



Seneca Army Depot Activity
Romulus, New York



USACE – New York District
US Army, Engineering & Support Center
Huntsville, AL

Final

Five-Year Review

SEAD 1, 2, 5, 12, 13, 16, 17, 23, 25, 26, 27, 39, 40, 41, 43, 44A, 44B, 46, 52, 56, 59, 62, 64A, 64B, 64C, 64D, 66, 67, 69, 71, 121C, 121I, 122B, 122E, 002-R-01, 003-R-01, 007-R-01, AND THE ASH LANDFILL OPERABLE UNIT (SEADs 3, 6, 8, 14, and 15)

Seneca Army Depot Activity



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FIVE-YEAR REVIEW, SENECA ARMY DEPOT

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AND THE ASH LANDFILL OPERABLE UNIT (SEADs 3, 6, 8, 14, and 15)

SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

Prepared for:

U.S. ARMY CORPS OF ENGINEERS
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ACRONYMS AND ABBREVIATIONS

AFFF	Aqueous Film Forming Foam
AOC	Areas of Concern
AQCR	Air Quality Control Region
APCD	Air Pollution Control Device
ARAR	Applicable or Relevant and Appropriate Requirement
Army	U.S. Army
AWQS	Ambient Water Quality Standards
BRA	Baseline risk assessment
BRAC	Base Realignment and Closure
BTEX	benzene, toluene, ethylbenzene, and xylene
CCR	Construction Completion Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
cis-DCE	cis-dichloroethylene
CLP	Contract Laboratory Program
COC	Contaminant of Concern
COPCs	Contaminant of Potential Concern
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbons
CTE	Central tendency exposure
cy	Cubic yards
DoD	Department of Defense
DPW	Department of Public Works
DRMO	Defense Reutilization and Marketing Office
EBS	Environmental Baseline Survey
EOD	Explosive Ordnance Detonation
EPC	Exposure point concentration
ESI	Expanded site investigation
FFA	Federal Facilities Agreement
FS	feasibility study
Ft.	feet
FYR	Five-Year Review
HI	Hazard Index
IC	Institutional controls
IRFNA	Inhibited Red-Fuming Nitric Acid
LDR	Landfill Disposal Restrictions
LRA	Local Redevelopment Authority
LSP	Limited Sampling Program
LTM	Long Term Monitoring
LTTD	Low Temperature Thermal Desorption
LUC	Land Use Control
MCL	Maximum contaminant level
MRS	Munitions Response Site
NA	No Action
NFA	No Further Action
NCP	National Contingency Plan

NCFL	Non-Combustible Fill Landfill
NTCRA	Non-Time Critical Removal Action
NPL	National Priorities List
NY	New York
NYCRR	New York State Codes, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OB	Open Burning
OE	Ordnance and Explosives
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
PAH	Polycyclic Aromatic Hydrocarbon
Parsons	Parsons Government Services
PCB	Polychlorinated biphenyl
PFAS	Per- and Polyfluoroalkyl substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic Acid
PID	Planned Industrial/Office Development Warehousing Area
QA	quality assurance
RA	Remedial action
RAO	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDR	Remedial Design Report
RI	Remedial investigation
RME	Reasonable maximum exposure
ROD	Record of Decision
RSL	Regional Screening Level
SAR	Small Arms Range
SEDA	Seneca Army Depot Activity
SCIDA	Seneca County Industrial Development Agency
SCO	Soil Cleanup Objective
SI	Site Investigation
SLERA	Screening level ecological risk assessment
SRI	Supplemental Remedial Investigation
SWMUs	Solid Waste Management Units
SOW	Statement of work
SVOC	Semivolatile Organic Compounds
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target analyte list
TCE	Trichloroethylene
TCL	Target compound list
TCLP	Toxicity Characteristic Leaching Procedure
TCRA	Time critical removal action
TPH	total petroleum hydrocarbons
TSDf	Treatment, storage, and disposal facility
UCL	Upper Confidence Limit
USACE	U.S. Army Corps of Engineers

USEPA	U.S. Environmental Protection Agency
UU/UE	Unlimited Use/Unlimited Exposure
UXO	unexploded ordnance
VC	Vinyl Chloride
VOC	Volatile Organic Compounds
ZVI	Zero-Valence Iron

1.0 Executive Summary

This is the third Five-Year Review (FYR) for the former Seneca Army Depot Activity (SEDA) Site located in Seneca County, New York (**Figure 1**). The purpose of this FYR is to review information to determine if the remedies are and will continue to be protective of human health and the environment. The triggering action for this statutory FYR was the signing of the independent finding of protectiveness letter by the U.S. Environmental Protection Agency (USEPA), dated August 30, 2016.

This review found that the remedies at each Operable Unit (OU) are functioning as intended by the Decision Documents and are protective of human health and the environment. The exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the signature of the Record of Decision (ROD) are still valid. There have been no changes in the exposure pathways or in the physical conditions of the site since completion of the remedial action activities, and there have been no changes in the implementation of Land Use Controls (LUCs) that would affect the protectiveness of the remedies. As of June 2016, future land use has changed in the town of Varick. North of County Road 135 [Colonel's Road (previously named West Romulus Road) on the Depot and between B block and C block of igloos] will be designated as Conservation. The primary planned use for the area south of County Road 135, in the "Farming" area, will be farming. Based on available information the zoning plan has not changed within the sites since the 2016 revision.

As part of this FYR, the Army has considered optimization opportunities for each site that would be protective and reduce the Government's long-term environmental liability. The evaluation looked at both the effectiveness of the remedy for protection of human health and the environment and at the data that were used as the basis for implementing LUCs at each areas of concern (AOC). In several cases, the Army identified a site where there is potential that current site conditions may no longer require LUCs for protection of human health and the environment. As part of this review, it was identified that many of the RODs relied on groundwater data collected in the 1990s, often with high turbidity. The Army also found that in several cases LUCs were implemented as a conservative approach in lieu of data where groundwater was never sampled. In these cases, the Army believes that it is prudent to collect new groundwater samples and re-evaluate risk to determine if LUCs are still appropriate at some AOCs. The recommendations are summarized at the end of each site-specific appendix and in **Table 4**.

2.0 Introduction

Parsons Government Services (Parsons), in consultation with the U.S. Army (Army), conducted this FYR pursuant to Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, Section 300.430 (f) (4) (ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-03B-P (June 2001). The purpose of a FYR is to evaluate the implementation and performance of a remedy in order to determine if the remedy is or will be protective of human health and the environment. Protectiveness is generally defined in the NCP by the risk range and the hazard index (HI). The risk range and HI are estimated to determine the incremental probability of an individual developing health effects (carcinogenic or non-carcinogenic) over a lifetime because of exposure to a contaminant of concern (COC). Evaluation of the remedy and the determination of protectiveness should be based on and sufficiently supported by the data and observations. The FYR is required because hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure. This document will become part of the Administrative Record for the former SEDA Site.

The CERCLA sites will be reviewed individually within subgroups organized as follows:

- Land-Use Control (LUC)/Institutional Control (IC) and Long-Term Monitoring and Maintenance (LTMM) Sites, and
- Pre-ROD Sites: Sites with RODs pending or planned.

In 1995, SEDA was designated for closure under the Department of Defense (DoD) Base Realignment and Closure (BRAC) process. To address employment and economic impacts associated with the closure of SEDA, the Seneca County Board of Supervisors established the Seneca Army Depot Local Redevelopment Authority (LRA) in October 1995. The primary responsibility assigned to the LRA was to prepare a plan for redevelopment of the SEDA property. Following a comprehensive planning process, a Reuse Plan and Implementation Strategy for Seneca Army Depot was completed and adopted by the LRA on 08 October 1996. The Seneca County Board of Supervisors subsequently approved this Reuse Plan on 22 October 1996. In 2005, after it had acquired portions of the former Depot from the Army, the Seneca County Industrial Development Agency (SCIDA) changed the planned use of land in many portions of the Depot. **Figure 2** depicts the intended future land uses for SEDA, as modified by the SCIDA.

The CERCLA Sites requiring a FYR are provided in **Table 1** and a site chronology is presented in **Table 2**. A listing of all historic AOCs that have been the subject of CERCLA investigations at the Depot and their current disposition is provided in **Table 3**. A crosswalk to the OUs and associated SEADs is provided in **Table 5**.

SEDA consists of 22 OUs and 84 SEADs (i.e., individual AOCs specific to SEDA) (**Table 3**). Historically, the RODs generally combined AOCs by OU and added NA/NFA Sites based on timing; however, the remedial approach was targeted at individual or groups of AOCs and not by the OU designation. For consistency with the historical designations used throughout the site and remedial investigation documents, Construction Completion Reports (CCR), and RODs, the issues/recommendations and protectiveness statements are per AOC instead of per OU.

As of the date of this Report, RODs have been signed for 83 out of 84 AOCs at SEDA. AOCs with signed RODs are listed in **Table 3**. Consistent with CERCLA requirements, a five-year statutory review is required for a site with a ROD signed on or after 17 October 1986 if upon completion of the remedial action, hazardous substances, pollutants, or contaminants will remain on site. Of the 83 AOCs, four AOCs were delisted from the NPL in 1998 due to reuse initiatives; SEAD-50 and SEAD-54 were delisted for a sheriff's office, and SEAD-24 and SEAD-58 were delisted for a planned ethanol plant. As such, this document provides a FYR for the 42 AOCs listed in **Table 1** that require a FYR. Of the remaining 42 AOCs, 41 (38 sites plus SEAD-65A, B, and C) AOCs have been closed with a No Action (NA) or No Further Action (NFA) determination and are not addressed in this review (Parsons, 2003). Currently, there is one OU (SEAD-45) that is under assessment and does not have a signed ROD as of the date of this FYR. Although the signed ROD for SEAD-23 does not have established LUCs, the ROD specifies Operations and Maintenance requirements, and therefore, SEAD-23 was included as part of this FYR.

3.0 Report Structure

The report is organized such that general information and summary statements common to all the AOCs are contained in the main body of the report. Each AOC with LUC requirements is detailed in a dedicated appendix. The appendices are organized into six areas which have common or similar land use and LUCs. The six areas, and the AOCs within them, are organized as follows:

- Appendices A through O – Planned Industrial/Office Development (PID) and Warehousing Area: SEADs 1, 2, 5, 16, 17, 25, 26, 27, 39, 40, 59, 64A, 66, 67, 71, 121C, and 121I;
- Appendices P through U – Prison Area: SEADs 43, 44A, 44B, 52, 56, 62, 64C, and 69;
- Appendix V, X, Y, and AB – Other Areas: SEADs 13, 64B and 64D, and 12;
- Appendix W – North End Institutional Area: SEAD-41;

- Appendix Z – Ash Landfill Operable Unit: SEADs 3, 6, 8, 14, and 15;
- Appendix AA – Airfield Parcel: SEADs 122B and 122E;
- Appendix AC through AF – Former Munitions Response Sites with LUC requirements: SEADs 46, 003-R-01, 007-R-01, and 002-R-01; and
- Appendix AG – OB Grounds: SEAD-23

Each appendix reviews the area-specific background information, basis for taking action, summary of remedial actions, and technical assessment for the applicable AOC(s). The structure of the appendices are as follows:

1.0 Area Specific Background Information

1.1 History of Contamination

1.2 Initial Response

1.3 Basis for Taking Action

1.3.1 Contaminants of Concern

1.3.2 Human Health and Ecological Risk Assessment

2.0 Remedial Actions

2.1 Remedy Selection

2.2 Remedy Implementation

2.3 System Operations/Operation and Maintenance

3.0 Progress Since Last Five-Year Review

4.0 Five-Year Review Process

4.1 Document Review

4.2 Data Review

4.3 Site Inspection

4.4 Interviews

4.5 Institutional Controls Verification

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

6.0 Issues, Recommendations and Follow-Up Actions

7.0 Protectiveness Statement

In each appendix, the FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**. **Figure 3** identifies the CERCLA sites reviewed in the FYR with the corresponding LUCs or ICs required by the RODs.

4.0 General Background

4.1 Physical Characteristics

SEDA is located approximately 40 miles south of Lake Ontario in Seneca County, New York (NY) (**Figure 1**). The Depot lies immediately west of the Town of Romulus, NY, 12 miles south of the villages of Waterloo and Seneca Falls, and 2.5 miles north of the Town of Ovid, NY. The two closest major cities are Rochester, NY, which is located approximately 60 miles northwest, and Syracuse, NY, which is located approximately 60 miles northeast. Prior to the acquisition of the land by the DoD in 1941, the property was privately owned and was used principally as homesteads and for agriculture.

SEDA is located in an uplands area, where the ground elevation ranges from approximately 600 feet (ft.) along the western boundary of the Depot to nearly 760 feet in the central portion of the eastern boundary. The uplands area where SEDA is located forms a divide separating two of the New York Finger Lakes: Cayuga Lake on the east and Seneca Lake on the west. Sparsely populated farmland covers most of the surrounding area. New York State Highways 96 and 96A border SEDA to the east and west, respectively. **Figure 4** presents an aerial view of SEDA.

The geology of the area is characterized by Pleistocene age (Wisconsin event, 20,000 years ago) glacial till deposits overlying shale bedrock (Ludlowville and Moscow Formations). The till matrix varies locally but generally consists of horizons of unsorted silt, clay, sand, and gravel. In the central and eastern portions of SEDA, the till is thin and bedrock is exposed or within 3 feet of the surface. Throughout SEDA, the thickness of the glacial till deposits generally range from 1 to 15 feet.

Darien silt-loam soils, 0 to 18 inches thick, have developed over Wisconsin age glacial tills. These soils are developed on glacial till where they overlie the shale. In general, the topographic relief associated with these soils is from 3 to 8 percent (%).

A cool climate exists at SEDA with temperatures ranging from an average of 31°F in January to 69°F in July. Marked temperature differences are found between daytime highs and nighttime lows during the summer and portions of the transitional seasons. Precipitation is well distributed, averaging approximately 3 inches per month. This precipitation is derived principally from cyclonic storms, which pass from the interior of the county through the St. Lawrence Valley. Seneca, Cayuga, and Ontario Lakes provide a significant amount of the winter precipitation and moderate the local climate. The annual average snowfall is approximately 100 inches. 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.

SEDA is located in the Genesee-Finger Lakes Air Quality Control Region (AQCR). The AQCR is designated as non-attainment for ozone and attainment or unclassified for all other criteria pollutants. Data for the existing air quality in the area that surrounds the SEDA cannot be obtained since the nearest state air quality stations (Rochester of Monroe County or Syracuse of Onondaga County) are 40 to 50 miles away from the Depot and are not representative of the conditions at SEDA. A review of the data for Rochester, which is in the same AQCR as the SEDA, indicates that all monitored pollutants (sulfur dioxide, particulates, carbon monoxide, lead, and ozone) are below state and federal limits, with the exception of ozone. In 1987, the maximum ozone concentration observed in Rochester was 0.127 parts per million (ppm); however, this value is not representative of the SEDA area which is a more rural environment.

