that is being performed for SEAD-12. Available results (summarized above) indicate that conditions in and around Building 803 do not represent a radiological hazard.

2.26.5 Recommendation

The Army proposes that SEAD-72 be designated as a "No Further Action" site under CERCLA.

2.26.6 Justification and Rationale for Recommendation

This SWMU is designated as a "No Further Action" site under CERCLA for the following reasons:

Table 2-5
Radiological Data for Building 803

Identification		DPM		
		Alpha	Beta	Gamma
803V1	124224	1.9	3.5	0.0
803V2	124225	0.0	0.0	0.0
803D1	124226	0.0	0.0	0.0
803D2	124227	0.0	0.0	0.0
803D3	124228	0.0	0.0	0.0
803D4	124229	0.0	0.0	0.0
803D5	124230	0.0	0.0	0.0
803D6	124231	0.0	0.0	0.0
803D7	124232	0.0	0.0	0.0

1 There is no historic record that indicates that any release of hazardous chemicals or wastes has occurred at Building 803.

2 Available data and testing results indicate that there is no evidence of residual radioactive materials in the former storage vaults or around the perimeter of the facility.

3 The building currently sits empty, and has been empty since 1996.

3.0 REFERENCES

Brett, C.E., Dick, V.B, Baird, G.C., 1991, " Comparitive Taphonamy and Paleoecology of Middle Devonian Dark Gray and Black Shale Facies from western New York;" in eds., Landing, E.L. and Brett, C.E., Dynamic Stratigraphy and Depositional Environments of the Hamilton Group (Middle Devonian) in New York State, Part II, *New York State Museum bulletin Number 469.* Pp. 5-36

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Gray, L.M., 1991, " Paleoecology, Origin, and Significiance of a Shell-Rich Bed in Lowermost Part of the Ludlow Formation (middle Peronian, Central New York)," in eds. Landing, E.L. and Brett, C.E.,Dynamic Stratigraphy and Depositional Environments of the Hamilton Group (Midddle Devonian) in NewYork State, Part II, *New York State Museum Bulletin 469,* p.93-105.

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Mozola, A.J., 1951, The Groundwater Resources of Seneca County, New York, Bulletin GW-26. Water Power and Control Comission, Department of Conservation, State of New York, Albany, New York.

APPENDICES:

A, B, C, D, E and F

APPENDIX A:

TCLP Results for Incinerator Ash

SEAD 10

From: Phoenix Environmental Laboratories Inc.
587 E. Middle Turnpike, Box 418
Manchester, Ct. 06040-3731
(203) 645-1102 Fax 645-0823

October 26, 1992

To: Waste Management-Syracuse Inc.
Attn: T.C. Wagner
P.O. Box 28
DeWitt, NY 13214

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AA18459
Purchase order number: 039442 Project account code: RUSH
Location code: SPECIAL2
Location Description: 01WoodAsh-Waste MagmtSyrac9/29
Sample collection date: 09/29/92
Laboratory submittal date: 09/29/92 Time: 16:15
Received by: MK Validated by: RJ

Parameter: TCLP Extraction for Metals
Method reference: EPA 1311
Result: done
Date started: 09/30/92 Date finished: 10/01/92
Time started: 13:43 Analyst: RS

Parameter: TCLP Arsenic
Method reference: E1311/SW7061
Result: 0.16 mg/L MDL or sensitivity: 0.01
Date started: 10/05/92 Date finished: 10/05/92
Time started: 12:16 Analyst: AM

Parameter: TCLP Barium
Method reference: E1311/SW6010
Result: 0.27 mg/L MDL or sensitivity: 0.01
Date started: 10/05/92 Date finished: 10/05/92
Time started: 10:05 Analyst: DL

Parameter: TCLP Cadmium
Method reference: E1311/SW6010
Result: less than 0.01 mg/L
Date started: 10/05/92 Date finished: 10/05/92
Time started: 10:05 Analyst: DL

Parameter: TCLP Chromium
Method reference: E1311/SW6010
Result: 0.47 mg/L — MDL or sensitivity: 0.01
Date started: 10/05/92 — Date finished: 10/05/92
Time started: 10:05 — Analyst: DL

Parameter: TCLP Lead
Method reference: E1311/SW6010
Result: less than 0.1 mg/L
Date started: 10/05/92 — Date finished: 10/05/92
Time started: 10:05 — Analyst: DL

Parameter: TCLP Mercury
Method reference: E1311/SW6010
Result: less than 0.005 mg/L
Date started: 10/06/92 — Date finished: 10/06/92
Time started: 10:15 — Analyst: AM

Parameter: TCLP Selenium
Method reference: E1311/SW7741
Result: less than 0.01 mg/L
Date started: 10/05/92 — Date finished: 10/05/92
Time started: 15:25 — Analyst: AM

Parameter: TCLP Silver
Method reference: E1311/SW6010
Result: less than 0.01 mg/L
Date started: 10/05/92 — Date finished: 10/05/92
Time started: 10:05 — Analyst: DL

Parameter: TCLP Volatiles
Method reference: SW 8240
Result: see appended report
Date started: 10/08/92 — Date finished: 10/08/92
Time started: 00:00 — Analyst: ENV

Parameter: TCLP Acid and Base-Neutral Ext.
Method reference: SW 8270
Result: see appended report
Date started: 10/08/92 — Date finished: 10/08/92
Time started: 09:43 — Analyst: DLS

Parameter: TCLP Extraction - Semi-Volatiles
Method reference: EPA 1311
Result: done
Date started: 10/05/92 — Date finished: 10/05/92
Time started: 13:41 — Analyst: LP

Parameter: TCLP Extraction for Volatiles.
Method reference: EPA 1311
Result: done
Date started: 09/30/92 Date finished: 10/01/92
Time started: 09:55 Analyst: RS

Parameter: TCLP Pesticides
Method reference: SW 8080
Result: see appended report
Date started: 10/08/92 Date finished: 10/08/92
Time started: 00:00 Analyst: WHO

Parameter: TCLP Herbicides
Method reference: SW 8150
Result: see appended report
Date started: 10/08/92 Date finished: 10/08/92
Time started: 00:00 Analyst: WHO

Parameter: TCLP Extraction for Herbicides
Method reference: EPA 1311
Result: done
Date started: 10/05/92 Date finished: 10/05/92
Time started: 13:41 Analyst: LP

Parameter: TCLP Extraction for Pesticides.
Method reference: EPA 1311
Result: done
Date started: 10/05/92 Date finished: 10/05/92
Time started: 13:41 Analyst: LP

Parameter: AA Metals Analysis QC
Method reference: Phoenix QAQC
Result: see appended report
Date started: 10/06/92 Date finished: 10/06/92
Time started: 00:00 Analyst: AM

Parameter: ICP Metals Analysis QC
Method reference: Phoenix QAQC
Result: see appended report
Date started: 10/06/92 Date finished: 10/06/92
Time started: 00:00 Analyst: DL

Parameter: Free Liquids
Method reference: SW846 9095
Result: negative
Date started: 10/09/92 Date finished: 10/09/92
Time started: 12:32 Analyst: LP

Parameter: Semi-Volatile QC Data (MS)
Method reference: Phoenix QAQC
Result: see appended report
Date started: 10/08/92 Date finished: 10/08/92
Time started: 00:00 Analyst: DLS

Parameter: Pesticides (GC) Analysis QC
Method reference: Phoenix QAQC
Result: see appended report
Date started: 10/08/92 Date finished: 10/08/92
Time started: 00:00 Analyst: WHO

Parameter: Herbicides (GC) Analysis QC
Method reference: Phoenix QAQC
Result: see appended report
Date started: 10/08/92 Date finished: 10/08/92
Time started: 00:00 Analyst: WHO

Parameter: Flash Point
Method reference: SW846 - 1010
Result: greater than 200 deg F
Date started: 10/16/92 Date finished: 10/16/92
Time started: 15:47 Analyst: IB

Parameter: Solids by % Solid Matrix
Method reference: S209A/E160.3
Result: 96.7 % MDL or sensitivity: 1.0
Date started: 10/09/92 Date finished: 10/09/92
Time started: 13:51 Analyst: KC

Parameter: pH
Method reference: S423/E150.1
Result: 12.4 pH Units MDL or sensitivity: 1.0
Date started: 10/16/92 Date finished: 10/16/92
Time started: 15:11 Analyst: IB

Parameter: Corrosivity Determination
Method reference: S423/E150.1
Result: negative
Date started: 10/16/92 Date finished: 10/16/92
Time started: 15:14 Analyst: IB

Parameter: Reactivity -Cyanide
Method reference: SW 846
Result: less than .5 mg/Kg
Date started: 10/16/92 Date finished: 10/16/92
Time started: 15:41 Analyst: EM

Parameter: Reactivity - Sulfide
Method reference: SW846
Result: less than 10 mg/Kg
Date started: 10/16/92 Date finished: 10/16/92
Time started: 15:55 Analyst: CJS

Parameter: Reactivity
Method reference: SW 846 - 7.3
Result: negative
Date started: 10/16/92 Date finished: 10/16/92
Time started: 15:55 Analyst: CJS

Parameter: Quotation for Services - Total
Method reference:
Result: done
Date started: 10/19/92 Date finished: 10/19/92
Time started: 10:36 Analyst: MJC

Data for TCLP Acid and Base-Neutral Ext. ug/L:

Component Name	Concentration	Component MDL
O-Cresol	Not Det	10.0
M&P-Cresol	Not Det	10.0
Nitrobenzene	Not Det	10.0
Pentachlorophenol	Not Det	50.0
Pyridine	Not Det	10.0
2,4,5-Trichlorophenol	Not Det	10.0
2,4,6-Trichlorophenol	Not Det	10.0
2,4-Dinitrotoluene	Not Det	10.0
Hexachlorobenzene	Not Det	10.0
Hexachloro-1,3-butadiene	Not Det	10.0
Hexachloroethane	Not Det	10.0

Data for TCLP Pesticides ug/L:

Component Name	Concentration	Component MDL
Chlordane	Not Det	0.5
Endrin	Not Det	0.1
Heptachlor	Not Det	0.05
Heptachlor epoxide	Not Det	0.05
Lindane	Not Det	0.05
Methoxychlor	Not Det	0.5
Toxaphene	Not Det	1.0

Data for TCLP Volatiles ug/L:

Component Name	Concentration	Component MDL

Data for TCLP Volatiles (continued):

Component Name	Concentration	Component MDL
Benzene	Not Det	5.0
Carbon tetrachloride	Not Det	5.0
Chlorobenzene	Not Det	5.0
Chloroform	Not Det	5.0
1,4-Dichlorobenzene	Not Det	5.0
1,2-Dichloroethane	Not Det	5.0
1,1-Dichloroethylene	Not Det	5.0
Methyl ethyl ketone	Not Det	5.0
Tetrachloroethylene	Not Det	5.0
Trichloroethylene	Not Det	5.0
Vinyl chloride	Not Det	5.0

Data for TCLP Herbicides ug/L:

Component Name	Concentration	Component MDL
2,4-D	Not Det	5.0
2,4,5-TP (Silvex)	Not Det	1.0

Data for AA Metals Analysis QC:

QC Source: Sample ID: AA Analyte	QC Blank (PPM)	QC Check Sample (% Rec.)	QC Spike Sample (% Rec.)	QC Sample Replicate (% change)
AS Arsenic	<0.01	108	106	ND 0
Hg Mercury	<0.005	79	107	ND 0
Pb Lead				
Sb Antimony				
Se Selenium	<0.01	106	95	ND 0
Tl Thallium				

Data for ICP Metals Analysis QC:

QC Source:ERA9945 Sample ID: AA18369 AA18458 Analyte	QC Blank (PPM)	QC Check Sample (% Rec.)	QC Spike Sample (% Rec.)	QC Sample Replicate (% change)
Ag Silver	<0.01	99.0	69.6	0
Al Aluminum				

Data for ICP Metals Analysis QC (continued):

As	Arsenic				
Au	Gold				
B	Boron				
Ba	Barium	<0.01	96.5	80.9	1.0
Be	Beryllium				
Bi	Bismuth				
Ca	Calcium				
Cd	Cadmium	<0.01	102	85.8	0
Co	Cobalt				
Cr	Chromium	<0.01	98.5	85.2	1.4
Cu	Copper				
Fe	Iron				
Hg	Mercury				
K	Potassium				
Li	Lithium				
Mg	Magnesium				
Mn	Manganese				
Mo	Molybdenum				
Na	Sodium				
Ni	Nickel				
Pb	Lead	<0.10	73.0	83.4	0
Sb	Antimony				
Se	Selenium				
Si	Silicon				
Sn	Tin				
Tl	Thallium				
V	Vanadium				
W	Tungsten				
Zn	Zinc	<0.01	97.2	95.6	2.3

Data for Semi-Volatile QC Data (MS):

QC Source: ERA 545 / Analysis	Method Blank (mg/L)	Check Sample (%Rec)	Matrix Spike (%Rec)	Matrix Duplicate (%Rec)	Replica Analys (%diff
1,4-Dichlorobenzene	< 10		72.1%	70.0%	3.
2,4-Dinitrotoluene	< 10		87.0%	88.0%	1.
2-Fluorobiphenyl (BN-Surr)	58.0%		79.4%	77.2%	2.
2-Fluorophenol (A-Surr)	69.9%		74.5%	73.6%	1.
Hexachlorobenzene	< 10		89.6%	89.3%	0.
Hexachlorobutadiene	< 10		51.1%	51.4%	0.
Hexachloroethane	< 10		64.6%	65.7%	1.
2-Methylphenol (o-Cresol)	< 10		81.0%	79.1%	2.
4-Methylphenol (p-Cresol)	< 10		67.2%	66.7%	0.
Nitrobenzene	< 10		84.5%	85.4%	1.
Nitrobenzene-d5 (BN-Surr)	72.7%		62.6%	62.9%	0.