4.2 Site Geology/Hydrogeology

The Finger Lakes uplands area is underlain by a broad north-to-south trending series of rock terraces mantled by glacial till. As part of the Appalachian Plateau, the region is underlain by a tectonically undisturbed sequence of Paleozoic rocks consisting of shale, sandstone, conglomerate, limestone, and dolostone. In the vicinity of

SEDA, Devonian age (approximately 385 million years ago) rocks of the Hamilton Group are monoclinaly folded and dip gently to the south. The Hamilton Group is a sequence of limestone, calcareous shale, siltstone, and sandstone.

SEDA geology is characterized by gray Devonian shale with a thin weathered zone where it contacts the overlying mantle of Pleistocene glacial till. This stratigraphy is consistent over the entire SEDA facility. The predominant surficial geologic unit present at the site is dense glacial till. The till is distributed across the entire facility and ranges in thickness from less than 2 feet to as much as 15 feet although it is generally only a few feet thick. The 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.

The bedrock underlying the northwestern half of the Site is composed of the Ludlowville Formation. The southeastern half of the Site is underlain by the Moscow Formation. Both formations are Devonian in age and part of the Hamilton Group. Regionally, the bedrock is vertically jointed in three predominant directions: northeast, north-northwest, and east-northeast (Mozola, 1951; Merin, 1992). Within the Hamilton Group, many of the gray-black, calcareous shales are fissile and exhibit parting (or separation) along bedding planes.

Regionally, four distinct hydrologic units were identified by Mozola (1951) within Seneca County. From north to south, the oldest of these, located in northern Seneca County, is the Camillus shale of the Salina Group. A series of younger limestone units extends east-west across Geneva and Seneca Falls. South of Geneva, a thick series of shale formations are present. Unconsolidated beds of Pleistocene glacial drift, and recent deposits, overlie the bedrock units. Water yield from the glacial units and shales is generally poor. Overall, the groundwater in the county is very hard, and therefore, the quality is minimally acceptable for use as potable water.

The water table aquifer of the unconsolidated surficial glacial deposits of the region would be expected to flow in a direction consistent with the ground surface elevations. Geologic cross-sections across Seneca and Cayuga Lakes have been constructed by the State of New York (Mozola, 1951, and Crain, 1974). The geologic cross-sections suggest that a groundwater divide exists approximately halfway 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 towards Seneca Lake. Local hydrogeology is overall consistent with the regional hydrogeology.

Surface drainage from SEDA flows to five primary creeks (**Figure 4**). In the southern portion of the Depot, the surface drainage flows through man-made drainage ditches and streams into Indian and Silver Creeks. These creeks then merge and flow into Seneca Lake just south of the former airfield. The central and administration area of SEDA drain into Kendaia Creek. Kendaia Creek flows in a predominant westerly direction and discharges into Seneca Lake at a location north of Pontius Point and the SEDA former Lake Shore Housing Area. The majority of the northwestern and north-central portion of the SEDA drains into Reeder Creek. Reeder Creek flows predominantly northwesterly and leaves the Depot at a point that is north of the Open Detonation Area (i.e., SEAD-45) and west of the former Weapons Storage Area before it turns to the west and flows into Seneca Lake. The northeastern portion of the Depot, which includes a marshy area called the Duck Pond, drains into Kendig Creek and then flows north into the Cayuga-Seneca Canal and to Cayuga Lake. Other minor creeks are also present and drain portions of the Depot.

4.3 Land and Resource Use

In October 1995, the SEDA was designated for closure under the DoD 1995 BRAC process. As part of the BRAC process, the Army commissioned an Environmental Baseline Survey (EBS) of the Depot. Under the EBS, all of the property identified as subject to transfer or lease at the facility was classified into one of the seven standard environmental conditions of property area types as defined by the Community Environmental Response Facilitation Act (CERFA) guidance and the DoD BRAC Cleanup Plan Guidebook. This was achieved by identifying, characterizing, and documenting the obviousness of the presence or likely presence of a release or a threatened

release of a hazardous substance or petroleum product associated with the historical and current use of SEDA. Areas that were designated as Category 1, 2, 3, or 4 under the CERFA process were suitable for transfer or lease, subject to consideration of the qualifiers. Areas that were designated as Category 5, 6, or 7 were not suitable for transfer, pending further investigation and remediation, as may be needed. The complete details of the EBS are summarized in the document U.S. Army Base Realignment and Closure 95 Program, Environmental Baseline Survey Report, Seneca Army Depot Activity, New York (Woodward-Clyde Federal Services, 1997).

At the completion of the EBS, 113 BRAC parcels of land were identified and classified within the 10,634 acre Depot. Of the total area, approximately 8,690 acres were found to be suitable for lease or transfer (as designated by Categories 1 through 4), while the remaining areas (approximately 1,945 acres) were designated as Categories 5 through 7 and were not deemed suitable for immediate transfer for reuse. Once SEDA was added to the 1995 BRAC list, the primary objective of the Army was expanded from performing remedial investigations and completing necessary remedial actions to include the release of non-affected portions of the Depot to the surrounding community for their reuse for other, non-military purposes (i.e., industrial, municipal, and residential). The designated future use of land within the SEDA was first defined and approved by the Seneca County LRA in 1996. The planned use for portions of the SEDA was modified by SCIDA in 2005.

Ecological site characterizations conducted at the Depot were based on compilation of existing ecological information and on-site reconnaissance activities. The methods used to characterize the ecological resources included site-walkovers for the evaluation of existing wildlife and vegetative communities; interviews with local, state, and SEDA resource personnel; and review of environmental data obtained from previous Army reports. Ecological communities identified at SEDA included successional old-field areas, successional shrub areas, and successional hardwoods areas. Animals that have been identified at the Depot during various ecological surveys include beaver, eastern coyote, white-tailed deer, red and gray fox, eastern cottontail rabbit, muskrat, raccoon, gray squirrel, striped skunk, and the woodchuck. Bird species that have been identified include the blue jay, black-capped chickadee, American crow, mourning dove, northern flicker, ruffed grouse, ring-billed gull, red-tailed hawk, northern junco, American kestrel, white breasted nuthatch, ring-necked pheasant, American robin, eastern starling, turkey vulture, and pileated woodpecker. Vegetation across the Depot consists of successional old field, successional shrub, and successional hardwoods.

SEDA has a strong wildlife management program that is reviewed by the New York State Department of Environmental Conservation (NYSDEC). The Army formerly managed an annual white-tailed deer (*Odocoileus virginiana*) harvest and has constructed a large wetland called the "Duck Pond" in the northeastern portion of the facility to provide a habitat for migrating waterfowl.

4.4 History of Contamination

Between 1941 and 2000, SEDA was owned by the United States Government and operated by the Department of the Army. The Depot began its primary mission of receipt, maintenance and supply of ammunition in 1943. After the end of World War II, the mission of the Depot shifted from supply to storage, maintenance, and disposal of ammunition. SEDA was selected for closure by the DoD in 1995; its military mission terminated in September 1999, and the installation was closed in September 2000. The history of contamination for each AOC is described in further detail in the individual appendices.

4.5 Initial Response

SEDA was proposed for the National Priorities List (NPL) in July 1989. In August 1990, the listing of SEDA as a NPL site was finalized in Group 14 on the Federal Section. After SEDA was listed on the NPL, the Army, USEPA Region II, and NYSDEC identified 57 Solid Waste Management Units (SWMU) where data or information suggested, or evidence existed to support, that hazardous substances or hazardous wastes had been handled, and where releases to the environment may have occurred. Additionally, the USEPA, NYSDEC, and the Army

negotiated and finalized a Federal Facilities Agreement (FFA) for the Site in 1993 (USEPA, Army, and NYSDEC, 1993).

The FFA established if SWMUs required action or not. If no action was required at a SWMU it was closed out and documented in a ROD. If the SWMU required action, it became designated as an AOC. The number of SWMUs (identified with the acronym SEAD and a unique number, e.g., SEAD-25) was subsequently expanded to include 72 AOCs once the Army finalized the SWMU Classification Report (Parsons ES, 1994a) for the Depot in 1994.

The SEDA was a generator and a treatment, storage, and disposal facility (TSDF) for hazardous wastes and thus, subject to regulation under the Resource Conservation and Recovery Act (RCRA). Under the RCRA permit system, corrective action is required at all SWMUs, as needed. Remedial goals are the same for CERCLA and RCRA; thus, once the 72 AOCs were listed, the Army recommended that they be identified as either areas requiring No Action or as AOCs under CERCLA and the FFA, where additional investigation, study, or actions were needed. SWMUs listed as AOCs were then scheduled for investigations based upon data and potential risks to the environment. The 72 AOCs included four areas (SEAD-12 A and B; SEAD-44 A and B; SEAD-64 A, B, C, and D; and SEAD-65 A, B, and C) that consisted of multiple sites (for a total of 79 sites to be investigated).

Once SEDA was selected and approved for closure as part of the BRAC 1995 process, the Army commissioned an EBS to assess the condition of all property relative to its status under CERFA guidance and the DoD BRAC Cleanup Plan guidebook. At the conclusion of this effort, approximately 1,945 of the 10,634 acres of land within the Depot including all of the land previously designated as SWMUs and several additional properties not previously designated as sites of interest were classified as CERFA Category 5, 6 or 7 sites (i.e., not suitable for transfer, pending further investigation and remediation). Subsequently in 1998, the Army authorized and conducted site inspections and limited site investigations (SI) of 32 additional potential sites identified as CERFA Category 5 – 7 properties, and because of these efforts an additional four sites (SEADs 121C, 121I, 122B, and 122E) were classified as AOCs requiring further assessment and actions under CERCLA.

Per the requirements of BRAC properties, where ordnance had been located, the Army also commissioned an Ordnance and Explosives (OE) Archives Search and conducted site inspections to: 1) identify all areas where ordnance activities occurred; 2) assess the likelihood that ordnances remained due to historic activities; and 3) make recommendations regarding the areas that required further action or investigation. Based on these assessments and evaluations, two additional SWMUs (SEAD 007-R-01, and SEAD 002-R-01 that consisted of two separate areas, EOD-2 and EOD-3) were added to the list of sites that were to be assessed under CERCLA. Additionally, the DOD Munitions Response program required the Army to rename and regroup sites that involved munitions (e.g., SEAD xxxx-R-01 designation). Any site with a prior SEAD –XX number is called an “alias” in the DOD reporting system.

Finally, in 1998, once the Army had completed its initial investigations of SEAD-12 (Radiological Waste Burial Sites), and begun a more comprehensive remedial investigation (RI). As part of this effort, SEAD-12A and SEAD-12B were consolidated into SEAD-12, an area encompassing more than 350 acres at the north end of the Depot and subject to continuing CERCLA investigations. Based on these additions, sites investigated under CERCLA rose from the 72 listed in the FFA to 78, the four EBS sites (SEADs 121C, 121I, 122B, and 122E), and the two OE SWMUs (SEADs 002-R-01, including EOD-2) resulting in 84 sites (**Table 3**).

4.6 Basis for Taking Action

The basis for taking action for each AOC is described in further detail in the individual appendices. Generally, an action was required at the AOCs to ensure the remedy or land use remains protective of site users. The COCs and results of the human health and ecological risk assessments at each AOC are summarized in the individual appendices. Risk assessments were performed to determine if the human health cancer risks were below the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and if the calculated non-cancer HI were less than 1.0. Ecological risk assessments were performed to determine if the hazard quotients (HQ) were less than 1,

between 1 and 10, between 10 and 100, or greater than 100. In general, guidelines suggest that HQs less than or equal to 1 present no probable risk. HQs between 1 and 10 present a small potential for environmental effects; HQs between 10 and 100 present a significant potential that effects could result from greater exposure; and HQs greater than 100 indicate the highest potential for expected effects.

5.0 Summary of Remedial Actions LUC Objectives

The specific elements that composed the remedy for each AOC are discussed in further detail in the individual AOC appendices. The RODs for each AOC require the implementation of LUCs that will continue until the concentrations of hazardous substances in the soil and groundwater are reduced to levels that allow for unlimited use and unrestricted exposure. A summary of the LUCs for the AOCs is presented in this section. **Figure 3** identifies the CERCLA sites reviewed in the FYR with the corresponding LUCs or ICs required by the RODs. For real estate parcels that have been transferred, the responsibility of implementing LUC/ICs has been transferred to the new owner. LUC/ICs have been implemented as deed restrictions and environmental easements. Since the last FYR, the ROD was signed for SEAD-46, SEAD 003-R-01 (SEAD-57), SEAD 002-R-01 and SEAD 007-R-01 (Seneca AD Munitions Response Sites [MRS]) and SEAD-70 in March 2017 (Parsons, 2017; USACE, 2019. SEAD-70 was no action and the remedy for the Seneca AD MRSs requires the implementation of LUCs as discussed further in Section 5.6.

5.1 Summary of PID/Warehouse Area LUC Objectives and Restrictions

Seventeen AOCs (SEADs 1, 2, 5, 16, 17, 25, 26, 27, 39, 40, 59, 64A, 66, 67, 71, 121C, and 121I) located within the PID/Warehousing Area are subject to LUC inspection. Based on the planned reuse of the PID/Warehousing Area by the SCIDA, the entirety of the PID/Warehousing Area and the AOCs within this area are subject to institutional controls in the form of two common LUC objectives (Parsons, 2004a; 2004b; 2005b; 2006f; 2007a; 2008b; 2009a; 2009b):

- Prohibit the development and use of property for residential housing, elementary and secondary schools, childcare facilities and playground activities.
- Prevent access to or use of the groundwater until New York State (NYS) Class GA Groundwater Standards are met.

An additional LUC is required at SEAD-5 and SEAD-64A where unauthorized excavation is prohibited, and at SEAD-25 and SEAD-26 to maintain the integrity of any current or future remedial or monitoring system.

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehousing Area (Parsons, 2002a; USACE, 2006; USACE, 2007; USACE, 2008a).

5.2 Summary of Prison Area LUC Objectives and Restrictions

The "Prison Area" consists of eight Solid Waste Management Units [(SWMUs) SEADs 43, 44A, 44B, 52, 56, 62, 64C, and 69] that were transferred in September 2000 under a public benefit conveyance that conveyed the land in the southeastern part of the former Depot to the people of the State of New York for the construction of the Five Points Correctional Facility.

Provisions of the deed apply to the following SWMUs, which were transferred prior to a ROD being prepared and which currently are located within the bounds of the State of New York Five Points Correctional Facility Parcel. Pursuant to the terms of the deed, the prison use restriction remains in effect for these AOCs in perpetuity, or the property legally reverts to the United States (Parsons, 2007a). The Prison Area LUC requires:

- The continued restricted use of the property as a state maximum security correctional facility.

5.3 Summary of the Airfield Parcel LUC Objectives and Restrictions

Two AOCs within the Airfield Parcel are subject to LUCs, SEAD-122B: Small Arms Range, Airfield Parcel and SEAD-122E: Plane Deicing Area (Parsons, 2007a; USACE, 2008a). A residential activities LUC was instituted on both AOCs as follows:

- The development and use of property for residential housing, elementary or secondary schools, childcare facilities, and playgrounds will be prohibited.