Data for Semi-Volatile QC Data (MS) (continued):

Pentachlorophenol	< 50	103.4%	98.9%	4.
Phenol-d6 (A-Surr)	47.6%	61.7%	59.9%	3.
Pyridine	< 10	74.8%	75.6%	1.
Terphenyl-d14 (BN-Surr)	100.1%	81.1%	80.3%	1.
2,4,6-Tribromophenol(A-Surr)	45.6%	87.0%	86.0%	1.
2,4,5-Trichlorophenol	< 10	96.3%	95.3%	1.
2,4,6-Trichlorophenol	< 10	79.2%	78.0%	1.

Data for Pesticides (GC) Analysis QC:

QC Source: Sample ID: Analyte	Method Blank (ppb)	QC Check Sample (% Rec)	Matrix Spike (% Rec.)	Matrix Spike Dup (% Rec.)	Relative % Diff. (% D)
Aldrin	ND				0%ND
a-BHC	ND		110%		0%ND
b-BHC	ND				0%ND
d-BHC	ND				0%ND
g-BHC	ND		102%		0%ND
Chlordane	ND				0%ND
4,4'-DDD	ND		64%		0%ND
4,4'-DDE	ND				0%ND
4,4'-DDT	ND				0%ND
Dieldrin	ND		66%		0%ND
Endosulfan I	ND				0%ND
Endosulfan II	ND				0%ND
Endrin	ND		104%		0%ND
Endrin aldehyde	ND				0%ND
Endosulfan sulfate	ND				0%ND
Heptachlor	ND				0%ND
Heptachlor epoxide	ND				0%ND
Methoxychlor	ND				0%ND
Toxaphene	ND				0%ND
PCB-1016	ND				0%ND
PCB-1221	ND				0%ND
PCB-1232	ND				0%ND
PCB-1242	ND				0%ND
PCB-1248	ND				0%ND
PCB-1254	ND				0%ND
PCB-1260	ND				0%ND

Data for Herbicides (GC) Analysis QC:

QC Source:	Method	QC	Matrix	Matrix	Relative

Data for Herbicides (GC) Analysis QC (continued):

Sample ID: Analyte	Blank (ppb)	Check Sample (% Rec.)	Spike (% Rec.)	Spike Dup (% Rec.)	% Diff. (% D)
2,4-D	ND			100%	
2,4,5-TP(Silvex)	ND			89%	

Comments:

The bias, as determined from the matrix spike, has been used to correct the measured TCLP values.

Not Det = Not Detected

Neg= There was no free liquid in this sample.

If there are any questions regarding this data, please call.

Dennis L. Strother
Laboratory Director

APPENDIX B:

Soil and Groundwater Results

SEAD 32

GROUNDWATER ANALYSIS RESULTS - SEAD-32

Decision Document - Mini Risk Assessment

Seneca Army Depot Activity

						MATRIX		WATER	WATER	WATER
						LOCATION		SEAD-32	SEAD-32	SEAD-32
						SAMPLE DATE		02/05/94	02/05/94	02/05/94
						ES ID		MW32-1	MW32-2	MW32-3
						LAB ID		210485	210487	210488
						SDG NUMBER				
COMPOUND	UNIT	MAXIMUM	FREQUENCY OF DETECTION	NY AWQS CLASS GA (a)	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES			
VOLATILE ORGANICS										
1,1,1-Trichloroethane	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
1,1,2-Trichloroethane	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
1,1-Dichloroethane	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
1,1-Dichloroethene	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
1,2-Dichloroethane	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
1,2-Dichloroethene (total)	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
1,2-Dichloropropane	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
2-Butanone	ug/L	0	0%	50	0	0	3	10 U	10 U	10 U
2-Hexanone	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
4-Methyl-2-Pentanone	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
Acetone	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
Benzene	ug/L	0	0%	0.7	0	0	3	10 U	10 U	10 U
Bromodichloromethane	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
Bromoform	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
Bromomethane	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
Carbon Disulfide	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
Carbon Tetrachloride	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
Chlorobenzene	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
Chloroethane	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
Chloroform	ug/L	0	0%	7	0	0	3	10 U	10 U	10 U
Chloromethane	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
cis-1,3-Dichloropropene	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
Dibromochloromethane	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
Ethylbenzene	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
Methylene Chloride	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
Styrene	ug/L	0	0%	NA	0	0	3	10 U	10 U	10 U
Tetrachloroethene	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
Toluene	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
trans-1,3-Dichloropropene	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
Trichloroethene	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
Vinyl Chloride	ug/L	0	0%	2	0	0	3	10 U	10 U	10 U
Xylene (total)	ug/L	0	0%	5	0	0	3	10 U	10 U	10 U
OTHER ANALYSES										
Total Petroleum Hydrocarbons	mg/L	0.69	67%	NA	0	2	3	0.69	0.39 U	0.53

NOTES:

a) NY State Class GA Groundwater Regulations

b) NA = Not Available

c) U = The compound was not detected above this concentration.

SOIL ANALYSIS RESULTS - SEAD-32

Decision Document - Mini Risk Assessment
Seneca Army Depot Activity

							SEAD	SEAD-32	SEAD-32
							LOCATION ID		
							MATRIX	SOIL	SOIL
							SAMPLE NUMBER	SB32-1	SB32-2
							SAMP_DEPTH_TOP	2	2
							SAMP_DEPTH_BOT	4	4
							SAMPLE DATE	01/10/94	01/10/94
							SAMPLE TYPE		
COMPOUND	UNIT	MAXIMUM	FREQUENCY OF DETECTION	TAGM (a)	NUMBER ABOVE TAGM	NUMBER OF DETECTS	NUMBER OF ANALYSES		
VOLATILE ORGANICS									
1,1,1-Trichloroethane	ug/Kg	0	0%	800	0	0	2	12 U	11 U
1,1,2,2-Tetrachloroethane	ug/Kg	0	0%	600	0	0	2	12 U	11 U
1,1,2-Trichloroethane	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
1,1-Dichloroethane	ug/Kg	0	0%	200	0	0	2	12 U	11 U
1,1-Dichloroethene	ug/Kg	0	0%	400	0	0	2	12 U	11 U
1,2-Dichloroethane	ug/Kg	0	0%	100	0	0	2	12 U	11 U
1,2-Dichloroethene (total)	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
1,2-Dichloropropane	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
2-Butanone	ug/Kg	0	0%	300	0	0	2	12 U	11 U
2-Hexanone	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
4-Methyl-2-Pentanone	ug/Kg	0	0%	1000	0	0	2	12 U	11 U
Acetone	ug/Kg	0	0%	200	0	0	2	12 U	11 U
Benzene	ug/Kg	0	0%	60	0	0	2	12 U	11 U
Bromodichloromethane	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
Bromoform	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
Bromomethane	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
Carbon Disulfide	ug/Kg	0	0%	2700	0	0	2	12 U	11 U
Carbon Tetrachloride	ug/Kg	0	0%	600	0	0	2	12 U	11 U
Chlorobenzene	ug/Kg	0	0%	1700	0	0	2	12 U	11 U
Chloroethane	ug/Kg	0	0%	1900	0	0	2	12 U	11 U
Chloroform	ug/Kg	0	0%	300	0	0	2	12 U	11 U
Chloromethane	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
cis-1,3-Dichloropropene	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
Dibromochloromethane	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
Ethylbenzene	ug/Kg	0	0%	5500	0	0	2	12 U	11 U
Methylene Chloride	ug/Kg	1	50%	100	0	1	2	12 U	1 J
Styrene	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
Tetrachloroethene	ug/Kg	0	0%	1400	0	0	2	12 U	11 U
Toluene	ug/Kg	0	0%	1500	0	0	2	12 U	11 U
trans-1,3-Dichloropropene	ug/Kg	0	0%	NA	0	0	2	12 U	11 U
Trichloroethene	ug/Kg	0	0%	700	0	0	2	12 U	11 U
Vinyl Chloride	ug/Kg	0	0%	200	0	0	2	12 U	11 U
Xylene (total)	ug/Kg	0	0%	1200	0	0	2	12 U	11 U
OTHER ANALYSES									
Total Solids	%W/W	83.2	100%	NA	0	2	2	83.2	82
Total Petroleum Hydrocarbons	mg/Kg	90	100%	NA	0	2	2	90	81

NOTES:
a) TAGM = Technical and Administrative Guidance Memorandum HWR-94-4046 (January 24, 1994)
b) NA = Not Available
c) U = The compound was not detected below this concentration.
d) J = The reported value is an estimated concentration.
Samples collected during the Limited Sampling Program and reported in the SWMU Classification Report, September 1994.

APPENDIX C:

Radiological Evaluation Results

SEAD 49 & 72

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233 7010

Thomas C. Jorling

September 21, 1993

27 SEP RECD

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL # of pages ▷ 14
To [redacted] From K. BATTAGLIA
Dept. ENG - SC) Phone #
Fax # Fax #
NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Mr. Randall Battaglia
Environmental Coordinator
Seneca Army Depot
Romulus, NY 14541

Re: SWMU Classification Report

Dear Mr. Battaglia:

The New York State Department of Environmental Conservation (NYSDEC) has reviewed the additional information for SEAD 10, 28, 29, 30, 31, 51 and 72 and has concluded the following:

SEAD 10: Present Scrap Wood Pile: The TCLP results of the ash generated at the site is below the regulatory limits. This SWMU may be classified as a No Action SWMU.

SEAD-28, 29, 30 and 31: Underground Waste Oil Tanks: These tanks were tested for tightness in 1988. Since then, if these tanks have not been replaced, another tightness test should be conducted to verify their integrity. If these tanks have been replaced, results of any sampling undertaken at that time should be provided. All future activities at the underground waste oil tanks should continue to be coordinated with the Region 8 Division of Water with the Federal Projects Section, Division of Hazardous Waste Remediation, Central Office receiving copies of all associated documents.

SEAD 51: Herbicide Usage - Perimeter of High Security Area: A total of sixteen soil samples, two air samples and one water sample from the high security area were taken in 1983 and analyzed for 2,4-D, 2,4,5-T and silex. Test results indicate the presence of these analytes in three soil samples.

The 1983 analysis did not include analysis for other herbicides which were used at the base, like bromacil, arsenal, roundup (glyphosate), tordon 10K (picloram), simiazine 80W, borocil lv, and dioxin (which is a contaminant found in 2,4,5-T). We therefore recommend that this SWMU be classified as an Area of Concern.

SEAD 72: Mixed Waste Facility, Bldg. 803: There is little historical information provided regarding the use of this building. Reportedly, this building was used by the Atomic Energy Commission (AEC) for laundry operations. A site visit of the building indicated that the floor drains are plugged. It is therefore important that the Army locate the exit of the floor drains and take samples for appropriate parameter at the discharge point. The classification of this SWMU should be based on the results of this sampling event.