5.4 Summary of the Ash Landfill Operable Unit LUC Objectives and Restrictions

Five AOCs (SEADs 3, 6, 8, 14, and 15) are located within the Ash Landfill OU and are subject to institutional controls including LUCs (Parsons, 2006c; Parsons, 2008b). The LUC performance objectives include:

- Preventing access to or use of groundwater until cleanup levels are met.
- Maintaining the integrity of any current or future remedial or monitoring system such as monitoring wells and permeable reactive barriers.
- Prohibiting excavation of the soil or construction of habitable structures (temporary or permanent) above the area of the existing groundwater plume.
- Maintain the vegetative soil layer over the ash fill areas and the Non-Combustible Fill Landfill (NCFL) to limit ecological contact.

5.5 Summary of the North End Institutional Area LUC Objectives and Restrictions

One AOC (SEAD-41) within the North End Institutional Area is subject to LUCs (Parsons, 2007a; Parsons, 2008a). Historical groundwater data led the Army to impose a restriction on groundwater use for SEAD-41 and all of the properties within the North End Institutional Area as follows:

- Prohibit access to or use of groundwater at SEAD-41 until concentrations of hazardous substances contained are reduced to levels that allow unrestricted use.

5.6 Summary of the LUCs Objectives and Restrictions at the Former Munitions Response Sites

Four AOCs (SEAD-46, SEAD 003-R-01 (SEAD-57), SEAD 002-R-01 and SEAD 007-R-01) that are former MRSs are subject to LUCs (Parsons 2017; USACE, 2019). The MRS LUCs are as follows:

- Prohibits the development or use of the property for residential housing, elementary and secondary schools, childcare facilities, or playgrounds through the use of LUCs; and
- Requires the Army (or Army contractor) to conduct an annual 3R Explosives Safety Education Program for property owners of the Seneca AD Munitions Response Sites.

5.7 Summary of the LUC Objectives and Restrictions of AOCs in Other Areas

Three AOCs (SEAD 13, 64B, and 64D) were inspected within the SEDA former ammunition storage area (Parsons, 2007a; USACE, 2008a). A summary of the LUCs implemented at these three areas of concern are as follows:

- Prevent access to or use of the groundwater until NYS Class GA Groundwater Standards are met (SEAD-13 and SEAD-64D).
- Maintain the integrity of any current or future remedial or monitoring systems (SEAD-13 and SEAD-64D).

- Restriction on unauthorized excavation or digging within SEAD-64B and SEAD-64D .

SEAD-12 was inspected within the high security area (Parsons, 2002d; Parsons, 2015a; USACE, 2015). A summary of the LUCs implemented at SEAD-12 are as follows:

- Restrict access to and use of the existing vacant Buildings 813/814 and the construction of inhabitable structures (temporary or permanent) above the area and within a fifty foot perimeter of Buildings 813/814 and fifty foot radius from MW12-37 where TCE-contaminated soil was previously identified, and where contaminated groundwater may exist.
- Prohibit access to and use of groundwater in the vicinity of Buildings 813/814.
- Prohibit the development and use of the property for residential housing, elementary and secondary schools, childcare facilities and playgrounds until soil and groundwater standards for unrestricted use and unlimited exposure are achieved.

6.0 Progress Since Last FYR

In general, for AOCs that had recommendations in the previous FYR, the LUC recommendations were implemented as intended. In most AOCs the recommendation in the last FYR was to continue the implementation of LUCs and the annual frequency of periodic reviews. This recommendation was implemented as intended in all cases. Where an inspection was not permitted (Prison Area), the continued implementation of LUCs were confirmed via interview. Annual LUC inspections were conducted yearly in 2017, 2018, 2019 and 2020 at other AOCs. Based on annual inspections the LUCs are functioning as intended.

Other site-specific recommendations and their implementation status can be found in Section 3 in the appendix files for SEAD-16 and -17 (**Appendix D**), SEAD-25 (**Appendix H**), SEAD-26 (**Appendix I**), SEAD-3/6/8/14/15 (**Appendix Z**), SEAD-122B and -122E (**Appendix AA**), and SEAD-23, OB Grounds (**Appendix AG**). All recommendations made in the previous FYR are either completed or on-going.

LTM continued at Ash Landfill (SEADs -3, -6, -8, -14, and -15), SEAD-16/17 (except 2011), Open Burning (OB) Grounds (SEAD-23), and SEAD-25 based on comments from the USEPA and NYSDEC on the LTM annual reports for these AOCs summarizing groundwater monitoring trends. At the time of the annual reports there was not sufficient justification to terminate groundwater monitoring, and sampling was performed through this second FYR. In coordination with USEPA and NYSDEC, semiannual groundwater sampling has continued at the Ash Landfill OU (SEAD-3/6/8/14/15), sampling was reduced to every 5 years at SEAD-16 and SEAD-17, and an annual sampling LTM event was conducted at the OB Grounds (SEAD 23) and SEAD-25. Recommendations on groundwater monitoring frequency are further discussed in Section 5.0 of each individual appendix.

7.0 Five-Year Review Process

7.1 Administrative Components

Parsons in consultation with the U.S. Army (Army) conducted this FYR.

7.2 Community Involvement

The Army relies on public input to ensure that community concerns are considered during the FYR. This document will be made available to the public through an online Administrative Record portal. The Army will perform site-specific outreach to the community, such as placing an ad in the local newspaper, to inform them that the FYR is being conducted.

The USEPA will notify the community that the FYR is being conducted. The announcement and any comments received will be posted on the USEPA website at the following link: <https://www.epa.gov/superfund/R2-fiveyearreviews>

7.3 Document Review

This FYR includes a review of relevant information contained in a variety of the multi-site related documents. The documents, data and information reviewed to complete this second FYR are summarized in Section 12.0 References. The information reviewed primarily focused on documents produced after signature of the RODs, but also included information from pre-ROD documents to provide historical Site information and contaminant extent.

7.4 Data Review

No data were reviewed as part of the FYR Process, except for the AOCs with ongoing LTM. Discussions of the LTM groundwater data reviewed for the Ash Landfill (SEADs -3, -6, -8, -14, and -15), SEAD-16/17, OB Grounds (SEAD-23), and SEAD-25 are presented in the individual AOC appendices.

7.5 Site Inspection

The AOCs included as part of the FYR Process were inspected on 26 and 29 June 2017, 6 and 7 June 2018, 26 to 28 June 2019, and 22 July 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs from the 2020 inspection are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2** of each appendix. Specific observations made during AOC site inspections are presented in the individual AOC appendices.

7.6 Interviews

No interviews were conducted during the FYR process for those AOCs that are uninhabited and unoccupied. Interviews were conducted at the Prison Area to confirm that the property is operating as state maximum security correctional facility.

7.7 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place for each AOC included in this third FYR. The LUC performance objectives are listed in Section 2.0 of each site-specific appendix.

8.0 Technical Assessment

8.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs at SEDA have been completed and documented. No continuing active remediation is required at the AOCs. Based on a review of Closure Reports, LUC RD, LTM reports, Environmental Easements, transfer deeds (as applicable) and the FYR site visit conducted 22 July 2020, all remedies are functioning as intended by the decision documents.

As part of the development of this FYR, the Army reviewed the RODs and the basis for LUCs at each AOC to evaluate the possibility for optimizing LTM requirements to reduce the long-term environmental liability of the Army at SEDA. The evaluation looked at both the effectiveness of the remedy for protection of human health and the environment and at the data that were used as the basis for implementing LUCs at each AOC. In several cases, the Army identified a site where there is potential that current site conditions may no longer require LUCs for protection of human health and the environment.

Table 4 summarizes the findings of the optimization review. Overall, it was identified that many of the RODs relied on groundwater data collected in the 1990s. In some cases, these data have concentrations that are suspected to be biased high based on the observation of high turbidity within the groundwater due to the sampling methods used at the time. The Army believes that there is a possibility that some site risk assessments using the groundwater results from these turbid water samples may have overestimated the risk to human health from groundwater. The Army also found that in several cases LUCs were implemented as a conservative approach in lieu of data where groundwater was never sampled. In these cases, the Army believes that it is prudent to re-sample groundwater and re-evaluate risk to determine if LUCs are still appropriate at some AOCs. In general, LUCs were implemented in a conservative manner and applied in some cases where risk was not identified; because of this history, it is concluded that the selected remedies are still protective of human health and the environment. Additional details on the current protectiveness of the remedies at each AOC that are a part of this third FYR are presented in each AOCs individual appendix.

8.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions for protection of human health and ecological receptors and RAOs used at the time of the remedy **are still valid**.
- There have been **no changes** in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

However, toxicity data associated with some COPCs (particularly PAHs) have changed significantly since the last FYR. These changes could result in cleanup levels that are less stringent than those in place for the second FYR. Therefore, while the toxicity values used in the past are still protective, the risk at sites with COPCs affected by changes in toxicity values will be re-evaluated.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6.8 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Class GA groundwater standards (NYSDEC, 2020). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of increasing the values of the cleanup levels for these compounds, therefore the cleanup goals are less restrictive.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid**. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health**.

8.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

According to the data reviewed and the annual LUC inspections, the remedy is functioning as intended by the RODs. The exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time

of the remedy are still protective, but some toxicity data have changed. Very little development or site use has occurred within the AOCs and there have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. Applicable or Relevant and Appropriate Requirement (ARARs) cited in the RODs remain protective of human health and the environment.

In response to concerns surrounding the presence of emerging contaminants at former fire training areas, the Army launched a SI in 2017 at three previously investigated sites (SEAD-25, SEAD-26, and SEAD-122E). SEAD-25 and SEAD-26 were formerly used as fire training sites and SEAD-122E is located on a former airfield where firefighting response actions may have taken place. The SI was conducted to determine whether the areas were contaminated with PFAS due to the use of aqueous film forming foam (AFFF). During the SI, concentrations of the two primary PFAS constituents, Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS), were measured below the USEPA lifetime Health Advisory level in all 24 of the wells installed and sampled at SEAD-122E. As a result, no additional action beyond the PFAS SI was taken at SEAD-122E (Parsons, 2018). However, the investigation of SEAD-25 and SEAD-26 for PFAS progressed to an expanded SI (ESI) and is ongoing at this time. The investigation shows early indicators of potential issues related to PFAS in groundwater at both sites. Currently, the remedy in place for SEAD-25 and SEAD-26 is for the contaminants identified in the ROD, which did not include PFAS as this contaminant had not been known at the time of the ROD. Further investigation is underway to determine if a remedy is needed for PFAS at these sites.

There is no other new information of significance that would affect the protectiveness of the remedies.

9.0 Issues, Recommendations, and Follow-Up Actions

No additional issues were identified for AOCs within the PID/Warehousing Area, Prison Area, Airfield Parcel, Ash Landfill, North End Institutional Area, the SEDA MRSSs, and SEADs 12, 13, 23, 64B and 64D during this FYR that would affect the protectiveness of the remedy.

Based on the document review and optimization efforts discussed in **Section 8.1** and summarized in **Table 4**, the Army has made site-specific recommendations for each individual AOC. Site specific issues, recommendations, and follow-up actions are presented in each AOCs individual appendix. The text below summarizes the recommendations in general and are grouped by AOCs with similar recommendations. **Table 4** summarizes the recommendations for each AOC.

LTM Sites with Opportunities for Optimization

At the LTM Sites (SEAD-16, SEAD-17, SEAD-25, SEAD-26, and SEAD-23 [OB Grounds]), the Army has made various recommendations based on LTM results, which includes reducing or eliminating LTM sampling where doing so has been determined to remain protective of human health and the environment. General recommendations at each of the LTM sites include:

- Evaluating LTM data to determine if NYS Class GA standards have been met, and;
- Discuss reducing frequency or concluding LTM sampling with NYSDEC and USEPA.

Site specific recommendations have been made for each of the LTM sites and should be reviewed in each AOCs individual appendix.

LUCs Sites with Opportunities for Optimization

Based on the data review at several LUC sites, it was determined that some sites have LUCs that were established based on assumed risk in groundwater (samples were not collected or risk was not evaluated), or risk in groundwater based on high metals concentrations believed to be associated with high turbidity levels. Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of increasing the

values of the cleanup levels for these compounds. There are some cases where no risk was identified for current and anticipated land uses, but Unlimited Use/Unlimited Exposure (UU/UE) was not evaluated in the risk assessment and LUCs were implemented to limit land use to those anticipated land uses. For SEAD-1, SEAD-2, SEAD-5, SEAD-12, SEAD-27, SEAD-39, SEAD-40, SEAD-59, SEAD-64A, SEAD-66, SEAD-67, SEAD-71, SEAD-121C, SEAD-121I, SEAD-13, SEAD-64D, SEAD-41, SEAD-122B, and SEAD-122E, the Army recommends that risk assessments be reviewed and that, as appropriate, groundwater samples be collected to evaluate site risk including an evaluation of a UU/UE scenario.

The Army also recommends that the frequency of periodic reviews be reviewed at these 18 AOCs as well as the Prison Area AOCs (SEADs 43, 44A, 44B, 52, 56, 62, 64C and 69). Based on the data review and optimization process, the Army believes that discussing a reduced frequency of periodic reviews is appropriate at each of these AOCs.

LUCs Sites without Opportunities for Optimization

Based on the data review and optimization process, the Army recommends continued implementation of LUCs and/or LTM at the current agreed frequency at the SEDA MRSs (SEAD-46, SEAD 003-R-01 (SEAD-57), SEAD 002-R-01 and SEAD 007-R-01), SEAD-64B, and Ash Landfill Operable Unit (SEADs 3, 6, 8, 14, and 15).

10.0 Protectiveness Statement

Based upon the review conducted by the Army of the CERCLA sites at the former Seneca Army Depot, determinations have been made identifying whether the remedies selected remain protective of human health and the environment. The determinations are detailed in Section 7 in each site-specific appendix.

The remedy implemented for the AOCs included in the PID Warehousing Areas, Prison Area, Airfield Parcel, Ash Landfill OU, North End Institutional Area, the SEDA MRSs, and SEAD-12, SEAD-13, SEAD-64B, and SEAD-64D is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Evaluation of the remedies will be conducted again in the next FYR.

11.0 Next Review

The next FYR for the SEDA should be completed before 30 September 2026.

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

Parsons, 2002b. - Action Memorandum and Decision Document, Time-Critical Removal Actions, Three VOC Sites (SEADs 38, 39, & 40), Seneca Army Depot Activity, Final, August 2002.

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

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Parsons, 2002e. - Revised Final Decision Document for Time-Critical Removal Actions at SEAD-59 and SEAD-71, June 2002.

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Parsons, 2004b. - Record of Decision for the Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area (SEAD-26), Final, July 2004.

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Parsons, 2006c. - Remedial Design Report for the Ash Landfill Operable Unit, August 2006.

Parsons, 2006d. - Phase II Remedial Investigation Report for the Fill Area West of Building 135 (SEAD-59) and the Alleged Paint Disposal Area (SEAD-71), Draft Final, April 2006.

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Parsons, 2006f. - Record of Decision for the Abandoned Deactivation Furnace (SEAD-16) and the Active Deactivation Furnace (SEAD-17), Final, March 2006.

Parsons, 2007a. - Record of Decision for 17 No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B and 122E, Final, March 2007.

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Parsons, 2008a. - Draft Final Completion Report for Building Cleaning and Building Demolition Seneca Army Depot Activity, Romulus, New York, November 2008.