In addition, a team from NYSDEC and NYSDOH consisting of Messrs. Marsden Chen, Kamal Gupta and Gary Baker performed a radiological survey of SEAD-48-Pitchblende Storage Igloos; 802, 804, 806, 808, 809 and 710 (background location outside) and SEAD 49-Columbite Ore Storage, buildings 356, 357 and 324. Soil and wipe samples were taken from Igloos 804, 806, 808 and 710 and buildings 324, 356 and 357. The results of the survey and samples are enclosed. Based on results, the following classification is recommended:

-SEAD-48-Pitchblende Storage Igloos - Area of Concern
-SEAD-49-Columbite Ore Storage Building 356 - No Action SWMU

Please provide the work plan and schedule for Limited Sampling at SEAD 28, 29, 30, 31, 32, 33, 34, 38, 39, 40, 41, 52, 66 and 72 as decided in the meeting of September 21 and 22, 1992.

If you have any questions, please call me at (518) 457-3976.

Sincerely,

Kamal Gupta
Bureau of Eastern Remedial Action
Division of Hazardous Waste Remediation

Enclosures

cc: S. Absolom, SEAD
C. Struble, USEPA
L. Rafferty, DOH
G. Baker, NYSDOH-Syracuse

STATE OF NEW YORK - DEPARTMENT OF HEALTH

INTEROFFICE MEMORANDUM

TO: William Condon, Chief, Environmental Radiation Section
Bureau Environmental Radiation Protection

FROM: Gary H. Baker, Principal Radiological Health Specialist
Bureau Environmental Radiation Protection

SUBJECT: Seneca Army Depot Site Survey Results of 6/10/93

DATE: September 7, 1993

Summary-

DEC and BERP staff performed a site survey of the Seneca Army Depot on 6/10/93. The survey results indicate that there are several areas of contamination inside and outside of igloo E0804 and one hot spot in igloo E0808 which require further remediation. The areas of contamination in Building E0804 are along the concrete drainage ditch, in the outside drains which exit the building on the North wall at a height of one to two feet above ground level, and in the soil outside near the drains. The debris samples taken inside Building E0804 and in one spot in Building E0808 and the soil samples appear to have elevated concentrations of U-238 and Ra-226.

Details-

On 6/10/93, Kamal Gupta and Marsden Chen of the NYSDEC and Gary Baker of the NYSDOH made a site visit of the Seneca Army Depot to investigate possible contamination in three areas as follows: a) Buildings 356 section 4, 357 section 4 and 324 which had been used to store Columbite ore. b) Storage igloos E0801 to E0811 which had been used to store pitchblend and c) Building 803 which is used for storage of radioactive materials and waste.

Upon arrival at the site, state DEC and DOH staff met with Steve Absalah, Jim Miller, and Randy Bataglia of the site environmental office. Jim Miller accompanied the DEC and DOH staff during the surveys of the buildings and grounds. Surveys were conducted of buildings 356, 357 and 324; storage igloos numbers 802, 804, 806, 808, 809, 710 (background location outside); and Building 803. Following the site survey, DOH and DEC staff met with the Army environmental staff to discuss the survey findings. A videotape of the cleanup was provided.

Survey methodology-

The following instruments were used to perform surveys: a NYSDOH Ludlum microR meter model 12S ser. 25116, calibrated on 10/27/92; a NYSDEC Ludlum Model 3-98 with internal GM probe and external NaI probe calibrated 11/4/92

William Condon, Chief, Environmental Radiation Section

Ser. 69783; and a NYSDOH Eberline E-120 GM survey meter Ser. 6650, calibrated 6/23/92.

Gamma survey readings were taken using both the micro R meter and the DEC instrument in external mode. Beta readings were taken using the E-120 with HP190. The microR and DEC instrument were compared for accuracy prior to surveying using a 1 microCurie Cs-137 source and background readings. Also, instrument readings were compared several times during the surveys until the DEC instrument's external probe failed to operate during a survey of the drain on Igloo E0806. It was noted that the DEC instrument readings had to be divided by 170 to obtain micro/hr from cpm. Soil, debris, and wipes samples were taken in the areas with the highest readings.

During the survey of building 356 it was noted that the Columbite Ore (5,284 drums) had been transfered from Building 356 to a DLA facility in Binghamton, N.Y. approximately two weeks prior to the survey date. A sample of the ore can be obtained from the Binghamton facility if needed. The Army has plans to clean building 356 with a HEPA filtered vacuum system. All areas and buildings where the ore had been stored were surveyed and wipes were taken for analysis.

Results-

With the exception of igloo E0804 and one hot spot in E0808 which showed elevated readings, no significant deviations from background were noted in the buildings and storage igloos.

The following is a summary of survey readings recorded and sample locations:

Survey meter readings-

Location-Readings (microR/hr;E-120 GM)

Background areas 4-15 microR/hr; 20-40 cpm

324 Building 324-All areas 6-8 micro R/hr; Brick column 10 microR/hr

356 section 4 at wipe #1 Building 356 - 12 microR/hr; 20 cpm

356 section 4 at wipe #2 Building 356 - 15 microR/hr

356 section 4 at wipe #3 Building 356 - 9.4 microR/hr; 20 cpm

357 section 4 at wipe #2 Building 357 - 6 microR/hr; 20 cpm

William Condon, Chief, Environmental Radiation Section

357 section 4 at wipe #3 Building 357 - 6 microR/hr; 20 cpm

E0802 Inside and outside and in drains - 8-10 microR/hr

E0804 Inside of igloo E0804 along East Wall Center (40' from North wall- 40 microR/hr; 400 cpm beta

E0804 Surface Soil next to drain on North wall (East side) - 47 microR/hr; 100 cpm beta

E0804 Soil at depth of 4-6 inches depth outside drain North Wall East side - 106 microR/hr (18000cpm with DEC instr.)

E0804 Wall at drain East side 40 microR/hr maximum

E0804 Outside rear - 4 microR/hr (approximately 10' from South Wall)

E0804 Outside front - (approximately 10' from North Door - 4 microR/hr)

E0804 Inside of igloo E804 at corner of South and East Walls - 12 microR/hr

E0804 Inside 30' from North Wall 16-18 uR/hr; 200 cpm beta

E0804 Inside along East Wall floor 6' from South Wall - 12 microR/hr; 350 cpm beta

E0804 In drainage ditch outside approximately 12' from North Wall 10-18 uR/hr

E0804 Outside North Wall at west drain 18 uR/hr; (12 uR/hr at one meter from wall

E0806 Most areas 8-12 microR/hr; 13 microR/hr
West drain inside, 20' from North Wall; 2300 cpm beta

E0806 Outside both East and West drain outlets - 12 microR/hr; 20 cpm beta

E0808 Inside and Outside at drains to 10 microR/hr;20-30 cpm beta
West drainage ditch, 10' from North Wall- 40-60 cpm beta

E0809 7 to 8 microR/hr; 20-30 cpm beta; West drain- 8 microR/hr; 20 cpm beta

E0809 Outside East drain - 11 microR/hr; 20 cpm beta
Outside West drain - 10 microR/hr; 20 cpm beta

William Condon, Chief, Environmental Radiation Section

357-2 Building 357 <20 dpm/<20 dpm
357-3 Building 357 <20 dpm/<20 dpm

E0804W1 Igloo E0804 (East wall 60' from North Wall - wipe of drain area.
77 + 6 dpm/48 + 3 dpm

E0804W2 Igloo E0804 52 + 5 dpm 54 + 4 dpm

E0806W1 Igloo E0806 <20 dpm/<20 dpm

cc: Dr. Rimawi
Mr. Huang

0425 NEW YORK STATE DEPARTMENT OF HEALTH 007

WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID-93208356FS SAMPLE RECEIVED-93/06/18 CHARGE [illegible]

PROGRAM: 171:STATE-WIDE RADIATION SURVEILLANCE PROGRAM

SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:4955

POLITICAL SUBDIVISION:ROMULUS COUNTY:SENECA

LATITUDE: LONGITUDE: Z-DIRECTION:

LOCATION: SENECA ARMY DEPOT ROMULUS - ON SITE

DESCRIPTION:#1-E080451-SOIL INSIDE IGLOO 804 IN HOT SPOT IN DRAIN

DESCRIPTION:EAST WALL CENTER

REPORTING LAB: 20:NUCLEAR CHEMISTRY LABORATORY

TEST PATTERN: 20-0046:U235,U238,TH232,RA226,CS137,K40

SAMPLE TYPE: 600:SOIL, SAND

TIME OF SAMPLING: 93/06/11 : DATE PRINTED:93/07/21

ANALYSIS: 20-0056 : U235,U238,TH232,RA226,CS137,K40

------------PARAMETER------------	----------RESULT----------
URANIUM-238 (TH-234)	[illegible] 2.0E 1 +/- [illegible] PCI/G
THORIUM-232 (AC-228)	< 3.E 0 PCI/G
RADIUM-226 (BI-214)	3.3E 1 +/- 0.4E 1 PCI/G
POTASSIUM - 40	< 1.5E 1 PCI/G
CESIUM - 137	< [illegible] PCI/G
URANIUM - 235	6.E 0 +/- 4.E 0 PCI/G

**** END OF REPORT ****

RECEIVED

SEP 08 1993

COPIES SENT TO: CO(1), RO( ), LPHE( ), FED( ), (NEO-P [illegible]

JAMES HUANG
BUREAU ENVIRONMENTAL RADIATION PROTECT.
NY STATE DEP'T. HEALTH SUBMITTED BY: [illegible]
2 UNIVERSITY PLACE
ALBANY ***INTERAGENCY MAIL***

0427 NEW YORK STATE DEPARTMENT OF HEALTH 007
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID: [illegible] SAMPLE RECEIVED: 93/06/16 CHARGE: 0.00
PROGRAM: [illegible]
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:4955
POLITICAL SUBDIVISION:ROMULUS COUNTY:SENECA
LATITUDE: LONGITUDE: ELEVATION:
LOCATION: SEneca ARMY DEPOT ROMULUS - ON SITE
DESCRIPTION:#2-E080452-SURFACE SOIL NEXT TO DRAIN ON NORTHWALL E SIDE
DESCRIPTION:OF IGLOO 804
REPORTING LAB: [illegible]
TEST PATTERN: [illegible]
SAMPLE TYPE: 600:SOIL, SAND
TIME OF SAMPLING: 93/06/11 : DATE PRINTED:93/07/21

ANALYSIS: [illegible]

PARAMETER	RESULT	
URANIUM-238 (TH-234)	[illegible]	PCI/G
THORIUM-232 (AC-228)	[illegible]	PCI/G
RADIUM-226 (BI-214)	2.41E 1 +/- 0.08E 1	PCI/G
POTASSIUM - 40	1.80E 1 +/- 0.13E 1	PCI/G
CESIUM - 137	[illegible]	PCI/G
URANIUM - 235	[illegible]	PCI/G

**** END OF REPORT ****

[illegible]

COPIES SENT TO: [illegible]

JAMES HUANG
BUREAU ENVIRONMENTAL RADIATION PROTECT.
NY STATE DEPT. HEALTH
UNIVERSITY PLACE
ALBANY ***INTERAGENCY MAIL***

0429 NEW YORK STATE DEPARTMENT OF HEALTH 007

WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID:932083562 SAMPLE RECEIVED:93/06/16 CHARGE: 4.00
PROGRAM: 121:STATE WIDE RADIATION SURVEILLANCE PROGRAM
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:4955
POLITICAL SUBDIVISION:ROMULUS COUNTY:SENECA
LATITUDE: LONGITUDE: Z DIRECTION:
LOCATION: SENECA ARMY DEPOT ROMULUS ON SITE
DESCRIPTION:#3-E080454-SOIL @ DEPTH OF 4-6INS. OUTSIDE DRAIN NORTHWALL
DESCRIPTION:EAST 804
REPORTING LAB: 20:NUCLEAR CHEMISTRY LABORATORY
TEST PATTERN: 20-0046:U235,U238,TH232,RA226,CS137,K40
SAMPLE TYPE: 600:SOIL, SAND
TIME OF SAMPLING: 93/06/11 : DATE PRINTED:93/07/21

ANALYSIS: 20-0046 U235,U238,TH232,RA226,CS137,K40

-----------PARAMETER-----------	----------RESULT----------
URANIUM-238 (TH-234)	5.8E 0 +/- 0.8E 0 PCI/G
THORIUM-232 (AC-228)	8.7E 1 +/- 1.6E 1 PCI/G
RADIUM-226 (BI-214)	1.74E 1 +/- 0.06E 1 PCI/G
POTASSIUM - 40	1.88E 1 +/- 0.12E 1 PCI/G
CESIUM - 137	5.3E 1 +/- 0.6E 1 PCI/G
URANIUM - 235	6.E 1 +/- 3.E 1 PCI/G

**** END OF REPORT ****

COPIES SENT TO: CO(1), RO(1), DPHE(1), FED(1), INFO(1), INFO(1)

JAMES HUANG
BUREAU ENVIRONMENTAL RADIATION PROTECT.
NY STATE DEPT. HEALTH SUBMITTED BY:UNGLEY
2 UNIVERSITY PLACE
ALBANY ***INTERAGENCY MAIL***

0433 NEW YORK STATE DEPARTMENT OF HEALTH 007

WADSWORTH CENTER FOR LABORATORIES AND RESEARCH

PAGE 1 RESULTS OF EXAMINATION FINAL REPORT

SAMPLE ID 93208356[illegible] SAMPLE RECEIVED 93/06/16 CHARGE [illegible]
PROGRAM 17 STATE WIDE RADIATION SURVEILLANCE PROGRAM
SOURCE ID: DRAINAGE BASIN: GAZETTEER CODE:4955
POLITICAL SUBDIVISION:ROMULUS COUNTY:SENECA
LATITUDE: LONGITUDE: Z DIRECTION
LOCATION: SENECA ARMY DEPOT ROMULUS - ON SITE
DESCRIPTION:#5-E071051-BACKGROUND SAMPLE OUTSIDE OF IGLOO 710 NOT USED
DESCRIPTION:FOR RADIOACTIVE STORAGE
REPORTING LAB 20 NUCLEAR CHEMISTRY LABORATORY
TEST PATTERN: 20-0046 U235,U238,TH232,RA226,CS137,K40
SAMPLE TYPE: 600:SOIL, SAND
TIME OF SAMPLING: 93/06/11 : DATE PRINTED:93/07/21

ANALYSES 20-0046 U235,U238,TH232,RA226,CS137,K40

PARAMETER	RESULT
URANIUM-238 (TH-234)	8.[illegible]E -1 +/- 3.[illegible]E -1 PCI/G
THORIUM-232 (AC-228)	7.5E -1 +/- [illegible] -1 PCI/G
RADIUM-226 (BI-214)	7.9E -1 +/- 0.8E -1 PCI/G
POTASSIUM - 40	1.77E 1 +/- 0.11E 1 PCI/G
CESIUM - 137	6.8E -1 +/- 0.5E -1 PCI/G
URANIUM - 235	< 1.1E -1 PCI/G

**** END OF REPORT ****

COPIES SENT TO: CO(1), RO(1), LPHE(1), FED(1), INFO(1), INFO(1)
JAMES HUANG
BUREAU ENVIRONMENTAL RADIATION PROTECT.
NY STATE DEPT. HEALTH SUBMITTED BY WIGLEY
11 UNIVERSITY PLACE
ALBANY ***INTERAGENCY MAIL***

TOTAL P.12

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER FOR LABORATORIES AND RESEARCH
LABORATORY OF INORGANIC AND NUCLEAR CHEMISTRY
EMPIRE STATE PLAZA - BOX 509
ALBANY, N.Y. 12201-0509

RECEIVED
JUL 19 1993
NEW YORK STATE DEPARTMENT OF HEALTH
BUREAU OF ENVIRONMENTAL
RADIATION PROTECTION

Radiological Analysis of Wipe Samples

Samples taken at: Seneca Army Depot, Romulus N.Y.

Samples taken by: Gary Baker Date: 6/16/93

LINC Accession No.	Field Number	Specific Location	Suspected Contaminant	dpm Gross Alpha	dpm Gross Beta
9320835624	1	324-1 Bldg 324	Ra, U	< 20	< 20
9320835625	2	356-1 Bldg 356		< 20	< 20
9320835626	3	356-2 " "		< 20	< 20
9320835627	4	356-3 " "		< 20	< 20
9320835628	5	357-1 Bldg 357		< 20	< 20
9320835629	6	357-2 " "		< 20	< 20
9320835630	7	357-3 " "		< 20	< 20
9320835631	8	E0804W1-Tile E0804		77 ± 6	48 ± 3
9320835632	9	E0804W2-Tile E0804		52 ± 5	54 ± 4
9320835633	10	E0806W1-Tile E0806		< 20	< 20

Date Received: _____ Reported by _____ Date Reported: 7/14/93

NCL-7 (9/93)

TOTAL P.02

APPENDIX D:

Sample Results for Herbicide Content

SEAD 51

TABLE A-51

ANALYSIS RESULTS FROM PESTICIDE MONITORING SPECIAL STUDY NO. 17-44-0987-84 ANALYSIS OF ENVIRONMENTAL SAMPLES FOR HERBICIDE CONTENT

SENECA ARMY DEPOT SEPTEMBER 12, 1983

TABLE A-51

Sample Type and Location (1)	Pesticide Concentration	Sample Type and Location	Pesticide Concentration
Soil, SW corner Inner fence Surface	ND(2)	Soil, South Boundary Fresh excavation Surface	2,4-D 0.055 ppm 2,4,5-T 0.011 ppm
Soil, SW corner Inner fence 3" depth	ND(2)	Soil, NE corner Outer fence Surface	ND(2)
Soil, NW corner Inner fence Surface	ND(2)	Soil, NE corner Outer fence 6" depth	ND(2)
Soil, NW corner Inner fence 3" depth	ND(2)	Soil, NE corner Outer fence 12" depth	ND(2)
Soil, SE corner Inner fence Surface	2,4-D 0.04 ppm 2,4,5-T 0.008 ppm	Soil, NW corner Outer fence Surface	ND(2)
Soil, SE corner Inner fence 4" depth	ND(2)	Soil, NW corner Outer fence 3" depth	ND(2)
Soil, NE corner Inner fence Surface	ND(2)	Water, SW Corner Inner fence	ND(2)
Soil, NE corner Inner fence 4" depth	ND(2)	Air, NW Corner Inner fence	ND(2)
Soil, Middle east side Inner fence Surface	2,4-D 0.078 ppm	Air, SE Corner Inner fence	ND(2)
Soil, Middle east side Inner fence 4" depth	ND(2)		

(1) Samples were collected August 10-11, 1983. Two air samples, 16 soil samples, and one water sample were collected from the area between the fences of the high security area at SEAD.
(2) No pesticides detected at the lower limits of detectability.

DEPARTMENT OF THE ARMY Mr. Olds/klo/AUTOVON
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY 584-3613
ABERDEEN PROVING GROUND, MARYLAND 21010

REPLY TO ATTENTION OF

HSHB-RP-MO

27 OCT 1983

SUBJECT: Pesticide Monitoring Special Study No. 17-44-0987-84, Analysis of Environmental Samples for Herbicide Content, Seneca Army Depot Activity, NY, 12 September 1983

Commander
US Army Materiel Development
and Readiness Command
ATTN: DRCSG
5001 Eisenhower Ave
Alexandria, VA 22333

1. AUTHORITY. Message P261300Z, Jul 83, CDRDESCOM, DRSDS-RM-EF, subject: Priority USAEHA Support for Seneca Army Depot (SEAD).

2. REFERENCE. Fonecon, 26 July 1983, Mr. Battaglia, SEAD, SDSSE-AD and Mr. Olds, this agency, HSHB-RP-MO, subject: SAB.

3. PURPOSE. To evaluate environmental samples collected at Seneca Army Depot Activity for herbicide residues.

4. PROCEDURES.

a. During the period 10-11 August 1983, 16 soil samples, 2 air samples and one water sample, were collected from the area between the fences of the high security area at SEAD.

b. Two air samples were collected, one from the NW corner of the fenced area and one from the SE corner. Since the primary means of exposure would be by respirable dust, glass fiber filters were used for collection.

c. A total of 16 soil samples were collected from both the inner and outer fenced area. The soil in this area is very sandy/gravely on the surface with clay located 3-12 inches below the surface. Samples were collected at the surface and top of the clay material.

d. One water sample was collected from a puddle of standing water at the SW corner of the fenced in area. This puddle appeared to be accumulation from a recent rainfall.

5. FINDINGS. Results of analyses are presented in inclosure 1 and the pesticides analyzed for and the lower limits of detectability are presented in inclosure 2.

6. DISCUSSION.

a. There were no detectable levels of 2,4-D, 2,4,5-T or silvex found in the air samples.

b. Only three soil samples showed concentrations of any of the herbicides in question. The levels of 2,4-D and 2,4,5-T found in these samples are only slightly above the lower limits of detectability and are very low environmental levels. It is not surprising to find these pesticides in light of the past history of use in the area. Although there are no established criteria for pesticides in soil, these low levels do not appear to pose any health threat to workers in the area.

c. The water sample contained no detectable levels of any of the herbicides for which analyses were done.

7. CONCLUSIONS. No herbicides were found in the air at the time of collection. Only three soil samples contained herbicides and and these were levels lower than might be expected considering the past history of use in the area. The water sample contained no detectable levels of the herbicides for which analysis was done.

8. TECHNICAL ASSISTANCE. Further information concerning these data may be obtained by contacting the Project Officer, Mr. Kenneth L. Olds, AUTOVON 584-3613/4131. Requests for services should be directed through appropriate command channels of the requesting activity to the Commander, US Army Environmental Hygiene Agency, ATTN: HSHB-RP-MO, Aberdeen Proving Ground, MD

HSHB-RP-MO
SUBJECT: Pesticide Monitoring Special Study No. 17-44-0987-84, Analysis of Environmental Samples for Herbicide Content, Seneca Army Depot Activity, NY, 12 September 1983

21010, with an information copy furnished the Commander, US Army Health Services Command, ATTN: HSPA-P, Fort Sam Houston, TX 78234.

FOR THE COMMANDER:

Alexander F. Doherty, LTC

JOSEPH T. WHITLAW, JR
Colonel, MSC
Director, Radiation and
Environmental Sciences

2 Incl
as

REVIEWED BY:

TIMOTHY B. WEYANDT M.D., M.P.H.
MAJ, MC
Assistant for Chemical Warfare and
Health Hazard Evaluation

CF:
HQDA (DASG-PSP)
Cdr, HSC (HSPA-P)
Cdr, DESCOM (DRSDS-RM-EF)
Cdr, DARCOM (DRCIS-A)
Cdr, DARCOM (DRCIS-RI-IC)
Cdr, Engineering District, New York (NANCO)
Cdr, SEAD (2 cy)
Cdr, MEDDAC, Ft Devens (PVNTMED Actv)(2 cy)
Cdr, WRAMC (PVNTMED Actv)
C, USAEHA-Rgn Div North

HSHB-RP-MO
SUBJECT: Pesticide Monitoring Special Study No. 17-44-0987-84, Analysis of Environmental Samples for Herbicide Content, Seneca Army Depot Activity, NY, 12 September 1983

TABLE. RESULTS OF ANALYSES

SAMPLE	PMPMD NO.	AEHA NO.	PESTICIDE CONCENTRATION	
Soil, SW corner Inner fence Surface	SP-5713	C-5934		ND*
Soil, SW corner Inner fence 3" depth	SP-5714	C-5935		ND*
Soil, NW corner Inner fence Surface	SP-5715	C-5936		ND*
Soil, NW corner Inner fence 3" depth	SP-5716	C-5937		ND*
Soil, SE corner Inner fence Surface	SP-5717	C-5938	2,4-D 2,4,5-T	0.04 ppm 0.008 ppm
Soil, SE corner Inner fence 4" depth	SP-5718	C-5939		ND*
Soil, NE corner Inner fence Surface	SP-5719	C-5940		ND*
Soil, NE corner Inner fence 4" depth	SP-5720	C-5941		ND*
Soil, Middle east side Inner fence Surface	SP-5721	C-5942	2,4-D	0.078 ppm
Soil, Middle east side Inner Fence 4" depth	SP-5722	C-5943		ND*

HSHB-RP-MO
SUBJECT: Pesticide Monitoring Special Study No. 17-44-0987-84, Analysis of Environmental Samples for Herbicide Content, Seneca Army Depot Activity, NY, 12 September 1983

TABLE. RESULTS OF ANALYSES (Cont)

SAMPLE	PMPMD NO.	AEHA NO.	PESTICIDE CONCENTRATION
Soil, South Boundary Fresh excavation Surface	SP-5724	C-5945	2,4-D 0.055 ppm 2,4,5-T 0.011 ppm
Soil, NE corner Outer fence Surface	SP-5725	C-5946	ND*
Soil, NE corner Outer fence 6" depth	SP-5726	C-5947	ND*
Soil, NE corner Outer fence 12" depth	SP-5729	C-5950	ND*
Soil, NW corner Outer fence Surface	SP-5727	C-5948	ND*
Soil, NW corner Outer fence 3" depth	SP-5728	C-5949	ND*
Water, SW Corner Inner fence	SP-5723	C-5944	ND*
Air, NW Corner Inner fence	SP-5730	C-5951	ND*

TABLE. RESULTS OF ANALYSES (Cont)

SAMPLE	PMPMD NO.	AEHA NO.	PESTICIDE CONCENTRATION
Air, SE Corner Inner fence	SP-5731	C-5952	ND*

* No pesticides detected at the lower limits of detectability.