Parsons, 2008b. - Record of Decision the Defense Reutilization and Marketing Office Yard (SEAD-121C) and the Rumored Cosmoline Oil Disposal Area (SEAD-121I) Seneca Army Depot Activity, Final, June 2008.

Parsons, 2008c. - Final Construction Completion Report for the Abandoned Deactivation Furnace (SEAD-16) and the Active Deactivation Furnace (SEAD-17) Seneca Army Depot Activity, Romulus, NY, September 2008.

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Parsons, 2009b. - Record of Decision for the Fill Area West of Building 135 (SEAD-59) and the Alleged Paint Disposal Area (SEAD-71) Seneca Army Depot Activity, March 2009.

Parsons, 2010a. - Construction Completion Report for the Former Sewage Sludge Waste Piles (SEAD-5), Final, July 2010.

Parsons, 2015a. - Final Record of Decision for the Radioactive Waste Burial Site (SEAD-12 and the Mixed Waste Storage Facility (SEAD-72). Final, March 2015.

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Parsons, 2019. - Draft 2019 Long-Term Monitoring Annual Report, Fire Training and Demonstration Pad (SEAD 25), September 2019.

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TABLES

**Table 1 - SEDA CERCLA Sites Summary
Five-Year Review
Seneca Army Depot Activity**

AOC
Planned Industrial Development (PID) Warehouse Area
SEAD-1 Hazardous Waste Container Storage Facility (Building 307)
SEAD-2 PCB Transformer Storage Facility (Building 301)
SEAD-5 Sewage Sludge Piles
SEAD-16 Building S311, (former) Abandoned Deactivation Furnace
SEAD-17 Building 367, (former) Active Deactivation Furnace
SEAD-25 Fire Training and Demonstration Pad
SEAD-26 Fire Training Pit
SEAD-27 Building 360 Steam Cleaning Waste Tank
SEAD-39 Building 121 Boiler Plant Blowdown Leach Pit
SEAD-40 Building 319 Boiler Plant Blowdown Leach Pit
SEAD-59 Fill Area West of Building 135
SEAD-64A Garbage Disposal Area, Debris Landfill south of Storage Pad
SEAD-66 Pesticide Storage Area near Buildings 5 and 6
SEAD-67 Dump Site east of Sewage Treatment Plant No. 4
SEAD-71 Alleged Paint Disposal Area
SEAD-121C Defense Reutilization and Marketing Office (DRMO) Yard
SEAD-121I Rumored Cosmoline Disposal Area
Prison Area
SEAD-43 Old Missile Propellant Test Lab
SEAD-44A Quality Assurance Test Laboratory
SEAD-44B Quality Assurance Test Laboratory
SEAD-52 Buildings 608 and 612 – Ammunition Breakdown Area
SEAD-56 Herbicide and Pesticide Storage
SEAD-62 Nicotine Sulfate Disposal Area near Buildings 606 and 612
SEAD-64C Garbage Disposal Area
SEAD-69 Building 606 Disposal Area
Other SEADs with LUC Requirements
SEAD-12 Radioactive Waste Burial Sites
SEAD-13 Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Site
SEAD-23 Open Burning Ground
SEAD-64B Garbage Disposal Area, Disposal Area South of Classification Area
SEAD-64D Garbage Disposal Area West of Building 2203
<i>North End Barracks Area</i>
SEAD-41 Building 718 Boiler Plant Blowdown Leach Pit
<i>Airfield Parcel</i>
SEAD-122B Small Arms Range, Airfield
SEAD-122E Plane Deicing Areas
<i>Ash Landfill Operable Unit</i>
SEAD 3 Incinerator Cooling Water Pond
SEAD-6 Abandoned Ash Landfill
SEAD-8 Non-Combustible Landfill
SEAD-14 Refuse Burning Pits
SEAD-15 Building 2207 – Abandoned Solid Waste Incinerator
<i>Former Munitions Response Sites (MRSs)</i>
SEAD-46 Small Arms Range (aka 3.5-inch Rocket Range)
SEAD 003-R-01 Explosive Ordnance Disposal Area (#1) (SEAD-57)
SEAD 007-R-01 Grenade Range
SEAD 002-R-01 Explosive Ordnance Disposal Areas #2 and #3

**Table 2 - Chronology of Site Events
Five-Year Review
Seneca Army Depot Activity**

Site Chronology Events	Date
U.S. Army announced decision to build depot and acquires land (~10,600 acres).	June 11, 1941
U.S. Army begins construction of the Seneca Ordnance Depot	July 9, 1941
SEDA proposed for the National Priorities List (NPL)	July 14, 1989
SEDA was finalized and listed in Group 14 on the Federal Section of the NPL.	August 30, 1990
The Federal Facility Agreement signed between EPA, NYSDEC, and the Army.	January 1, 1993
SEDA was approved for closure under BRAC.	October 1, 1995
Seneca Army Depot Local Redevelopment Authority (LRA) created by Seneca County Board of Supervisors.	October 1, 1995
The Reuse Plan was approved by the LRA and Seneca County Board of Supervisors.	October 22, 1996
The Environmental Baseline Study was completed (Nov 13 - Dec 12, 1995) and reported.	October 29, 1996
ROD signed for Former Open Burning Grounds Site.	June 14, 1999
Institutional use at the former administration area in the northern end of the former depot property.	July 1, 2000
Depot transfers Prison Parcel to New York State.	September 26, 2000
SEDA was officially closed.	September 30, 2000
Seneca County Industrial Development Agency were transferred 9,500 acres (7,000 acres from conservation area, 900 acres from Planned Industrial Development/Warehouse Area (PID Area), and 500 acres from airfield parcel).	September 30, 2003
ROD signed for Twenty No Action SWMUs and Eight No Further Action SWMUs.	November 12, 2003
26 acres of former depot property was transferred for creation of a county jail.	December 31, 2003
ROD signed for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas (SEADs 27, 64A, and 66).	September 28, 2004
ROD signed for the Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area (SEAD-26).	September 29, 2004
ROD signed for the Ash Landfill Operable Unit Including Sites (SEADs 3, 6, 8, 14, 15).	January 21, 2005
ROD signed for No Further Actions for SWMUs SEAD 50/54	September 28, 2005
ROD signed for Debris Area Near Booster Station 2131 (SEAD-58) and Miscellaneous Components Burial Site (SEAD-63)	September 28, 2006
ROD signed for the Abandoned Deactivation Furnace (SEAD-16) and the Active Deactivation Furnace (SEAD-17)	September 29, 2006
ROD signed for the 17 SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E)	July 3, 2007
SEAD-24, SEAD-50, SEAD-54, and SEAD-58 delisted from NPL.	April 28, 2008
ROD signed for the Defense Reutilization and Marketing Office (DRMO) Yard (SEAD-121C) and the Rumored Cosmoline Oil Disposal Area (SEAD-121I).	August 7, 2008
ROD signed for the Munitions Washout Facility (SEAD-4) and the Building 2079 Boiler Blowdown Pit (SEAD-38).	September 22, 2008
ROD signed for the Fill Area West of Building 135 (SEAD-59) and the Alleged Paint Disposal Area (SEAD-71).	March 31, 2009
ROD signed for Five Former SWMUs (SEAD 1, 2, 5, 24, 48)	May 6, 2009
ROD signed for the Old Construction Debris Landfill (SEAD-11)	September 25, 2009
A total of 9,808 acres transferred as of FY2009 with 878 acres remaining.	February 1, 2010
First Five Year Review (Draft)	July 20, 2011
ROD signed for Radioactive Waste Burial Sites (SEAD-12) and Mixed Waste Storage Facility (SEAD-72)	March 30, 2015
ROD signed for Four Munitions Repsonse Sites (SEAD-46, SEAD 003-R-01 [SEAD-57], SEAD 002-R-01, and SEAD 007-R-01) and SEAD 70	March 30, 2017

Table 3 - Summary of Areas of Concern (AOC) Subject to CERCLA Investigations, LUC Requirements and Disposition Status at SEDA
Five-Year Review
Seneca Army Depot Activity

Site Status	Site Number	Site Name	Operable Unit (OU)	Subject to Five-Year Review	LUC Reference	LUC Requirements									Other Information			
						Prohibit Residential, Schools, Childcare Facilities, & Playgrounds	Prohibit construction of habitable structures (temporary or permanent)	GW Use Restriction (Prohibit Access or Use of)	GW LTM Required	Unauthorized Excavation Restriction	Maintain Soil Cap and/or Vegetative Cover	Maintain Remedial & Monitoring Wells System	3R Explosives Safety Education Program	Army Sites Not Ready For Transfer	GW Use Deed Restriction	Prison Parcel Reversionary Deed	Environmental Easement	
Planned Industrial/Office Development (PID)/Warehouse Area																		
	SEAD 1	Hazardous Waste Container Storage Facility (Building 307)	OU13	X	Addendum #4	X		X										X
	SEAD 2	PCB Transformer Storage Facility (Building 301)	OU13	X	Addendum #4	X		X										X
	SEAD 5	Sewage Sludge Storage Piles	OU13	X	Addendum #4	X		X		X	X							X
NA	SEAD 9	Old Scrap Wood Site	OU14		PID Area-Wide LUC	X		X										X
NA	SEAD 10	Present Scrap Wood Site	OU14		PID Area-Wide LUC	X		X										X
	SEAD 16	Building S311, Abandoned Deactivation Furnace	OU4	X	Addendum #4	X		X	X									X
	SEAD 17	Building 367, Active Deactivation Furnace	OU4	X	Addendum #4	X		X	X									X
NA	SEAD 20	Sewage Treatment Plant No. 4	OU14		PID Area-Wide LUC	X		X										X
NA	SEAD 22	Sewage Treatment Plant No. 314	OU14		PID Area-Wide LUC	X		X										X
	SEAD 25	Fire Training and Demonstration Pad	OU3	X	Addendum #1	X		X	X			X						X
	SEAD 26	Fire Training Pit	OU3	X	Addendum #1	X		X	X ¹			X						X
	SEAD 27	Steam Cleaning Waste Tank (Building 360)	OU12	X	Remedial Design LUC	X		X										X
NFA	SEAD 28	Building 360, Underground Waste Oil Tanks (2)	OU14		Remedial Design LUC	X		X										X
NFA	SEAD 30	Building 118, Underground Waste Oil Tank	OU14		Remedial Design LUC	X		X										X
NFA	SEAD 31	Building 117, Underground Waste Oil Tank	OU14		Remedial Design LUC	X		X										X
NA	SEAD 33	Building 121, Underground Waste Oil Tank	OU14		Remedial Design LUC	X		X										X
NFA	SEAD 34	Building 319, Underground Waste Oil Tank	OU14		Remedial Design LUC	X		X										X
NA	SEAD 36	Building 121, Waste Oil Burning Boilers (2 units)	OU14		Remedial Design LUC	X		X										X
NA	SEAD 37	Building 319, Waste Oil Burning Boilers (2 units)	OU14		Remedial Design LUC	X		X										X
	SEAD 39	Building 121 Boiler Plant Blowdown Leach Pit	OU14	X	Addendum #2	X		X										X
	SEAD 40	Building 319 Boiler Plant Blowdown Leach Pit	OU14	X	Addendum #2	X		X										X
NA	SEAD 42	Building 106, Preventive Medicine Laboratory	OU14		PID Area-Wide LUC	X		X										X
NA	SEAD 47	Building 321 and 806, Radiation Calibration Source Storage	OU14		PID Area-Wide LUC	X		X										X
NA	SEAD 49	Building 356, Columbite Ore Storage	OU14		PID Area-Wide LUC	X		X										X
NFA	SEAD 50	Tank Farm	OU15		PID Area-Wide LUC	X		X										X
NFA	SEAD 54	Asbestos Storage	OU15		PID Area-Wide LUC	X		X										X
NA	SEAD 55	Building 357, Tannin Storage	OU14		PID Area-Wide LUC	X		X										X
	SEAD 59	Fill Area West of Building 135	OU6	X	PID Area-Wide LUC	X		X										X
	SEAD 64A	Garbage Disposal Area, South of Storage Pad	OU12	X	Remedial Design LUC	X		X		X								X
	SEAD 66	Pesticide Storage Area near Buildings 5 and 6	OU12	X	Remedial Design LUC	X		X										X
	SEAD 67	Dump Site east of Sewage Treatment Plant No. 4	OU14	X	Addendum #2	X		X										X
NA	SEAD 68	Building S-355, Old Pest Control Shop	OU14		PID Area-Wide LUC	X		X										X
	SEAD 71	Alleged Paint Disposal Area	OU6	X	Addendum #4	X		X										X
	SEAD 121C	Defense Reutilization and Marketing Office (DRMO) Yard	OU16	X	Addendum #4	X		X										X
	SEAD 121I	Rumored Cosmoline Disposal Area	OU16	X	Addendum #4	X		X										X

Table 3 - Summary of Areas of Concern (AOC) Subject to CERCLA Investigations, LUC Requirements and Disposition Status at SEDA
Five-Year Review
Seneca Army Depot Activity