DONALD J. KIPPENBERGER, Ph.D.
CPT. MSC
Chief, Pesticide Analysis Branch
Organic Environmental Chemistry Division

HSHB-RP-MO
SUBJECT: Pesticide Monitoring Special Study No. 17-44-0987-84, Analysis of Environmental Samples for Herbicide Content, Seneca Army Depot Activity, NY, 12 September 1983

ANALYTICAL LIMITS OF DETECTABILITY OF HERBICIDES

COMPOUND	SOIL LIMIT OF DET. (ppm)	WATER LIMIT OF DET. (ppb)	AIR LIMIT OF DET. ($\mu g/m^3$)
2,4-D	0.009	3.8	0.05
2,4,5-T	0.004	0.5	0.025
silvex	0.004	0.5	0.025

for D. Hank Voight

DONALD J. KIPPENBERGER, Ph.D.
CPT. MSC
Chief, Pesticide Analysis Branch
Organic Environmental Chemistry Division

APPENDIX E:

Surface Water and Sediment Analysis Results

SEAD 60

TABLE 4.1-3

SENECA ARMY DEPOT
SEAD-60 ENVIRONMENTAL SITE INSPECTION
SURFACE WATER ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION SAMPLE DATE ES ID LAB ID SDG NUMBER UNITS	MAXIMUM	FREQUENCY OF DETECTION	NYS GUIDELINES CLASS D (a,c)	NUMBER ABOVE CRITERIA	WATER SEAD-60 04/27/94 SW60-1 219531 43626	WATER SEAD-60 04/20/94 SW60-2 218496 43626	WA SE 04 SV 21 43
	ug/L	259	100%	NA	NA	35.7 J	259	93.5 J
	ug/L	1.6	33%	360	0	1.5 U	1.6 J	1.5 U
	ug/L	49.4	100%	NA	NA	28.7 J	49.4 J	22.4 J
	ug/L	89000	100%	NA	NA	42300	89000	42200
	ug/L	0.68	67%	3275	0	0.56 J	0.68 J	0.4 U
	ug/L	2	100%	36.8	0	1.7 J	2 J	1.1 J
	ug/L	453	100%	300	1	78 J	453	121
	ug/L	22000	100%	NA	NA	8260	22000	8390
	ug/L	28.5	100%	NA	NA	12.5 J	28.5	4.5 J
	ug/L	1.8	100%	50562	0	0.98 J	1.8 J	0.83 J
	ug/L	1430	100%	NA	NA	1060 J	1430 J	649 J
	ug/L	53800	100%	NA	NA	2030 J	53800	2340 J
	ug/L	0.85	33%	190	0	0.7 U	0.85 J	0.69 U
	ug/L	9.6	100%	611	0	3 J	3.4 J	9.6 J
LYSES								
	Standard Units					8.4	8.7	9.1
	umhos/cm					232	675	180
	°C					23.3	16	10
	NTU					2.2	5.7	2.4

NOTES:

a) The New York State Ambient Water Quality standards and guidelines for Class D surface water.
b) Hardness dependent values assume a hardness of 217 mg/L.
c) NA = Not Available
d) U = The compound was not detected below this concentration.
e) J = The reported value is an estimated concentration.
f) UJ = The compound may have been present above this concentration, but was not detected due to problems with the analysis.
g) R = The data was rejected during the data validation process.

TABLE 4.1-4

SENECA ARMY DEPOT
SEAD-60 ENVIRONMENTAL SITE INSPECTION
SEDIMENT ANALYSIS RESULTS

COMPOUND	MATRIX LOCATION DEPTH (FEET) SAMPLE DATE ES ID LAB ID SDG NUMBER UNITS	MAXIMUM	FREQUENCY OF DETECTION	NYSDEC SEDIMENT CRITERIA FOR AQUATIC LIFE (a)	NYSDEC SEDIMENT CRITERIA FOR HUMAN HEALTH (a)	NYSDEC SEDIMENT CRITERIA FOR WILDLIFE (a)	LOT (b)	NUMBER ABOVE CRITERIA	SOIL SEAD-60 0-0.2 04/27/94 SD60-1 219550 43663	SOIL SEAD-60 0-0.2 04/20/94 SD60-2 218490 43663	SOIL SEAD-60 0-0.2 04/20/94 SD60-3 218491 43663
OLATILE ORGANICS											
hloroform	ug/Kg	3	33%	NA	NA	NA	NA	NA	16 U	3 J	16 U
EMIVOLATILE ORGANICS											
henanthrene	ug/Kg	70	67%	1390	NA	NA	NA	0	580 U	63 J	70 J
uoranthene	ug/Kg	200	67%	NA	NA	NA	NA	NA	580 U	160 J	200 J
yrene	ug/Kg	250	67%	NA	NA	NA	NA	NA	580 U	190 J	250 J
enzo(a)anthracene	ug/Kg	68	67%	NA	13	NA	NA	2	580 U	56 J	68 J
hrysene	ug/Kg	160	67%	NA	13	NA	NA	2	580 U	130 J	160 J
s(2-Ethylhexyl)phthalate	ug/Kg	1100	100%	1197 (c)	NA	NA	NA	0	110 J	1100	75 J
enzo(b)fluoranthene	ug/Kg	120	67%	NA	13	NA	NA	2	580 U	120 J	120 J
enzo(k)fluoranthene	ug/Kg	97	67%	NA	13	NA	NA	2	580 U	87 J	97 J
enzo(a)pyrene	ug/Kg	79	67%	NA	13	NA	NA	2	580 U	79 J	64 J
deno(1,2,3-cd)pyrene	ug/Kg	68	67%	NA	13	NA	NA	2	580 U	68 J	57 J
enzo(g,h,i)perylene	ug/Kg	93	67%	NA	NA	NA	NA	NA	580 U	93 J	67 J
ESTICIDES/PCB											
ndosulfan I	ug/Kg	2.1	33%	0.3	NA	NA	NA	1	3 U	3.3 U	2.1 J
4'-DDE	ug/Kg	5.4	33%	500	0.1	10	NA	1	5.8 U	6.5 U	5.4 J
4'-DDT	ug/Kg	3.4	33%	NA	NA	10	NA	0	5.8 U	6.5 U	3.4 J
pha-Chlordane	ug/Kg	1.9	33%	0.06	0.01	0.06	NA	1	3 U	3.3 U	1.9 J
ETALS											
uminum	mg/Kg	12700	100%	NA	NA	NA	NA	NA	12700	10700	5470
senic	mg/Kg	4.8	100%	5	NA	NA	33	0	4.8	3.6	3.7
rium	mg/Kg	97.6	100%	NA	NA	NA	NA	NA	97.6	80.3	46.5 J
eryllium	mg/Kg	0.62	100%	NA	NA	NA	NA	NA	0.62 J	0.54 J	0.35 J
admium	mg/Kg	0.44	100%	0.8	NA	NA	10	0	0.34 J	0.44 J	0.25 J
alcium	mg/Kg	227000	100%	NA	NA	NA	NA	NA	3760	21300	227000
hromium	mg/Kg	19.5	100%	26	NA	NA	111	0	19.5	17.5	9
obalt	mg/Kg	9.6	100%	NA	NA	NA	NA	NA	9.6 J	8.2 J	6.7 J
opper	mg/Kg	21.1	100%	19	NA	NA	114	1	14.2	21.1	12.5
on	mg/Kg	25000	100%	24000	NA	NA	40000	1	25000	22000	12700
ad	mg/Kg	24.6	100%	27	NA	NA	250	0	13.9	24.6	9.1
agnesium	mg/Kg	8380	100%	NA	NA	NA	NA	NA	4370	7490	8380
anganese	mg/Kg	509	100%	428	NA	NA	1100	2	467 J	282 J	509 J
ercury	mg/Kg	0.03	33%	0.11	NA	NA	2	0	0.05 J R	0.04 J R	0.03 J
ckel	mg/Kg	27.2	100%	22	NA	NA	90	2	27.2	26.7	16.2
otassium	mg/Kg	1610	100%	NA	NA	NA	NA	NA	1610	1190 J	988 J
odium	mg/Kg	134	67%	NA	NA	NA	NA	NA	45 U	134 J	91 J
allium	mg/Kg	0.55	33%	NA	NA	NA	NA	NA	0.45 U	0.55 J	0.46 U
anadium	mg/Kg	23.9	100%	NA	NA	NA	NA	NA	23.9	19.2	11.1 J
nc	mg/Kg	101	100%	85	NA	NA	800	3	93.5	88.1	101
yanide	mg/Kg	3.3	33%	NA	NA	NA	NA	NA	0.83 U	0.94 U	3.3
THER ANALYSES											
otal Petroleum Hydrocarbons	mg/Kg	149	33%						40 U	149	44 U
otal Solids	%W/W								56.8	50.7	60.5

NOTES:
a) NYSDEC Sediment Criteria - 1989
b) LOT = Limit of Tolerance: Represents point at which significant effects on benthic species occur.
c) NYSDEC 1969 guideline for phthalates.
d) NA = Not Available.
e) U = The compound was not detected below 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.

APPENDIX F:

Radiological Survey and Swipe Test

Building 803 & 806

JMT

smears.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY AVIATION AND MISSILE COMMAND
REDSTONE ARSENAL, ALABAMA 35898-5000

REPLY TO
ATTENTION OF

AMSAM-TMD-SR(C) (385-11d) 20 January 1999

MEMORANDUM FOR Commander, Seneca Army Depot Activity, ATTN: SIOSE-S, 5786 State Rte 96, Romulus, NY 14541-5001

SUBJECT: Wipe Tests

1. The results of wipe tests made at your facility, which this laboratory received on 4 January 1999, are indicated on the enclosed sheets.

2. Results exceeding the limit of decision are reported as defined by NCRP 58.

3. Traceability to NIST is provided by an Am-241 source, SN: CS957, last calibrated date: 2 June 1997, a Sr-90 source, SN: CS 945, last calibrated date: 3 June 1997, and a Cs-137 source, SN: CS 933, last calibrated date: 10 June 1997. These sources were calibrated at NIST and were used to calibrate the counters used to evaluate your wipe tests. The NIST calibration documents are maintained on file at this facility.

4. The POC is Sun Almond, COM 256-876-3340/0472 or DSN 746-3340/0472.

Encls

PATRICK J. KUYKENDALL
Chief, Rad Standards and Dos Lab

Seneca Army Depot

IDENTIFICATION		DPM			IDENTIFICIATION		DPM		
		Alpha	Beta	Gamma			Alpha	Beta	Gamma
802V2	124177	0.0	0.0	0.0	810V2	124132	0.0	0.0	0.0
804R1	124173	0.0	0.0	0.0	810V3	124133	0.0	0.0	0.0
804R2	124174	0.0	0.0	0.0	810V4	124134	0.0	3.1	0.0
804R3	124175	0.0	0.0	0.0	810V5	124135	0.0	6.9	0.0
805R1	124173	0.0	0.0	0.0	810D1	124136	0.0	0.0	0.0
806V1A	124145	0.0	3.4	0.0	810D2	124137	0.0	0.0	0.0
806V2	124146	0.0	0.0	0.0	810D3	124138	0.0	0.0	0.0
806V3	124147	0.0	0.0	0.0	810V1A	124168	0.0	0.0	59.0
806V4	124148	0.0	2.8	0.0	812V1B	124169	0.0	0.0	0.0
806V5	124149	0.0	0.0	0.0	812V2	124170	0.0	0.0	0.0
806V6	124150	0.0	0.0	0.0	812V3	124171	0.0	0.0	0.0
806V7	124151	0.0	0.0	0.0	812D1	124172	0.0	0.0	0.0
806V8	124152	1.0	4.3	0.0	815V17	124018	0.0	3.4	0.0
806V9	124153	0.0	0.0	0.0	815V16	124019	0.0	0.0	0.0
806V10	124154	0.0	4.3	0.0	819R1	124178	0.0	0.0	0.0
806V11	124155	0.0	2.8	0.0	819R13	124179	0.0	0.0	0.0
806V12	124156	0.0	6.2	0.0	819R14	124181	0.0	0.0	0.0
806V1B	124157	0.0	2.8	0.0	819R2	124182	0.0	0.0	0.0
806D1	124158	0.0	0.0	0.0	819R3	124183	0.0	0.0	0.0
806V13	124159	0.0	2.8	0.0	819R4	124184	1.0	0.0	0.0
806V14	124160	0.0	0.0	0.0	819R15	124185	0.0	0.0	0.0
806V15	124161	0.0	6.6	0.0	819R11	124188	0.0	0.0	0.0
806V16	124162	0.0	0.0	0.0	819R10	124187	0.0	0.0	0.0
806V19	124163	1.0	2.6	0.0	819R12	124180	0.0	0.0	0.0
807V1A	124139	0.0	0.0	0.0	827-1	124015	0.0	0.0	0.0
807V1B	124140	1.4	0.0	0.0	827-2	124016	0.0	0.0	0.0
807D1	124141	0.0	0.0	0.0	827-3	124017	0.0	0.0	0.0
807D2	124142	0.0	0.0	0.0	WT-032		0.0	3.1	0.0
807D3	124143	0.0	0.0	0.0	WT-033		0.0	0.0	0.0
807D4	124144	0.0	0.0	0.0	WT-034		0.0	0.0	0.0
809V1	124164	1.0	0.0	0.0	WT-035		0.0	0.0	0.0
809V2	124165	0.0	0.0	0.0	WT-036		0.0	0.0	0.0
809V3	124166	0.0	0.0	0.0	WT-037		0.0	0.0	0.0
809V4	124167	0.0	0.0	0.0	WT-038		0.0	0.0	0.0
810V1	124131	1.4	6.9	0.0	WT-039		0.0	0.0	0.0

Note: Limit of Detection (LD) is 2 dpm for Alpha, 7 dpm for Beta, and 113 dpm for Gamma.

probably above LD.

Seneca Army Depot

IDENTIFICATION	DPM			IDENTIFICATION	DPM		
	Alpha	Beta	Gamma		Alpha	Beta	Gamma
815HRR1	98.3	51.9	0.0	815HRW3C1	0.0	0.0	0.0
815HRR2	124.2	85.3	0.0	815HRW3C2	0.0	0.0	0.0
815HRR3	161.3	81.4	74.9	815HRW3C3	0.0	0.0	0.0
815HRR4	87.4	48.0	0.0	815HRW4A1	0.0	0.0	0.0
815HRR5	106.2	63.6	0.0	815HRW4A2	0.0	0.0	0.0
815HRR6	92.5	55.5	0.0	815HRW4A3	0.0	0.0	0.0
815HRR7	114.2	65.4	0.0	815HRW4B1	0.0	0.0	0.0
815HRR8	33.8	15.6	0.0	815HRW4B2	0.0	0.0	0.0
815HRR9	26.5	12.3	0.0	815HRW4B3	0.0	0.0	0.0
815HRR10	129.1	57.6	62.0	815HRW4B4	0.0	0.0	0.0
815HRR11	44.2	30.3	0.0	815HRW4B5	0.0	0.0	0.0
815HRW1A1	0.0	0.0	0.0	815HRW4C1	0.0	0.0	0.0
815HRW1A2	0.0	0.0	0.0	815HRW4C2	0.0	0.0	0.0
815HRW1B1	0.0	0.0	0.0	815HRW4C3	0.0	0.0	0.0
815HRW1B2	0.0	0.0	0.0	815HRW4C4	0.0	0.0	0.0
815HRW1B3	1.2	0.0	0.0	815HRW4C5	0.0	0.0	0.0
815HRW1C1	0.0	0.0	0.0	815HRC1A1	0.0	0.0	0.0
815HRW1C2	0.0	0.0	0.0	815HRC1A2	0.0	0.0	0.0
815HRW1C3	1.2	0.0	0.0	815HRC1A3	0.0	0.0	0.0
815HRW2A1	0.0	0.0	0.0	815HRC1B1	0.0	0.0	0.0
815HRW2A2	0.0	0.0	0.0	815HRC1B2	0.0	0.0	0.0
815HRW2A3	0.0	0.0	74.3	815HRC1B3	0.0	0.0	0.0
815HRW2B1	0.0	0.0	0.0	815HRC1C1	0.0	0.0	0.0
815HRW2B2	0.0	0.0	0.0	815HRC1C2	0.0	0.0	0.0
815HRW2B3	0.0	0.0	0.0	815HRC1C3	0.0	0.0	0.0
815HRW2B4	0.0	0.0	0.0	815HRC1D1	0.0	0.0	0.0
815HRW2B5	0.0	0.0	0.0	815HRC1D2	0.0	0.0	0.0
815HRW2C1	0.0	0.0	0.0	815HRC1D3	0.0	0.0	0.0
815HRW2C2	0.0	0.0	0.0	815HRC1E1	0.0	0.0	0.0
815HRW2C3	0.0	0.0	0.0	815HRC1E2	0.0	0.0	0.0
815HRW2C4	0.0	0.0	0.0	815HRC1E3	0.0	0.0	0.0
815HRW2C5	0.0	0.0	0.0	815HRF1A1	2.2	0.0	0.0
815HRW3A1	0.0	0.0	0.0	815HRF1A2	3.1	3.9	0.0
815HRW3A2	0.0	0.0	0.0	815HRF1B1	0.9	0.0	0.0
815HRW3B1	0.0	0.0	0.0	815HRF1B2	1.2	0.0	0.0
815HRW3B2	0.0	0.0	0.0	815HRF1C1	1.2	0.0	0.0
815HRW3B3	0.0	0.0	0.0	815HRF1C2	3.1	0.0	0.0

Note: Limit of Detection (LD) is 2 dpm for Alpha, 7 dpm for Beta, and 113 dpm for Gamma.

Seneca Army Depot

IDENTIFICATION		DPM			IDENTIFICIATION		DPM		
		Alpha	Beta	Gamma			Alpha	Beta	Gamma
815ROOF 1	124094	0.0	0.0	0.0	816V82	124058	0.0	0.0	0.0
815ROOF 2	124095	0.0	0.0	0.0	816V47	124059	0.0	0.0	0.0
816ROOF 3	124096	0.0	0.0	0.0	816V96	124060	0.0	0.0	0.0
815ROOF 3	124097	0.0	0.0	0.0	816V32	124061	0.0	0.0	0.0
815ROOF 4	124098	0.0	0.0	0.0	816V38	124062	0.0	0.0	0.0
815ROOF 5	124099	0.0	0.0	0.0	816V89	124063	0.0	0.0	0.0
815ROOF 5	124100	0.0	0.0	0.0	816V90	124064	0.0	0.0	0.0
815RGOF 6	124101	0.0	0.0	0.0	816V35	124065	0.0	0.0	0.0
815ROOF 6	124102	0.0	0.0	0.0	816V42	124066	0.0	4.6	0.0
815ROOF 6	124103	0.0	0.0	0.0	816V34	124067	0.0	0.0	0.0
816ROOF 1	124104	0.0	0.0	0.0	816V41	124068	0.8	0.0	0.0
816ROOF 1	124105	0.0	0.0	0.0	816V48A	124069	0.8	6.1	0.0
816ROOF 1	124106	0.0	0.0	0.0	816V48B	124070	1.7	0.0	0.0
816ROOF 3	124107	0.0	0.0	0.0	816V47A	124071	3.3	3.7	0.0
816ROOF 4	124108	0.0	0.0	0.0	816V47B	124072	3.6	16.5	0.0
816ROOF 4	124109	0.0	0.0	0.0	816V49	124073	0.0	0.0	0.0
816ROOF 4	124110	0.0	0.0	0.0	816V50	124074	0.0	0.0	0.0
816ROOF 5	124111	0.0	0.0	0.0	816V51	124075	0.0	3.4	0.0
816ROOF 5	124112	0.0	0.0	0.0	816V52	124076	0.8	4.0	0.0
816ROOF 5	124113	0.0	0.0	0.0	816V30	124077	0.0	0.0	0.0
816ROOF 6	124115	0.0	0.0	0.0	816V12	124078	0.0	0.0	0.0
816ROOF 6	124116	0.0	0.0	0.0	816V1	124020	0.0	4.0	0.0
816ROOF 7	124117	0.0	0.0	0.0	816V2	124021	1.1	0.0	0.0
816ROOF 7	124119	0.0	0.0	0.0	816V3	124022	0.8	0.0	0.0
816ROOF 8	124120	0.0	0.0	0.0	816V4	124023	0.0	3.7	0.0
816ROOF 9	124121	0.0	0.0	0.0	816V5	124024	0.0	0.0	0.0
816ROOF 9	124122	0.0	0.0	0.0	816V28	124025	0.0	0.0	0.0
816ROOF 10	124123	0.0	0.0	0.0	816V7	124026	0.0	0.0	0.0
816ROOF 11	124124	0.0	0.0	0.0	816V10	124027	0.0	0.0	0.0
816ROOF 11	124125	0.0	0.0	0.0	816V22	124028	0.0	0.0	0.0
816ROOF 12	124126	0.0	0.0	0.0	816V11	124029	0.8	0.0	0.0
816ROOF 13	124127	0.0	0.0	0.0	816V21	124030	0.0	0.0	0.0
816ROOF 7	124118	0.0	0.0	0.0	816V25	124031	0.0	0.0	0.0
816ROOF 14	124128	0.0	0.0	0.0	816V17	124032	0.0	0.0	0.0
816ROOF 15	124129	0.0	0.0	0.0	816V6	124033	0.0	0.0	0.0
816ROOF 16	124130	0.0	0.0	0.0	816V16	124034	0.0	0.0	0.0
816V7	124050	0.0	0.0	0.0	816V15	124035	0.0	0.0	0.0
816V20	124051	0.0	0.0	0.0	816V8	124036	0.0	0.0	0.0
816V26	124052	0.0	0.0	0.0	816V14	124039	0.0	0.0	0.0
816V29	124053	0.0	5.5	0.0	816V18	124040	0.8	0.0	0.0
816V19	124054	0.8	0.0	0.0	816V9	124041	1.1	3.4	0.0
816V27	124055	0.0	0.0	0.0	816V13	124045	0.0	0.0	0.0
816V13	124056	0.0	0.0	0.0	816V45	124047	0.0	0.0	0.0
816V31	124057	0.0	0.0	0.0	816V43	124048	0.0	0.0	0.0

Note: Limit of Detection (LD) is 2 dpm for Alpha, 7 dpm for Beta, and 113 dpm for Gamma.