Site Status	Site Number	Site Name	Operable Unit (OU)	Subject to Five-Year Review	LUC Reference	LUC Requirements									Other Information			
						Prohibit Residential, Schools, Childcare Facilities, & Playgrounds	Prohibit construction of habitable structures (temporary or permanent)	GW Use Restriction (Prohibit Access or Use of)			Unauthorized Excavation Restriction	Maintain Soil Cap and/or Vegetative Cover	Maintain Remedial & Monitoring Wells System	3R Explosives Safety Education Program	Army Sites Not Ready For Transfer	GW Use Deed Restriction	Prison Parcel Reversionary Deed	Environmental Easement
Prison Area																		
	SEAD 43	Building 606 Old Missile Propellant Test Laboratory	OU14	X	Addendum #2											X		
	SEAD 44A	Quality Assurance Test Laboratory, West of Building 616	OU14	X	Addendum #2											X		
	SEAD 44B	Quality Assurance Test laboratory, Brady Road	OU14	X	Addendum #2											X		
	SEAD 52	Building 608 and 612 Ammunition Breakdown Area	OU10 & OU14	X	Addendum #2											X		
	SEAD 56	Building 606 Herbicide and Pesticide Storage	OU14	X	Addendum #2											X		
NFA	SEAD 60	Oil Discharge adjacent to Building 609	OU10 & OU14		None - NFA Site												#	
	SEAD 62	Nicotine Sulfate Disposal Area near Building 606 and 612	OU14	X	Addendum #2											X		
	SEAD 64C	Garbage Disposal Area	OU14	X	Addendum #2											X		
	SEAD 69	Building 606 Disposal Area	OU14	X	Addendum #2											X		
Other SEADs with LUC Requirements																		
	SEAD 12	Radiological Waste Burial Sites	OU5	X	Addendum #5	X	X	X										
	SEAD 13	Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Site	OU9 & OU14	X	Addendum #2			X						X				
NFA	SEAD 24	Abandoned Powder Burning Pit	OU13		None - NFA Site	X		X										
	SEAD 64B	Garbage Disposal Area, South of Classification Area	OU14	X	Addendum #2					X	X						X	
	SEAD 64D	Garbage Disposal Area, West of Building 2203	OU14	X	Addendum #2			X		X	X	X					X	
North End Barracks Area																		
NA	SEAD 7	Shale Pit	OU14		None - NA Site													
NA	SEAD 18	Building 709, Classified Document Incinerator	OU14		None - NA Site													
NA	SEAD 19	Building 801, Classified Document Incinerator	OU14		None - NA Site													
NA	SEAD 21	Sewage Treatment Plant No. 715	OU14		None - NA Site													
NFA	SEAD 32	Building 718, Underground Waste Oil Tanks (2)	OU14		None - NFA Site													
NA	SEAD 35	Building 718, Waste Oil Burning Boilers (3 units)	OU14		None - NA Site													
	SEAD 41	Building 718 Boiler Plant Blowdown Leach Pit	OU14	X	Addendum #2			X							X ²		X	
NFA	SEAD 61	Building 718, Underground Waste Oil Tank	OU14		None - NA Site													
Airfield Parcel																		
	SEAD 122B	Small Arms Range, Airfield	OU14	X	Addendum #2	X											X	
	SEAD 122E	Plane Deicing Area	OU14	X	Addendum #2	X											X	
Ash Landfill Operable Unit																		
	SEAD 3	Incinerator Cooling Water Pond	OU1	X	Addendum #3		X	X	X	X	X	X					X	
	SEAD 6	Abandoned Ash Landfill	OU1	X	Addendum #3		X	X	X	X	X	X					X	
	SEAD 8	Non-Combustible Fill Area	OU1	X	Addendum #3		X	X	X	X	X	X					X	
	SEAD 14	Refuse Burning Pits (2 units)	OU1	X	Addendum #3		X	X	X	X	X	X					X	
	SEAD 15	Abandoned Solid Waste Incinerator (Building 2207)	OU1	X	Addendum #3		X	X	X	X	X	X					X	
Former Munitions Repsonse Sites																		
	SEAD 46	Small Arms Range (aka 3.5-inch Rocket Range)	OU11	X	Addendum #6	X							X					
	SEAD 003-R-01	Explosive Ordnance Disposal Area (#1) (SEAD 57)	OU11	X	Addendum #6	X							X					
	SEAD 007-R-01	Grenade Range	OU11	X	Addendum #6	X							X					
	SEAD 002-R-01	Explosive Ordnance Disposal Areas #2 and #3	OU11	X	Addendum #6	X							X					
Ongoing Remedial Action/ Pre-RODs																		
	SEAD 45	Open Detonation Area	OU17	X	Pre-ROD									X				

Table 3 - Summary of Areas of Concern (AOC) Subject to CERCLA Investigations, LUC Requirements and Disposition Status at SEDA
Five-Year Review
Seneca Army Depot Activity

Site Status	Site Number	Site Name	Operable Unit (OU)	Subject to Five-Year Review	LUC Reference	LUC Requirements								Other Information			
						Prohibit Residential, Schools, Childcare Facilities, & Playgrounds	Prohibit construction of habitable structures (temporary or permanent)	GW Use Restriction (Prohibit Access or Use of)	GW LTM Required	Unauthorized Excavation Restriction	Maintain Soil Cap and/or Vegetative Cover	Maintain Remedial & Monitoring Wells System	3R Explosives Safety Education Program	Army Sites Not Ready For Transfer	GW Use Deed Restriction	Prison Parcel Reversionary Deed	Environmental Easement
Other SEADs with RODS, but no LUC Requirements																	
	SEAD 23	Open Burning Ground	OU2	X	No LUC Requirements				X ³	X ³							
Other No Action/No Further Action Sites																	
NFA	SEAD 4	Munitions Washout Facility Leach Field	OU7		None - NFA Site												
NFA	SEAD 11	Old Construction Debris Landfill	OU8		None - NFA Site												
NFA	SEAD 29	Building 732, Underground Waste Oil Tank	OU14		None - NFA Site												
NFA	SEAD 38	Building 2079, Boiler Plant Blowdown Leach Pit	OU7		None - NFA Site												
NFA	SEAD 48	Pichblende Ore Storage Igloos	OU13		None - NFA Site												
NA	SEAD 51	Herbicide Usage, Perimeter of High Security Area	OU14		None - NA Site												
NA	SEAD 53	Munitions Storage Igloos	OU14		None - NA Site												
NA	SEAD 58	Debris Area near Booster Station 2131	OU14		None - NA Site												
NFA	SEAD 63	Miscellaneous Components Burial Area	OU14		None - NFA Site												
NA	SEAD 65A	Acid Storage Area	OU14		None - NA Site												
NA	SEAD 65B	Acid Storage Area	OU14		None - NA Site												
NA	SEAD 65C	Acid Storage Area	OU14		None - NA Site												
NA	SEAD 70	Former Building T-2110, Filled Area	OU11		None - NA Site												
NA	SEAD 72	Building 803, Mixed Waste Storage Area	OU5		None - NFA Site												

Note: For the majority of the AOCs, their respective ROD required implementation of specific LUCs which are summarized above.

X¹ – Long Term Groundwater monitoring was initially required at SEAD-26 as a condition of the ROD. Groundwater monitoring at SEAD-26 was terminated by the Army, with the approval of the EPA and the NYSDEC after the first year of sampling (2006) after analysis indicated that no COCs were present in the groundwater at concentrations above defined cleanup goals.

X² – GW Use Deed Restriction was placed on the deed because this area was transferred before environmental easements were required.

X³ – SEAD 23, Open Burning Grounds has Operations and Maintenance requirements per the ROD signed in February 1999. However, no LUCs have been established for the site.

– SEAD-60 was not included in the ROD associated with the Prison Parcel Reversionary Deed.

Table 4 - Summary of Areas of Concern (AOC) Optimization Findings and Recommendations
Five-Year Review
Seneca Army Depot Activity

Site Number	Site Name	LUC Requirements										Risk Summary		Recommendations ⁴						
		Prohibit Residential, Schools, Childcare Facilities, & Playgrounds.	Prohibit construction of inhabitable structures (temporary or permanent).	GW Use Restriction (Prohibit Access or Use of).	GW LTM Required.	Unauthorized Excavation Restriction.	Maintain Soil Cap and/or Vegetative Cover.	Maintain Remedial & Monitoring Wells System.	BR Explosives Safety Education Program.	Prison Parcel Reversionary Deed.	Receptors evaluated	Risk Identified	No change	Reduce frequency of reviews and/or LTM	Collect new GW data and update risk assessment for soil and GW	LTM is ongoing - evaluate trend achievement of standard	Collect groundwater data and update risk assessment	Perform vapor intrusion study	Rationale	
Other SEADs with LUC Requirements																				
SEAD 64B	Garbage Disposal Area, South of Classification Area					X	X				Park worker; recreational visitor (child); and construction worker	Soil No GW NE	X						<ul style="list-style-type: none">• No COCs identified in soil for Conservation/Recreation Area receptors.• UU/UE not evaluated.• Groundwater risk was not qualitatively assessed.• LUCs are related to an existing SWMU.	
Ash Landfill Operable Unit																				
SEAD 3	Incinerator Cooling Water Pond		X	X	X	X	X				Current off-site residents; current on-site deer hunters; future on-site construction workers; and future on-site residents.	Soil Yes GW Yes	X						<ul style="list-style-type: none">• Risk driven by chlorinated ethenes• RA is functioning as intended.• Concentration has not yet achieved GA groundwater standards.	
SEAD 6	Abandoned Ash Landfill		X	X	X	X	X						X							
SEAD 8	Non-Combustible Fill Area		X	X	X	X	X						X							
SEAD 14	Refuse Burning Pits (2 units)		X	X	X	X	X						X							
SEAD 15	Abandoned Solid Waste Incinerator (Building 2207)		X	X	X	X	X						X							
Former Munitions Response Sites																				
SEAD 46	Small Arms Range (aka 3.5-inch Rocket Range)	X								X	Construction worker; park worker; recreational child visitor; adult resident; and child resident	Soil No GW No	X						<ul style="list-style-type: none">• Although MEC removal was performed at the Seneca AD MRSs, the potential exists that MPPEH may remain at the AOCs and could pose hazards to a future receptor• No unacceptable risks to human health or the environment are anticipated from exposure to MC based on the expected future land use.	
SEAD 003-R-01	Explosive Ordnance Disposal Area (#1) (SEAD 57)	X								X	Construction worker; park worker; recreational child visitor; adult resident; and child resident	Soil No GW No	X						<ul style="list-style-type: none">• Although MEC removal was performed at the Seneca AD MRSs, the potential exists that MPPEH may remain at the AOCs and could pose hazards to a future receptor• No unacceptable risks to human health or the environment are anticipated from exposure to MC based on the expected future land use.	
SEAD 007-R-01	Grenade Range	X								X	Construction worker; park worker; recreational child visitor; adult resident; and child resident	Soil No GW N/A	X						<ul style="list-style-type: none">• Although MEC removal was performed at the Seneca AD MRSs, the potential exists that MPPEH may remain at the AOCs and could pose hazards to a future receptor• No COPCs found in surface soils; therefore, a general consensus was reached among the BRAC Cleanup Team (EPA, NYSDEC and the Army)• That a release to groundwater related to past military operations at these AOCs did not occur.	
SEAD 002-R-01	Explosive Ordnance Disposal Areas #2 and #3	X								X	Construction worker; park worker; recreational child visitor; adult resident; and child resident	Soil No GW N/A	X						<ul style="list-style-type: none">• Although MEC removal was performed at the Seneca AD MRSs, the potential exists that MPPEH may remain at the AOCs and could pose hazards to a future receptor• No COPCs found in surface soils; therefore, a general consensus was reached among the BRAC Cleanup Team (EPA, NYSDEC and the Army)• That a release to groundwater related to past military operations at these AOCs did not occur.	
Prison Area																				
SEAD 43	Building 606 Old Missile Propellant Test Laboratory									X	Prison inmate; prison worker; construction worker; day care center child; and day care center worker	Soil No GW No		X					<ul style="list-style-type: none">• No COCs identified in soil for Prison Area receptors.• UU/UE not evaluated.	
SEAD 44A	Quality Assurance Test Laboratory, West of Building 616									X	Prison inmate; prison worker; construction worker; day care center child; and day care center worker	Soil No GW No		X					<ul style="list-style-type: none">• No COCs identified in soil for Prison Area receptors.• UU/UE not evaluated.	
SEAD 56	Building 606 Herbicide and Pesticide Storage									X	Prison inmate; prison worker; construction worker; day care center child; and day care center worker	Soil No GW No		X					<ul style="list-style-type: none">• No COCs identified in soil for Prison Area receptors.• UU/UE not evaluated.	

Table 4 - Summary of Areas of Concern (AOC) Optimization Findings and Recommendations
Five-Year Review
Seneca Army Depot Activity

Site Number	Site Name	LUC Requirements										Risk Summary		Recommendations ⁴						
		Prohibit Residential, Schools, Childcare Facilities, & Playgrounds.	Prohibit construction of inhabitable structures (temporary or permanent).	GW Use Restriction (Prohibit Access or Use of).	GW LTM Required.	Unauthorized Excavation Restriction.	Maintain Soil Cap and/or Vegetative Cover.	Maintain Remedial & Monitoring Wells System.	BR Explosives Safety Education Program.	Prison Parcel Reversionary Deed.	Receptors evaluated	Risk Identified	No change	Reduce frequency of reviews and/or LTM	Collect new GW data and update risk assessment for soil and GW	LTM is ongoing - evaluate trend achievement of standard	Collect groundwater data and update risk assessment	Perform vapor intrusion study	Rationale	
SEAD 62	Nicotine Sulfate Disposal Area near Building 606 and 612									X	Prison inmate; prison worker; construction worker; day care center child; and day care center worker	Soil No GW No		X					<ul style="list-style-type: none">• No COCs identified in soil for Prison Area receptors.• UU/UE not evaluated.	
SEAD 64C	Garbage Disposal Area									X	Prison inmate; prison worker; construction worker; day care center child; and day care center worker	Soil No GW No		X					<ul style="list-style-type: none">• No COCs identified in soil for Prison Area receptors.• UU/UE not evaluated.	
SEAD 69	Building 606 Disposal Area									X	prison inmate; prison worker; construction worker; day care center child; and day care center worker	Soil No GW No		X					<ul style="list-style-type: none">• No COCs identified in soil for Prison Area receptors.• UU/UE not evaluated.	
Planned Industrial/Office Development (PID)/Warehouse Area																				
SEAD 1	Hazardous Waste Container Storage Facility (Building 307)	X		X							Industrial workers, construction workers, and adolescent trespassers	Soil Yes GW NE		X	X				<ul style="list-style-type: none">• Soil risk is driven heavily by PAHs which have new lower toxicity values• HI for Construction workers was very close to 1 and new screening levels and cleanup goals for several elevated metals are less than those used during the ROD.• Groundwater samples were not collected or are very old.• Building limited to industrial use only.	
SEAD 2	PCB Transformer Storage Facility (Building 301)	X		X							Industrial workers, construction workers, and adolescent trespassers	Soil Yes GW NE		X	X				<ul style="list-style-type: none">• Soil risk is driven heavily by PAHs which have new lower toxicity values• Groundwater samples were not collected or are very old.	
SEAD 39	Building 121 Boiler Plant Blowdown Leach Pit	X		X							Industrial worker; future on-site construction worker; future worker at on-site day care center; and future child at on-site day care center.	Soil Yes GW NE		X	X				<ul style="list-style-type: none">• Soil risk is driven heavily by PAHs which have new lower toxicity values• Groundwater samples were not collected.	
SEAD 40	Building 319 Boiler Plant Blowdown Leach Pit	X		X							Industrial worker; future on-site construction worker; future worker at on-site day care center; and future child at on-site day care center.	Soil No GW NE		X	X				<ul style="list-style-type: none">• No risk identified in soil for Institutional/Industrial Area receptors.• The risk assessment did not evaluate UU/UE• Groundwater samples were not collected.	
SEAD 59	Fill Area West of Building 135	X		X							Current/future construction worker; current/future industrial worker; and current/future adolescent trespasser/visitor	Soil Yes GW Yes		X	X				<ul style="list-style-type: none">• Risk was driven primarily by groundwater concentrations of metals.• Groundwater samples were collected in 2004.• Metals concentrations in both soil and groundwater were attributed to background.	
SEAD 66	Pesticide Storage Area near Buildings 5 and 6	X		X							Industrial worker; construction worker; adult resident; child resident	Soil No GW NE		X	X				<ul style="list-style-type: none">• No risk identified in soil, including residential receptors.• Groundwater was not assessed in the risk assessment.• 4,4'-DDT was present only in a single isolated hot spot	