Seneca Army Depot

IDENTIFICATION	DPM			IDENTIFICATION	DPM		
	Alpha	Beta	Gamma		Alpha	Beta	Gamma
816BW1A1	0.0	0.0	0.0	816BC1D2	0.0	0.0	0.0
816BW1A2	0.0	0.0	0.0	816BC1D3	0.0	0.0	0.0
816BW2A1	1.7	0.0	0.0	816BC1D4	0.0	0.0	0.0
816BW2A2	0.0	0.0	0.0	816BF1A1	0.0	0.0	0.0
816BW3A1	0.0	0.0	0.0	816BF1A2	0.0	0.0	0.0
816BW3A2	0.0	0.0	0.0	816BF1B1	0.0	0.0	0.0
816BW4A1	0.0	0.0	0.0	816BF1B2	0.0	0.0	0.0
816BW4A2	0.0	0.0	0.0	816CR1	0.0	0.0	0.0
816BW1B1	0.0	0.0	0.0	816CR2	0.0	0.0	0.0
816BW1B2	0.0	0.0	0.0	816CW1A1	0.0	0.0	0.0
816BW1B3	0.0	0.0	0.0	816CW1A2	0.0	0.0	0.0
816BW1B4	0.0	0.0	0.0	816CW2A1	0.0	0.0	0.0
816BW2B1	0.0	0.0	0.0	816CW3A1	0.0	0.0	0.0
816BW2B2	0.0	0.0	0.0	816CW3A2	0.0	0.0	0.0
816BW2B3	0.0	0.0	0.0	816CW4A1	0.0	0.0	0.0
816BW2B4	0.0	0.0	0.0	816CW1B1	0.0	0.0	0.0
816BW3B1	0.0	0.0	0.0	816CW1B2	0.0	0.0	0.0
816BW3B2	0.0	0.0	0.0	816CW1B3	0.0	0.0	0.0
816BW3B3	0.0	0.0	0.0	816CW1B4	0.0	0.0	0.0
816BW3B4	0.0	0.0	0.0	816CW2B1	0.0	0.0	0.0
816BW4B1	0.0	0.0	0.0	816CW2B2	0.0	0.0	0.0
816BW4B2	0.0	0.0	59.8	816CW3B1	0.0	0.0	0.0
816BW4B3	0.0	0.0	0.0	816CW3B2	0.0	0.0	0.0
816BW4B4	0.0	0.0	0.0	816CW3B3	0.0	0.0	0.0
816BC1A1	0.0	0.0	0.0	816CW3B4	0.0	0.0	0.0
816BC1A2	0.0	0.0	0.0	816CW4B1	0.0	0.0	0.0
816BC1A3	0.0	0.0	0.0	816CW4B2	0.0	0.0	0.0
816BC1A4	0.0	0.0	0.0	816CC1A1	0.0	0.0	0.0
816BC1B1	0.0	0.0	0.0	816CC1A2	0.0	0.0	0.0
816BC1B2	0.0	0.0	0.0	816CC1A3	0.0	0.0	0.0
816BC1B3	0.0	0.0	0.0	816CC1A4	0.0	0.0	0.0
816BC1B4	0.0	0.0	0.0	816CC1B1	0.0	0.0	0.0
816BC1C1	0.0	0.0	0.0	816CC1B2	0.0	0.0	0.0
816BC1C2	0.0	0.0	0.0	816CC1B3	0.0	0.0	0.0
816BC1C3	0.0	0.0	0.0	816CC1B4	0.0	0.0	0.0
816BC1C4	0.0	0.0	0.0	816CF1A1	0.0	0.0	0.0
816BC1D1	0.0	0.0	0.0	816CF1A2	0.0	3.1	0.0

Note: Limit of Detection (LD) is 3 dpm for Alpha, 6 dpm for Beta, and 110 dpm for Gamma.

Seneca Army Depot

IDENTIFICATION		DPM		
		Alpha	Beta	Gamma
815AR1		0.8	0.0	0.0
815AR2		0.0	0.0	0.0
815AF1A1		0.0	0.0	0.0
815AF1A2		0.0	0.0	0.0
815AW1A1		0.0	0.0	0.0
815AW1A2		0.0	0.0	0.0
815AW1B2		0.0	3.0	0.0
815AW2A1		0.0	0.0	0.0
815AW2C1		0.0	0.0	0.0
815AW3A1		0.0	0.0	0.0
815AW3A2		0.0	0.0	0.0
815AW3C2		0.0	0.0	0.0
815AW4B1		0.0	0.0	0.0
815AW4A1		0.0	0.0	0.0
815AC1B2		0.0	0.0	0.0
819V13	124241	2.6	5.9	0.0
819V16	124242	0.0	0.0	0.0
819V17	124243	0.0	0.0	0.0
819V20	124244	0.0	0.0	0.0
819V18	124245	0.0	0.0	0.0
819V19	124246	0.0	2.7	0.0
819D7	124249	0.0	0.0	0.0
819D2	124250	2.2	5.3	0.0
819D1	124251	2.9	8.5	0.0

Note: Limit of Detection (LD) is 2 dpm for Alpha, 6 dpm for Beta, and 110 dpm for Gamma.

Seneca Army Depot

815AR1	0.0
815AR2	0.0
815AW1A1	0.0
815AW1A2	0.0
815AW2A1	0.0
815AW1B2	0.0
815AW3A1	0.0
815AW3A2	0.0
815AW2C1	0.0
815AW3C2	0.0
815AW4A1	0.0
815AW4B1	0.0
815AC1B2	0.0
815AF1A1	0.0
815AF1A2	0.0

Note: Limit of Detection (LD) is 17.2 dpm for Tritium Beta.

Seneca Army Depot Activity
Tritium

IDENTIFICATION	DPM/BETA	IDENTIFICATION	DPM/BETA	IDENTIFICATION	DPM/BETA
815HRW1A1	0.0	815HRC1A2	0.0	816BF1A1	0.0
815HRW1A2	0.0	815HRC1A3	0.0	816BF1A2	0.0
815HRW1B1	0.0	815HRC1B1	0.0	816BF1B1	0.0
815HRW1B2	0.0	815HRC1B2	0.0	816BF1B2	0.0
815HRW1B3	0.0	815HRC1B3	0.0	816BC1A1	0.0
815HRW1C1	0.0	815HRC1C1	0.0	816BC1A2	0.0
815HRW1C2	0.0	815HRC1C2	0.0	816BC1A3	0.0
815HRW1C3	0.0	815HRC1C3	0.0	816BC1A4	0.0
815HRW2A1	0.0	815HRC1D1	0.0	816BC1B1	0.0
815HRW2A2	8.8	815HRC1D2	0.0	816BC1B2	0.0
815HRW2A3	0.0	815HRC1D3	10.0	816BC1B3	0.0
815HRW2B1	0.0	815HRC1E1	0.0	816BC1B4	0.0
815HRW2B2	0.0	815HRC1E2	0.0	816BC1C1	12.2
815HRW2B3	0.0	815HRC1E3	0.0	816BC1C2	0.0
815HRW2B4	0.0	815HRR1	54.6	816BC1C3	0.0
815HRW2B5	0.0	815HRR2	44.0	816BC1C4	0.0
815HRW2C1	0.0	815HRR3	4.0E+02	816BC1D1	0.0
815HRW2C2	0.0	815HRR4	66.5	816BC1D2	9.9
815HRW2C3	0.0	815HRR5	138.4	816BC1D3	0.0
815HRW2C4	0.0	815HRR6	10.2	816BC1D4	0.0
815HRW2C5	0.0	815HRR7	67.4	816CW1A1	0.0
815HRW3A1	0.0	815HRR8	54.3	816CW1A2	0.0
815HRW3A2	0.0	815HRR9	29.5	816CW1B1	0.0
815HRW3B1	0.0	815HRR10	33.3	816CW1B2	0.0
815HRW3B2	0.0	815HRR11	11.4	816CW1B3	0.0
815HRW3B3	0.0	816BW1A1	0.0	816CW1B4	0.0
815HRW3C1	0.0	816BW1A2	9.7	816CW2A1	0.0
815HRW3C2	0.0	816BW1B1	0.0	816CW2B1	0.0
815HRW3C3	0.0	816BW1B2	0.0	816CW2B2	0.0
815HRW4A1	0.0	816BW1B3	0.0	816CW3A1	0.0
815HRW4A2	0.0	816BW1B4	0.0	816CW3A2	0.0
815HRW4A3	0.0	816BW2A1	0.0	816CW3B1	0.0
815HRW4B1	0.0	816BW2A2	0.0	816CW3B2	0.0
815HRW4B2	11.3	816BW2B1	0.0	816CW3B3	0.0
815HRW4B3	0.0	816BW2B2	0.0	816CW3B4	0.0
815HRW4B4	0.0	816BW2B3	0.0	816CW4A1	0.0
815HRW4B5	0.0	816BW2B4	0.0	816CW4B1	0.0
815HRW4C1	0.0	816BW3A1	0.0	816CW4B2	0.0
815HRW4C2	0.0	816BW3A2	0.0	816CF1A1	0.0
815HRW4C3	0.0	816BW3B1	0.0	816CF1A2	0.0
815HRW4C4	0.0	816BW3B2	0.0	816CC1A1	0.0
815HRW4C5	0.0	816BW3B3	0.0	816CC1A2	0.0
815HRF1A1	8.6	816BW3B4	0.0	816CC1A3	0.0
815HRF1A2	11.8	816BW4A1	0.0	816CC1A4	0.0
815HRF1B1	28.2	816BW4A2	0.0	816CC1B1	0.0
815HRF1B2	0.0	816BW4B1	0.0	816CC1B2	0.0
815HRF1C1	0.0	816BW4B2	0.0	816CC1B3	0.0
815HRF1C2	0.0	816BW4B3	0.0	816CC1B4	0.0
815HRC1A1	0.0	816BW4B4	0.0	816CR1	10.9
				816CR2	0.0

Note: Limit of Detection (LD) is 17.8 dpm for Tritium Beta. Results exceeding the limit of decision are reported as defined by NCRP 58.

Seneca Army Depot

IDENTIFICATION		DPM			IDENTIFICIATION		DPM		
		Alpha	Beta	Gamma			Alpha	Beta	Gamma
800V1	124201	0.0	0.0	0.0	815V7	124006	0.0	3.5	0.0
800D2	124204	0.0	0.0	0.0	815V8	124007	0.0	0.0	0.0
800D3	124206	0.0	0.0	0.0	815V19	124008	0.0	0.0	0.0
800D1	124207	0.0	0.0	0.0	815V9	124010	0.0	0.0	0.0
802V1	124209	0.0	0.0	0.0	815V10	1240	1.1	0.0	0.0
802D1	124210	0.0	0.0	0.0	815V9	124012	0.0	0.0	0.0
802D2	124211	0.0	0.0	0.0	815V12	124013	4.1	13.5	0.0
802D3	124212	0.0	0.0	0.0	815V3	124014	0.0	0.0	0.0
803V1	124224	1.9	3.5	0.0	817V1	124237	0.0	0.0	0.0
803V2	124225	0.0	0.0	0.0	817V2	124238	0.0	0.0	0.0
803D1	124226	0.0	0.0	0.0	817V1	124239	0.0	0.0	0.0
803D2	124227	0.0	0.0	0.0	819V3	124188	2.6	8.2	0.0
803D3	124228	0.0	0.0	0.0	819V4	124189	3.0	9.5	0.0
803D4	124229	0.0	0.0	0.0	819V5	124190	2.6	7.0	0.0
803D5	124230	0.0	0.0	0.0	819V6	124191	0.0	3.5	0.0
803D6	124231	0.0	0.0	0.0	819V10	124192	2.6	4.5	0.0
803D7	124232	0.0	0.0	0.0	819V9	124193	5.9	13.2	63.9
804DW1	124084	0.0	0.0	0.0	819V8	124194	0.0	7.0	0.0
80RDW2	124085	0.0	0.0	0.0	819V7	124195	2.6	7.0	0.0
804V1	124215	0.0	0.0	0.0	819V11	124196	3.3	4.2	0.0
804V2	124216	0.0	0.0	0.0	819V12A	12A197	1.5	0.0	0.0
804V6	124217	0.0	0.0	0.0	819V12B	124198	1.1	0.0	0.0
804V7	124218	0.0	0.0	0.0	819V14	124202	0.0	2.9	0.0
804V8	124219	0.0	0.0	0.0	819V15	124203	0.0	0.0	0.0
804V9	124220	0.0	0.0	0.0	819D6	124199	0.0	4.5	0.0
804V10	124021	0.0	0.0	0.0	819D6	124200	4.8	17.6	0.0
804V11	124022	0.0	0.0	0.0	819D3	124205	0.0	0.0	0.0
804DW1	124023	0.0	0.0	0.0	819V4	124247	4.1	7.3	0.0
804V3	124255	0.0	0.0	0.0	819V9	124248	0.0	0.0	0.0
804V4	124256	1.5	0.0	0.0	819D4	124252	1.5	0.0	0.0
804V5	124257	0.0	0.0	0.0	819D5	124253	1.1	2.9	0.0
804V12	124258	0.0	0.0	0.0	819D5	124254	0.0	0.0	0.0
804V13	124259	0.0	0.0	0.0	824	124089	0.0	0.0	0.0
804V14	124260	0.0	0.0	0.0	824	124090	0.0	3.2	0.0
	124261	1.5	2.9	0.0	824	124091	1.1	0.0	0.0
	124262	0.0	0.0	0.0	824	124092	0.0	0.0	0.0
813V1B	124233	0.0	0.0	0.0	824	124093	0.0	4.2	0.0
813V1A	124234	0.0	0.0	0.0	826V1	124086	0.0	0.0	0.0
813D2	124235	0.0	0.0	0.0	826V1	124087	0.0	0.0	0.0
813D1	124236	0.0	0.0	0.0	WT-824		0.0	3.2	0.0
814V1A	124213	0.0	0.0	0.0	WT-826		0.0	0.0	0.0
814V1B	124214	0.0	2.9	0.0	WT-826		1.1	0.0	0.0
815V6A	2	1.5	0.0	0.0	WT-827		0.0	2.9	0.0
815V15	10	29.1	13.2	0.0	WT-828		0.0	7.6	0.0
815V16	124001	0.0	0.0	0.0	WT-829		0.0	0.0	0.0
815V20	124002	1.5	0.0	0.0	WT-830		0.0	0.0	0.0
815V14	124003	2.6	5.1	0.0	WT-831		0.0	0.0	0.0
815V5	124004	1.1	4.8	0.0					

Note: Limit of Detection (LD) is 3 dpm for Alpha, 6 dpm for Beta, and 104 dpm for Gamma.