Table 4 - Summary of Areas of Concern (AOC) Optimization Findings and Recommendations
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Site Number	Site Name	LUC Requirements										Risk Summary		Recommendations ⁴					
		Prohibit Residential, Schools, Childcare Facilities, & Playgrounds.	Prohibit construction of inhabitable structures (temporary or permanent).	GW Use Restriction (Prohibit Access or Use of).	GW LTM Required.	Unauthorized Excavation Restriction.	Maintain Soil Cap and/or Vegetative Cover.	Maintain Remedial & Monitoring Wells System.	BR Explosives Safety Education Program.	Prison Parcel Reversionary Deed.	Receptors evaluated	Risk Identified	No change	Reduce frequency of reviews and/or LTM	Collect new GW data and update risk assessment for soil and GW	LTM is ongoing - evaluate trend achievement of standard	Collect groundwater data and update risk assessment	Perform vapor intrusion study	Rationale
SEAD 71	Alleged Paint Disposal Area	X		X							Current/future construction worker; current/future industrial worker; and current/future adolescent trespasser/visitor	Soil Yes GW Yes		X	X				• No risk identified in soil for Institutional/Industrial Area or Institutional Area (including residential) receptors. • Residential receptors not assessed in the risk assessment. • Exceedances observed in groundwater were attributed to low yield and elevated turbidity.
SEAD 121C	Defense Reutilization and Marketing Office (DRMO) Yard	X		X							Current/future construction worker; current/future industrial worker; and current/future adolescent trespasser/visitor	Soil Yes GW No		X	X				• No risk identified in soil for Industrial receptors. • Residential receptors not assessed in the risk assessment. • No COCs were identified in groundwater
SEAD 121I	Rumored Cosmoline Disposal Area	X		X							Current/future construction worker; current/future industrial worker; and current/future adolescent trespasser/visitor	Soil Yes GW NE		X	X				• No risk identified in soil for Industrial receptors. • Residential receptors not assessed in the risk assessment. • Groundwater risk was not quantitatively assessed.
Prison Area																			
SEAD 44B	Quality Assurance Test laboratory, Brady Road									X	Prison inmate; prison worker; construction worker; day care center child; and day care center worker	Soil No GW NE		X	X				• No COCs identified in soil for Prison Area receptors. • UU/UE not evaluated. • Groundwater risk was not quantitatively assessed.
SEAD 52	Building 608 and 612 Ammunition Breakdown Area									X	Prison inmate; prison worker; construction worker; day care center child; and day care center worker	Soil No GW NE		X	X				• No COCs identified in soil for Prison Area receptors. • UU/UE not evaluated. • Groundwater risk was not quantitatively assessed.
Other SEADs with LUC Requirements																			
<i>Airfield Parcel</i>																			
SEAD 122B	Small Arms Range, Airfield	X									No risk assessment was performed since a treatability study and a removal action was completed at this AOC.	Soil No GW No		X	X				• Risk was not evaluated as a removal action was completed at this site to remove contaminated soil. • No COPCs were identified in groundwater. • Land use restrictions were imposed over the entire Airfield parcel and are not specific to this site.
SEAD 122E	Plane Deicing Area	X									Industrial worker; future on-site construction worker; future worker at on-site day care center; and future child at on-site day care center.	Soil Yes GW No		X	X				• Soil risk is driven heavily by PAHs which have new lower toxicity values. • No COPCs were identified in groundwater.
Planned Industrial/Office Development (PID)/Warehouse Area																			
SEAD 16	Building S311, Abandoned Deactivation Furnace	X		X	X						Current site worker; future on-site industrial worker; future on-site construction worker; future child trespasser; future child at an on-site day care center (for	Soil NE post remedy GW Yes		X		X			• Remedy implemented, but risk not re-evaluated • LTM in place for groundwater. Evaluation in progress to determine if Class GA standards are met.
SEAD 17	Building 367, Active Deactivation Furnace	X		X	X						on-site day care center (for			X		X			• Remedy implemented, but risk not re-evaluated • NFA recommended for groundwater since metals are in compliance with the Class GA standards.

Table 4 - Summary of Areas of Concern (AOC) Optimization Findings and Recommendations
Five-Year Review
Seneca Army Depot Activity

Site Number	Site Name	LUC Requirements										Risk Summary		Recommendations ⁴						
		Prohibit Residential, Schools, Childcare Facilities, & Playgrounds.	Prohibit construction of inhabitable structures (temporary or permanent).	GW Use Restriction (Prohibit Access or Use of).	GW LTM Required.	Unauthorized Excavation Restriction.	Maintain Soil Cap and/or Vegetative Cover.	Maintain Remedial & Monitoring Wells System.	BR Explosives Safety Education Program.	Prison Parcel Reversionary Deed.	Receptors evaluated	Risk Identified	No change	Reduce frequency of reviews and/or LTM	Collect new GW data and update risk assessment for soil and GW	LTM is ongoing - evaluate trend achievement of standard	Collect groundwater data and update risk assessment	Perform vapor intrusion study	Rationale	
SEAD 25	Fire Training and Demonstration Pad			X	X			X			Site worker, on-site construction worker, resident	Soil Yes GW Yes		X		X			• Investigation for PFAS is ongoing • LTM in place for groundwater. Evaluation in progress to determine if Class GA standards are met.	
SEAD 26	Fire Training Pit			X	X ¹						Site worker, on-site construction worker, resident	Soil Yes GW Yes		X		X			• LTM stopped after first year • No COCs identified in Groundwater • Investigation for PFAS is ongoing	
Other SEADs with RODS, but no LUC Requirements																				
SEAD 23	Open Burning Ground				X ³	X ³					Current on-site OB grounds workers (Industrial Scenario); current off-site resident (Residential Scenario); and future on-site resident (Residential Scenario)	Soil Yes (Eco only) Sediment Yes (Eco only) GW No		X		X			• No evidence of migration of metals in groundwater. • Concentrations of Lead and Copper in groundwater are below cleanup goals. • NFA recommended for groundwater since metals are in compliance with the Class GA standards	
Planned Industrial/Office Development (PID)/Warehouse Area																				
SEAD 27	Steam Cleaning Waste Tank (Building 360)	X		X							Adult resident, child resident	Soil No GW Yes (1995)		X			X		• No COCs identified in Soil • Groundwater PAHs drive risk for residential receptors and day care child care center. • Groundwater samples are very old.	
SEAD 67	Dump Site east of Sewage Treatment Plant No. 4	X		X							Construction worker; adult resident; child resident; lifetime resident (carcinogenic risk only); industrial worker; future on-site construction worker; future worker at on-site day care center; and future child at on-site day care center.	Soil No GW NE		X			X		• No risk identified in soil for Institutional/Industrial Area or Institutional Area (including residential) receptors. • Groundwater was not assessed in the risk assessment. • Exceedances observed in groundwater in 1993 were attributed to elevated turbidity.	
SEAD 13	Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Site			X							Park worker; recreational visitor (child); construction worker; resident (adult); and resident (child)	Soil No GW Yes		X			X		• Risk was driven primarily by groundwater concentrations of metals and nitrate/nitrite-nitrogen. • Groundwater samples were collected in 2001. • High turbidiy was noted in groundwater samples.	
Other SEADs with LUC Requirements																				
North End Barracks Area																				
SEAD 41	Building 718 Boiler Plant Blowdown Leach Pit			X							Construction worker; adult resident; child resident; and lifetime resident (carcinogenic risk only)	Soil No GW NE		X			X		• No COCs identified in soil for Institutional Area receptors, including residential receptors. • Groundwater risk was not qualitatively assessed.	
Planned Industrial/Office Development (PID)/Warehouse Area																				
SEAD 5	Sewage Sludge Storage Piles	X		X		X	X				Industrial workers, construction workers, and adolescent trespassers	Soil Yes GW Yes		X	X		X		• Soil risk is driven heavily by PAHs which have new lower toxicity values • Cap is in place requiring LUCs remain for Land Use and prohibiting Excavation • Groundwater samples had high metals concentrations believe to be associated with high turbidity levels.	
SEAD 64A	Garbage Disposal Area, South of Storage Pad	X		X		X					Warehouse worker; construction worker; adolescent trespasser	Soil Yes GW Yes		X	X		X		• Risk was calculated based on 1994 soil and groundwater samples. • Soil risk included contributions from PAHs which have new lower toxicity values. • Residential receptor risk driven by metals in groundwater.	

Table 4 - Summary of Areas of Concern (AOC) Optimization Findings and Recommendations
Five-Year Review
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Site Number	Site Name	LUC Requirements										Risk Summary		Recommendations ⁴						
		Prohibit Residential, Schools, Childcare Facilities, & Playgrounds.	Prohibit construction of inhabitable structures (temporary or permanent).	GW Use Restriction (Prohibit Access or Use of).	GW LTM Required.	Unauthorized Excavation Restriction.	Maintain Soil Cap and/or Vegetative Cover.	Maintain Remedial & Monitoring Wells System.	3R Explosives Safety Education Program.	Prison Parcel Reversionary Deed.	Receptors evaluated	Risk Identified	No change	Reduce frequency of reviews and/or LTM	Collect new GW data and update risk assessment for soil and GW	LTM is ongoing - evaluate trend achievement of standard	Collect groundwater data and update risk assessment	Perform vapor intrusion study	Rationale	
Other SEADs with LUC Requirements																				
SEAD 64D	Garbage Disposal Area, West of Building 2203			X		X	X	X			Park worker; recreational visitor (child); and construction worker	Soil No GW Yes		X	X		X		<ul style="list-style-type: none">• Risk was driven by groundwater concentrations of metals.• UU/UE not evaluated.• Groundwater samples were collected in 1994.• High turbidity was noted in groundwater samples.	
Other SEADs with LUC Requirements																				
SEAD 12	Radiological Waste Burial Sites	X	X	X							Resident, worker, park worker, recreational child, construction worker	Soil No GW No						X	<ul style="list-style-type: none">• No risk identified in soil or groundwater for Area (including residential) receptors.• Vapor intrusion presumed but not assessed in the risk assessment.• The condition under building 813/814 is unknown where residual TCE-contaminated soil and where contaminated groundwater may exist.	
Note: For the majority of the AOCs, their respective ROD required implementation of specific LUCs which are summarized above. NE - No Exposure X ¹ – Long Term Groundwater monitoring was initially required at SEAD-26 as a condition of the ROD. Groundwater monitoring at SEAD-26 was terminated by the Army, with the approval of the EPA and the NYSDEC after the first year of sampling (2006) after analysis indicated that no COCs were present in the groundwater at concentrations above defined cleanup goals. X ² – GW Use Deed Restriction was placed on the deed because this area was transferred before environmental easements were required. X ³ – SEAD 23, Open Burning Grounds has Operations and Maintenance requirements per the ROD signed in February 1999. However, no LUCs have been established for the site. Recommendations ⁴ : No change = Continue the implementation of LUCs and the current frequency of periodic reviews. Reduce frequency of review and/or LTM = Discuss reducing frequency of periodic reviews and reducing frequency or concluding LTM sampling with NYSDEC and EPA. Collect new GW data and update risk assessment for soil and GW = Re-evaluate the risk to determine if UU/UE conditions can be met in soil. If UU/UE can be met in soil, collect groundwater samples to allow a site-specific risk assessment to determine if Class GA standards can be met in groundwater. LTM is ongoing - evaluate trend achievement of standard = Evaluate LTM data to determine if Class GA standards have been met. Collect groundwater data and update risk assessment = Collect groundwater samples to allow a site-specific risk assessment to determine if Class GA standards can be met in groundwater. Perform vapor intrusion study - Perform vapor intrusion study to assess and estimate potential risks for VOC vapor intrusion exposure, which could lead to elimination of the LUC on the building at SEAD-12.																				

**Table 5 - Operable Unit (OU) Crosswalk
Five-Year Review
Seneca Army Depot Activity**

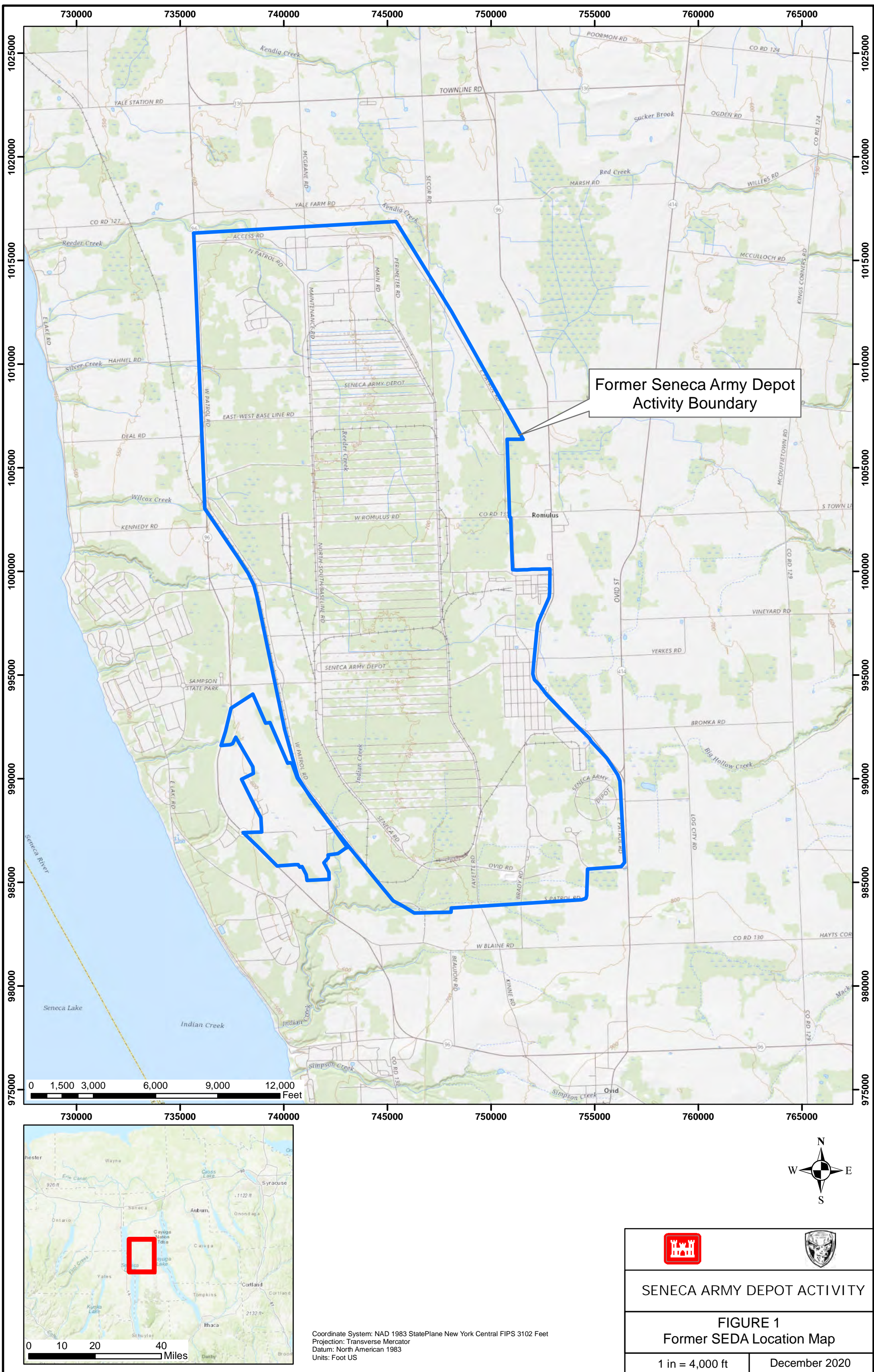
OU	Name	SEAD ID	Decision Document Reference
0	SITEWIDE	n/a	n/a
1	ASH LANDFILL	SEAD 3, 6, 8, 14, 15	ROD (January, 2005) ¹
2	OPEN BURNING GROUNDS	SEAD 23	ROD (January, 1999) ²
3	FIRE TRAINING PAD	SEAD 25, 26	ROD (September, 2004) ³
4	DEACTIVATION FURNACES	SEAD 16, 17	ROD (March, 2006) ⁴
5	RADIOACTIVE WASTE SITES, ETC.	SEAD 12, 72	ROD (March, 2015) ⁵
6	FILL AREA/PAINT DISPOSAL	SEAD 59, 71	ROD (March, 2009) ⁶
7	MUNITIONS WASHOUT FACILITY	SEAD 4, 38	ROD (August, 2009) ⁷
8	OLD CONSTRUCTION DEBRIS	SEAD 11	ROD (September, 2009) ⁸
9	IRFNA DISPOSAL SITE	SEAD 13	ROD (July, 2004) ⁹
10	AMMUNITION BREAKDOWN AREA, ETC.	SEAD 52, 60	ROD (September, 2003) ¹⁰ ROD (March, 2007) ¹¹
11	OPEN DETONATION GROUNDS	SEAD 46, 003-R-01, 002-R-01, 007-R-01, 70	ROD (May, 2002) ¹² ROD (March, 2017) ¹³
12	PESTICIDE STORAGE AREA	SEAD 27, 64A, 66	ROD (May, 2002) ¹² ROD (March, 2004) ¹⁴
13	PITCHBLEND STORAGE	SEAD 48; inc. SEADs 1, 2, 5, 24	ROD (April, 2009) ¹⁵
14	MULTIPLE SEAD	NA/NFA/IC Sites No Action: SEADs 7, 9, 10, 18, 19, 20, 21, 22, 33, 35, 36, 37, 42, 47, 49, 51, 53, 55, 65, 68 No Further Action: SEADs 28, 29, 30, 31, 32, 34, 58, 60, 61, 63 IC Sites: SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B and 122E	ROD (May, 2002) ¹² ROD (September, 2003) ¹⁰ ROD (March, 2007) ¹¹
15	SEAD 50/54	SEAD 50, 54	ROD (September, 2005) ¹⁶
16	DRMO YARD	SEAD 121C, 121I	ROD (June, 2008) ¹⁷
17	SEAD-45 – OD GROUNDS	SEAD 45	n/a