Sample	Depth	units	Apha Probe	Background	units	Percentage Above (+) or below (-) Background	Bicron Fidler
803D1	0	feet	40	48		-16.67%	7347
803D1	0.5	feet					
803D2	0	feet	40	48		-16.67%	4913
803D3	0	feet	40	48		-16.67%	5173
803D3	0.5	feet					
803D4	0	feet	40	48		-16.67%	6662
803D5	0	feet	40	48		-16.67%	6470
803D6	0	feet	60	48		25.00%	6491
803D7	0	feet	50	48		4.17%	6432
803V1	0	feet	40	48		-16.67%	6684
803V1	0.5	feet					
803V1	1	feet					
803V2	0	feet	50	48		4.17%	6942
803V2	0.5	feet					
803V2	1	feet					
803V2	1.5	feet					

Background	units	Percentage Above (+) or below (-) Background	Pipe Probe	Background	units	Percentage Above (+) or below (-) Background
6483	cpm	13.33%	100	160	cpm	-37.50%
			100	160	cpm	-37.50%
6483	cpm	-24.22%	100	160	cpm	-37.50%
6483	cpm	-20.21%	200	160	cpm	25.00%
			100	160	cpm	-37.50%
6483	cpm	2.76%	200	160	cpm	25.00%
6483	cpm	-0.20%	100	160	cpm	-37.50%
6483	cpm	0.12%	200	160	cpm	25.00%
6483	cpm	-0.79%	200	160	cpm	25.00%
6483	cpm	3.10%	200	160	cpm	25.00%
			200	160	cpm	25.00%
			100	160	cpm	-37.50%
6483	cpm	7.08%	100	160	cpm	-37.50%
			200	160	cpm	25.00%
			100	160	cpm	-37.50%
			100	160	cpm	-37.50%

Gross Gamma Radiation as Measured with a Bicron Fidler Na(I) Scintilation Probe

collection date	Site	NAD-27 easting	NAD-27 northing	Gross Gamma Radiation	background	Percent above (+) or below (-) Background	units	Instrument s/n
9/30/97	SEAD-12	743550.4	1015784	10	9.4	6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743547.4	1015784	10.3	9.4	9.57%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743544.4	1015784	10.2	9.4	8.51%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743541.4	1015783	10	9.4	6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743538.4	1015783	9.5	9.4	1.06%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743535.4	1015783	9.2	9.4	-2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743532.4	1015783	8.8	9.4	-6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743529.4	1015783	9.6	9.4	2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743526.4	1015783	9	9.4	-4.26%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743523.4	1015783	9.7	9.4	3.19%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743520.4	1015783	9.1	9.4	-3.19%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743517.4	1015782	10	9.4	6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743514.4	1015782	10.2	9.4	8.51%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743511.5	1015782	9.1	9.4	-3.19%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743508.5	1015782	9.8	9.4	4.26%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743505.5	1015782	10	9.4	6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743502.5	1015782	9.2	9.4	-2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743499.5	1015782	8.8	9.4	-6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743496.5	1015781	9.6	9.4	2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743550.3	1015787	11.5	9.4	22.34%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743547.3	1015787	10.8	9.4	14.89%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743544.3	1015787	10.2	9.4	8.51%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743541.3	1015786	10.7	9.4	13.83%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743538.3	1015786	11.1	9.4	18.09%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743535.3	1015786	10.6	9.4	12.77%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743532.3	1015786	10.2	9.4	8.51%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743529.3	1015786	11	9.4	17.02%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743526.3	1015786	10.8	9.4	14.89%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743523.3	1015786	10.2	9.4	8.51%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743520.3	1015785	10.7	9.4	13.83%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743517.3	1015785	10.9	9.4	15.96%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743514.3	1015785	10.4	9.4	10.64%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743511.3	1015785	10.7	9.4	13.83%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743508.3	1015785	10	9.4	6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743505.4	1015785	9.7	9.4	3.19%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743502.4	1015785	9.9	9.4	5.32%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743499.4	1015785	9.4	9.4	0.00%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743496.4	1015784	9.5	9.4	1.06%	kcpm	A945P/A378Q

Gross Gamma Radiation as Measured with a Bicron Fidler Na(I) Scintilation Probe

		NAD-27		Gross Gamma		Percent above (+)		
collection date	Site	easting	northing	Radiation	background	or below (-) Background	units	Instrument s/n
9/30/97	SEAD-12	743550.2	1015790	11.4	9.4	21.28%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743547.2	1015790	11.1	9.4	18.09%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743544.2	1015790	10.7	9.4	13.83%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743541.2	1015789	11	9.4	17.02%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743538.2	1015789	10.6	9.4	12.77%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743535.2	1015789	11.1	9.4	18.09%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743532.2	1015789	10.9	9.4	15.96%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743529.2	1015789	10.2	9.4	8.51%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743526.2	1015789	10.8	9.4	14.89%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743523.2	1015789	9.9	9.4	5.32%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743520.2	1015788	9.2	9.4	-2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743517.2	1015788	9.5	9.4	1.06%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743514.2	1015788	9.4	9.4	0.00%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743511.2	1015788	10	9.4	6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743508.2	1015788	8.8	9.4	-6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743505.2	1015788	9.6	9.4	2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743502.2	1015788	9.2	9.4	-2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743499.3	1015788	9.7	9.4	3.19%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743496.3	1015787	9	9.4	-4.26%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743550.1	1015793	10.9	9.4	15.96%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743547.1	1015793	11.2	9.4	19.15%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743544.1	1015793	11.5	9.4	22.34%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743541.1	1015792	10.8	9.4	14.89%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743538.1	1015792	9.9	9.4	5.32%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743535.1	1015792	9.8	9.4	4.26%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743532.1	1015792	10.2	9.4	8.51%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743529.1	1015792	9.6	9.4	2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743526.1	1015792	9.2	9.4	-2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743523.1	1015792	8.8	9.4	-6.38%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743520.1	1015791	9.5	9.4	1.06%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743517.1	1015791	9.1	9.4	-3.19%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743514.1	1015791	8.9	9.4	-5.32%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743511.1	1015791	9.3	9.4	-1.06%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743508.1	1015791	9.6	9.4	2.13%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743505.1	1015791	9	9.4	-4.26%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743502.1	1015791	8.9	9.4	-5.32%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743499.1	1015791	9.4	9.4	0.00%	kcpm	A945P/A378Q
9/30/97	SEAD-12	743496.1	1015790	9.2	9.4	-2.13%	kcpm	A945P/A378Q

Gross Gamma Radiation as Measured with a Bicron Fidler Na(I) Scintilation Probe

		NAD-27		Gross Gamma		Percent above (+)		
collection date	Site	easting	northing	Radiation	background	or below (-) Background	units	Instrument s/n
9/29/97	SEAD-12	743496.8	1015773	7.6	9.1	-16.48%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743499.8	1015774	8.5	9.1	-6.59%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743502.8	1015774	8.2	9.1	-9.89%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743505.8	1015774	7.8	9.1	-14.29%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743508.8	1015774	8.2	9.1	-9.89%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743511.8	1015774	7.6	9.1	-16.48%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743514.8	1015774	7.8	9.1	-14.29%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743517.8	1015774	7	9.1	-23.08%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743520.8	1015775	8.1	9.1	-10.99%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743523.8	1015775	8.2	9.1	-9.89%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743526.8	1015775	7.5	9.1	-17.58%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743529.8	1015775	9.1	9.1	0.00%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743532.8	1015775	8.6	9.1	-5.49%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743535.8	1015775	7.8	9.1	-14.29%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743538.8	1015775	9	9.1	-1.10%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743541.8	1015775	8.5	9.1	-6.59%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743544.8	1015776	9.1	9.1	0.00%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743547.8	1015776	8.8	9.1	-3.30%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743550.8	1015776	7.8	9.1	-14.29%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743553.8	1015776	9.5	9.1	4.40%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743556.8	1015776	8.8	9.1	-3.30%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743559.8	1015776	10	9.1	9.89%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743562.8	1015776	9.9	9.1	8.79%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743565.8	1015776	10.1	9.1	10.99%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743568.8	1015777	10.7	9.1	17.58%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743496.9	1015770	7.7	9.1	-15.38%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743499.9	1015771	8	9.1	-12.09%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743502.9	1015771	9	9.1	-1.10%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743505.9	1015771	8.4	9.1	-7.69%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743508.9	1015771	8.5	9.1	-6.59%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743511.9	1015771	8.1	9.1	-10.99%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743514.9	1015771	9	9.1	-1.10%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743517.9	1015771	8.8	9.1	-3.30%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743520.9	1015772	9	9.1	-1.10%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743523.9	1015772	9.5	9.1	4.40%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743526.9	1015772	9	9.1	-1.10%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743529.9	1015772	8.9	9.1	-2.20%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743532.9	1015772	9.4	9.1	3.30%	kcpm	A945P/A378Q

Gross Gamma Radiation as Measured with a Bicron Fidler Na(I) Scintilation Probe

collection date	Site	NAD-27 easting	NAD-27 northing	Gross Gamma Radiation	background	Percent above (+) or below (-) Background	units	Instrument s/n
9/29/97	SEAD-12	743535.9	1015772	9.1	9.1	0.00%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743538.9	1015772	9.3	9.1	2.20%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743541.9	1015772	9.4	9.1	3.30%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743544.9	1015773	9.2	9.1	1.10%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743547.9	1015773	9	9.1	-1.10%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743550.9	1015773	9.1	9.1	0.00%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743553.9	1015773	9.6	9.1	5.49%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743556.9	1015773	9.5	9.1	4.40%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743559.9	1015773	10.8	9.1	18.68%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743562.9	1015773	11.8	9.1	29.67%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743565.9	1015773	11.5	9.1	26.37%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743568.9	1015774	11.9	9.1	30.77%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743497.1	1015767	7.4	9.1	-18.68%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743500.1	1015768	8.8	9.1	-3.30%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743503.1	1015768	7.6	9.1	-16.48%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743506.1	1015768	8	9.1	-12.09%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743509.1	1015768	8.5	9.1	-6.59%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743512.1	1015768	8.4	9.1	-7.69%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743515.1	1015768	8.4	9.1	-7.69%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743518.1	1015768	8.5	9.1	-6.59%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743521.1	1015769	8.2	9.1	-9.89%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743524.1	1015769	8.8	9.1	-3.30%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743527.1	1015769	9.2	9.1	1.10%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743530.1	1015769	9	9.1	-1.10%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743533.1	1015769	9.5	9.1	4.40%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743536.1	1015769	9.7	9.1	6.59%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743539.1	1015769	10.1	9.1	10.99%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743542.1	1015769	9.8	9.1	7.69%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743545.1	1015770	9.8	9.1	7.69%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743548.1	1015770	10.1	9.1	10.99%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743551.1	1015770	9.5	9.1	4.40%	kcpm	A945P/A378Q
9/29/97	SEAD-12	743554.1	1015770	9.1	9.1	0.00%	kcpm	A945P/A378Q
10/13/97	SEAD-12	743475.4	1015781	9.5	9.7	-2.06%	kcpm	A984P/A398Q