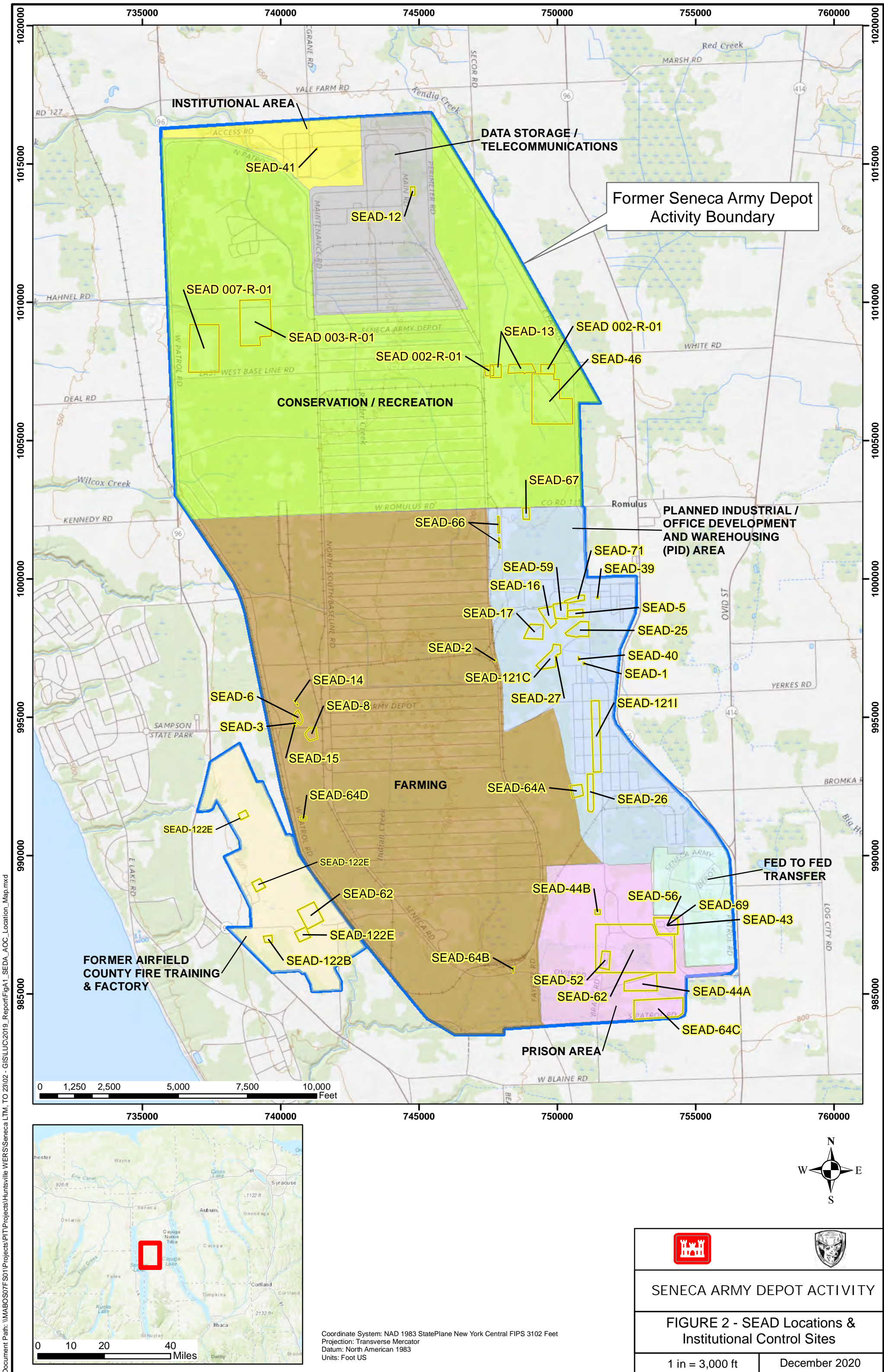
References

- ¹ Parsons (2005). RECORD OF DECISION (ROD) THE ASH LANDFILL OPERABLE UNIT. January 2005.
- ² Parsons (1999). RECORD OF DECISION (ROD) FORMER OPEN BURNING (OB) GROUNDS SITE. January 1999.
- ³ Parsons, (2004). RECORD OF DECISION (ROD) THE FIRE TRAINING AND DEMONSTRATION PAD (SEAD 25) AND THE FIRE TRAINING PIT AND AREA (SEAD 26). September 2004.
- ⁴ Parsons (2006). RECORD OF DECISION (ROD) THE ABANDONED DEACTIVATION FURNACE (SEAD-16) AND THE ACTIVE DEACTIVATION FURNACE (SEAD-17). March 2006.
- ⁵ Parsons (2015). RECORD OF DECISION THE RADIOACTIVE WASTE BURIAL SITES (SEAD-12) AND THE MIXED WASTE STORAGE FACILITY (SEAD-72). March 2015.
- ⁶ Parsons (2009). RECORD OF DECISION FOR THE FILL AREA WEST OF BUILDING 135 (SEAD-59) AND THE ALLEGED PAINT DISPOSAL AREA (SEAD-71). March 2009.
- ⁷ Parsons (2008). RECORD OF DECISION (ROD) FOR THE MUNITIONS WASHOUT FACILITY (SEAD-4) AND THE BUILDING 2079 BOILER BLOWDOWN PIT (SEAD-38). August 2008.
- ⁸ Parsons (2009). RECORD OF DECISION (ROD) FOR THE OLD CONSTRUCTION DEBRIS LANDFILL (SEAD-11). September 2009.
- ⁹ Parsons (2004). DECISION DOCUMENT, MINI RISK ASSESSMENT, SEAD-13, INHIBITED RED FUMING NITRIC ACID (IRFNA) DISPOSAL AREA. July 2004.
- ¹⁰ Parsons (2003). RECORD OF DECISION FOR TWENTY NO ACTION SWMUs (SEADs 7, 9, 10, 18, 19, 20, 21, 22, 33, 35, 36, 37, 42, 47, 49, 51, 53, 55, 65, and 68) and EIGHT NO FURTHER ACTION SWMUs (SEADs 28, 29, 30, 31, 32, 34, 60, and 61). September 2003.
- ¹¹ Parsons (2007). RECORD OF DECISION FOR SEVENTEEN SWMUs REQUIRING LAND USE CONTROLS (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E). March 2007.
- ¹² Parsons (2002). DECISION DOCUMENT - MINI RISK ASSESSMENT SE.AD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B. May 2002.
- ¹³ Parsons (2017). RECORD OF DECISION SEAD-46, SEAD 003-R-01 (SEAD-57), SEAD 002-R-01 and SEAD 007-R-01 (Seneca AD Munitions Response Sites) and SEAD-70. March 2017.
- ¹⁴ Parsons (2004). RECORD OF DECISION FOR SITES REQUIRING INSTITUTIONAL CONTROLS IN THE PLANNED INDUSTRIAL/OFFICE DEVELOPMENT OR WAREHOUSING AREAS. September 2004.
- ¹⁵ Parsons (2009). RECORD OF DECISION FOR FIVE FORMER SOLID WASTE MANAGEMENT UNITS SEAD-1, 2, 5, 24, & 48. April 2009.
- ¹⁶ Parsons (2005). RECORD OF DECISION (ROD) NO FURTHER ACTION SWMUs (SEAD-50/54). September 2005.
- ¹⁷ Parsons (2008). RECORD OF DECISION (ROD) FOR THE DEFENSE REUTILIZATION AND MARKETING OFFICE YARD (SEAD-121C) AND THE RUMORED COSMOLINE OIL DISPOSAL AREA (SEAD-121I). June 2008.

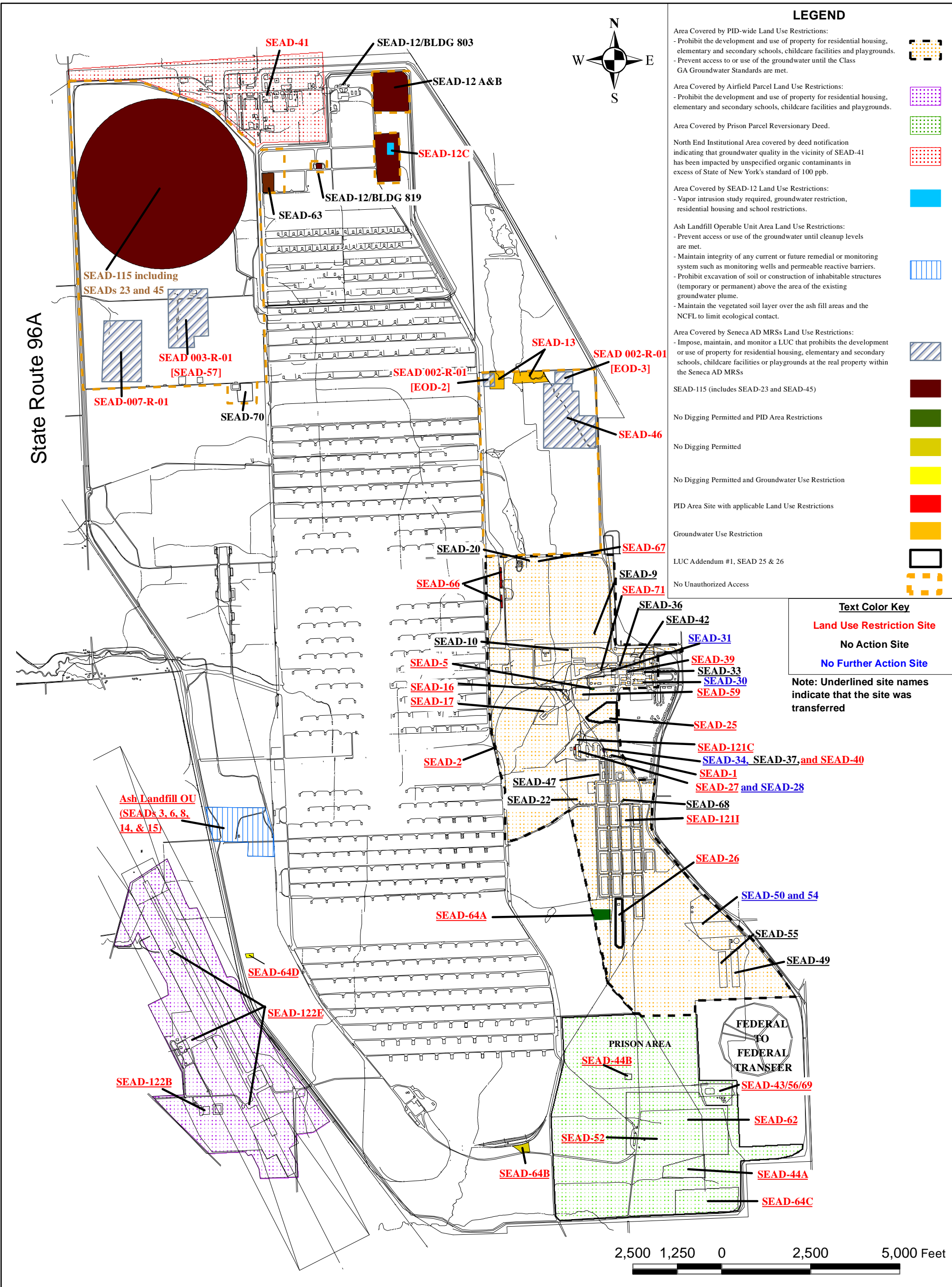
n/a No ROD for this site yet.

FIGURES





Path: \\MABOS07FS01\Projects\PIT\Projects\Huntsville WERS\Seneca LTM, TO 23\02 - GIS\LUC\2021_5YR\Fig3_LUCAddendum 6_v2.mxd



Land Use Control, Remedial Design, Version

PID Area LUC Sites, SEADs 27, 64A, and 66
LUC Addendum #1, SEADs 25 and 26
LUC Addendum #2, SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E
LUC Addendum #3, Ash Landfill Operable Unit SEADs 3, 6, 8, 14 and 15
LUC Addendum #4, SEADs 1, 2, 5, 16, 17, 59, 71, 121C, and 121I
LUC Addendum #5, SEAD 12
LUC Addendum #6, SEAD 46, SEAD 003-R-01, SEAD 002-R-01, SEAD 007-R-01 and SEAD 70 (NFA)
Note: Implementation of LUC Addendums #5 and #6 are in progress.



SENECA ARMY DEPOT ACTIVITY
Five Year Review

FIGURE 3
SEDA LAND USE RESTRICTIONS

December 2020



APPENDICES

APPENDIX A

SEAD-1: HAZARDOUS WASTE CONTAINER STORAGE FACILITY (BUILDING 307)

APPENDIX A: SEAD-1 HAZARDOUS WASTE CONTAINER STORAGE FACILITY (BUILDING 307)

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-1 (Building 307, the former Hazardous Waste Container Storage Facility) is located approximately 3,500 feet southwest of the Depot's main entrance off State Route 96. Building 307 was constructed in 1981 and was used for temporary storage of containerized hazardous wastes prior to their shipment offsite for disposal. During Building 307's active life, the ground surrounding the building was kept clear of vegetation.

Hazardous wastes stored at SEAD-1 included spent solvents; still bottoms; sludge from oil/grease separations; cleaning compounds; paper filters; waste polychlorinated biphenyls (PCBs); and spent battery acids. The storage of hazardous waste in Building 307 was subject to regulations promulgated under RCRA, 42 U.S.C. §§6901-63992k (Parsons, 2009a).

1.2 Initial Response

On December 30, 1991, the Army submitted a RCRA Part A and Part B Permit Application for the Depot that included storage operations at Building 307. The Army's permit application was not processed or approved, and operations performed at Building 307 continued under Interim Status until September 2005 when NYSDEC accepted the Army's Closure Certificate for SEAD-1. A RCRA Closure was implemented and completed for Building 307 (SEAD-1). The NYSDEC approved the RCRA Closure of the building in September of 2005, and indicated that the existing building should only be used for industrial operations in the future. However, the NYSDEC deferred comment or determination on the acceptability of the soils located outside of the building to the CERCLA program.

1.3 Basis for Taking Action

Due to human health risk in soil and potential risk in groundwater which was not fully evaluated an action was required at SEAD-1 to ensure land use remains protective of site users. SEAD-1 is part of the PID/Warehousing Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas. The potential future hazards or risks identified at SEAD-1 are either suitable for the defined use, or associated with compounds that are present at concentrations that are equal to or less than naturally occurring levels.

1.3.1 CONTAMINANTS OF CONCERN

A review of soil sample results indicated that 66 chemicals were detected in one or more of the individual soil samples characterized at SEAD-1. Information and data presented in the ROD (Parsons, 2009a) summarized that hazardous constituents are present in the soil at SEAD-1 at levels that exceeded Federal and State guidance values and thus, may pose a threat to selected future populations (e.g., future residents) that could use the land.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-1 there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors except for the construction worker (HI=1.56) are less than 1.0. The results of the risk assessment performed using the maximum detected concentrations for contaminants in soil and the reasonable maximum exposure (RME) scenario indicate that the cancer risks calculated at SEAD-1 for all receptors (i.e., industrial worker, construction worker, and adolescent trespasser) are 1×10^{-6} or less, which is consistent with USEPA guidelines. Aluminum, iron, manganese, vanadium, and zinc in soil contribute significantly to the construction worker's elevated HI.

The risk assessment was recalculated using recommended Upper Confidence Limit (UCL) values in place of maximum concentrations as the Exposure Point Concentrations (EPCs) for aluminum, iron, manganese, vanadium, and zinc, and maximum concentrations for all of the other identified COCs. The results of this recalculation indicated that the estimated cancer risks for all potential future human receptors at SEAD-1 were consistent with, and less than USEPA's preferred upper limits, and that the HIs for the industrial worker and adolescent trespasser were below 1.0. The construction worker's HI was reduced to 1.08.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "Five Former Solid Waste Management Units (SWMUs), SEAD-1 (Hazardous Waste Container Storage Facility), SEAD-2 (PCB Transformer Storage Facility), SEAD-5 (Sewage Sludge Waste Piles), SEAD-24 (Abandoned Powder Burn Pit) and SEAD-48 (Row E0800 Pitchblende Storage Igloos)" (Parsons, 2009a) requires the establishment of ICs. The elements that composed the remedy included:

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

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehousing Area. Addendum 4 to the SEAD LUC RD added SEADs 1, 2, 5, 16, 17, 59, 71, 121C and 121I in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the PID/Warehouse Area including properties that had been previously retained (including SEAD-1) by the Army in 2008 was recorded in the Seneca County Clerk's office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-1 is presented in **Table A.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-1 as part of the "PID Retained Parcels" was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehousing Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehousing Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table A.2.1: Institutional Controls Summary Table

Media, engineered controls, and Area That Do Not Support UU/UE Based On Current Conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/ Warehousing Area	Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
Groundwater	Yes	Yes	SEAD PID/ Warehousing Area	Prevent access or use of the groundwater until New York States GA ground water Standards are achieved.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year review

This section includes the protectiveness determinations and statements from the last five-year review (Table A.3.1) as well as the recommendations from the last five-year review and the current status of those recommendations (Table A.3.2).

Table A.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-1	Protective	The remedy implemented for PID/Warehousing Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table A.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
------	-------	----------------	----------------	---	---------------------------------

SEAD-1	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020.	N/A
--------	-----	---	-----------	---	-----

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-1 was inspected July 22, 2020 to assess whether required LUCs imposed by the approved ROD are being maintained. FYR site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-1.
- No access to or use of groundwater were observed at SEAD-1.

4.4 Interviews

Since SEAD-1 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-1.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed ROD for SEAD-1 within the PID/Warehousing Area have been completed and documented. No continuing active remediation is required in the PID/Warehousing Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted July 22, 2020, all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-1 is currently protective of human health and the environment because:

- A LUC that prevents access to, and use of, groundwater within the PID/Warehousing Area of the former Depot has been implemented and is currently being maintained, monitored and reported upon periodically; and
- A second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds, and which also has been expanded to include all land within the PID/Warehousing Area has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment. No early indicators of potential issues have been identified for SEAD-1. SEAD-1 is currently monitored and reported annually. No significant changes in site conditions have been noted over the last two five-year reviews; therefore, optimization may be appropriate, and a lesser frequency of monitoring and reporting should be considered.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Table A.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table A.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Benzo(a)anthracene	0.62	1.1	0.224	1	Y	N
Benzo(a)pyrene	0.062	0.11	0.061	1	Y	N
Benzo(b)fluoranthene	0.62	1.1	1.1	1	Y	Y
Benzo(g,h,i)perylene	--	--	50	100	Y	N
Chrysene	62	110	0.4	1	Y	N
Indeno(1,2,3-cd)pyrene	0.62	1.1	3.2	0.5	Y	Y
Phenanthrene	--	--	50	100	Y	N
Metals						
Aluminum	7,600	7,700	19,300	--	Y	N
Arsenic	0.39	0.68	8.2	13	Y	N
Chromium	21	12,000 ⁽³⁾	29.6	30	Y	N
Iron	2,300	5,500	36,500	--	Y	N
Manganese	180	180	1,060	1,600	Y	N
Phosphorus	0.16 ⁽⁴⁾	0.16 ⁽⁴⁾	--	--	N	N
Silica	--	430,000	--	--	Y	--
Silicon	--	--	--	--	N	--
Sulfur	--	--	--	--	N	--
Vanadium	7.8	39	150	--	Y	N
Zinc	2,300	2,300	110	109	N ⁽⁵⁾	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

(3) Evaluated as chromium (III)

(4) Evaluated as white phosphorus

(5) The potential cleanup levels are not different when rounded to two significant figures.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is **no** new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-1 and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-1.
- If UU/UE can be met in soil, collect groundwater samples to determine if Class GA standards can be met in groundwater at SEAD-1.

7.0 Protectiveness Statement

The remedy implemented for SEAD-1 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1



PHOTO LOG

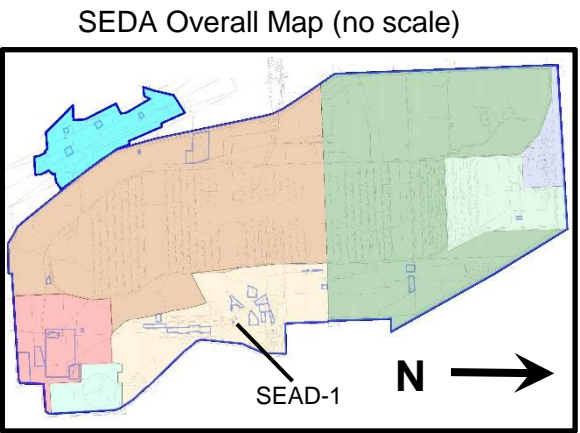
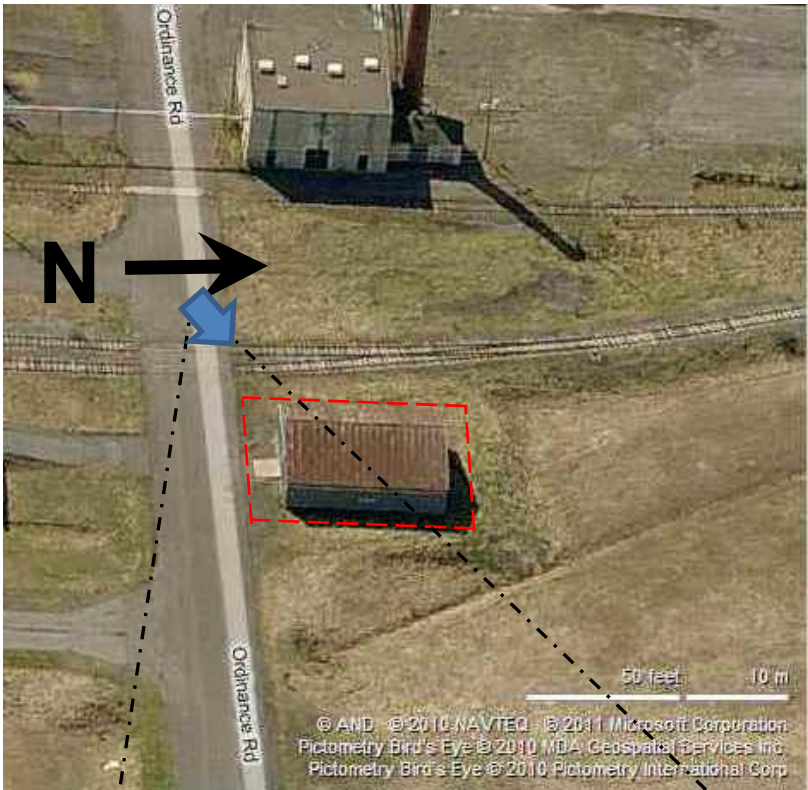
Attachment A-1
Five-Year Review - Site Visit Photo Log
SEAD-1 Hazardous Waste Container Storage Facility (Building 307)

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-1, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

Bing.com (Microsoft) Birds Eye Aerial of SEAD-1; actual date of aerial photo is unknown but based on observable features at SEDA it may be from Spring 2007.

 Approximate Site Boundary
 Photo Viewing Direction



SEAD-1 is located within the PID/
Warehouse Area Parcel.

2020 Site Visit Photo 1



Status as of: 7/22/2020
Description: Building 307

Photo ID: 3839.jpg

2020 Site Visit Photo 2



Status as of: 7/22/2020
Description: Building 307

Photo ID: 3837.jpg

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX B

SEAD-2: PCB TRANSFORMER STORAGE FACILITY (BUILDING 301)

APPENDIX B: SEAD-2 PCB TRANSFORMER STORAGE FACILITY (BUILDING 301)

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

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

Building 301 was originally constructed in 1942. It was upgraded in 1986 to meet hazardous waste storage requirements required by RCRA. The exterior of Building 301 measures approximately 35 feet 4 inches long by 23 feet 4 inches wide. The structure is partially bounded on its east and west sides, and completely on its north side, by a raised concrete loading dock, and access ramp and stairway assembly. Building 301 was used as a PCB Transformer Storage Facility beginning in 1980 and continuing until the Depot closed in 2000.

1.2 Initial Response

A RCRA Closure was implemented and completed for Building 301 (SEAD-2). The NYSDEC approved the RCRA Closure of the building in September of 2005, and indicated that the existing building should only be used for industrial operations in the future. However, the NYSDEC deferred comment or determination on the acceptability of the soils located outside the building to the CERCLA program.

1.3 Basis for Taking Action

Due to human health risk in soil and potential risk in groundwater which was not fully evaluated an action was required at SEAD-2 to ensure land use remains protective of site users. SEAD-2 is part of the PID/Warehousing Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas. The potential future hazards or risks identified at SEAD-2 is either suitable for the defined use, or associated with compounds that are present at concentrations that are equal to or less than naturally occurring levels.

1.3.1 CONTAMINANTS OF CONCERN

Information and data presented in the ROD (Parsons, 2009a) summarized that hazardous constituents are present in the soil at SEAD-2 at levels that exceeded Federal and State guidance values and thus, may pose a threat to selected future populations (e.g., future residents) that could use the land. A review of the soil sample results for SEAD-2 indicated that 64 chemicals were detected in one or more of the individual soil samples characterized, and 20 were found in individual samples at concentrations that exceeded New York's Unrestricted Use SCO values. However, comparisons between 95 percent UCL concentrations and their SCO values indicated that only four compounds were found at concentrations greater than New York's Unrestricted Use SCOs, while six compounds were found at a 95 percent UCL concentration in excess of the respective USEPA Industrial Soil Regional Screening Level (RSL) value.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The human health risk assessment evaluated reasonable anticipated exposure scenarios, which included industrial workers, construction workers, and adolescent trespassers. Residential land use was not evaluated in the risk assessment. The risk assessment concluded that at SEAD-2 the human health cancer risks were within the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} for construction workers and adolescent trespassers, but exceeded the range for industrial workers (5×10^{-4}). The calculated non-cancer HI for industrial workers and the adolescent trespasser are less than 1.0. The HI computed for the construction worker was

documented as 1.48 in the ROD. The human health risk assessment was initially conducted using the maximum observed concentration as the EPC; subsequent risk calculations used the 95 percent UCL values for selected metal COCs.

The risk assessment based on an RME scenario and maximum detected concentrations indicated that non-cancer risks for the industrial worker and the adolescent trespasser were less than 1. The HI computed for the construction worker was 1.48. This HI was driven by the ingestion of soil and the inhalation of dusts containing metals. The predominant contributing metal is manganese, followed by iron, arsenic, aluminum and vanadium. Data indicated that each of these metals, exclusive of arsenic, was found at concentrations that are less than Federal and State cleanup guidance values. The construction worker's HI decreased to 0.9 when the 95 percent UCL values for aluminum, arsenic, iron, manganese, and vanadium were substituted for the maximum detected levels. Note that EPA Risk Assessment Guidance indicates that an HI should only be reported to 1 significant figure. Following the EPA guidance this HI would be 1.

The cancer risk calculated at SEAD-2 for the construction worker and adolescent trespasser were found to be within the USEPA's recommended risk management range (1×10^{-4} to 1×10^{-6}) based on the maximum detected concentration of the COCs and a RME exposure scenario. The cancer risk identified for the industrial worker was 5×10^{-4} , which exceeds the USEPA's recommended range. The identified cancer risk for the industrial worker results were primarily due to dermal contact with, and ingestion of soil containing carcinogenic polycyclic aromatic hydrocarbons (cPAHs). The risk assessment and the conclusions of the AOC investigations were reviewed and approved by the USEPA.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "Five Former Solid Waste Management Units (SWMUs), SEAD 1 (Hazardous Waste Container Storage Facility), SEAD 2 (PCB Transformer Storage Facility), SEAD 5 (Sewage Sludge Waste Piles), SEAD 24 (Abandoned Powder Burn Pit) and SEAD 48 (Row E0800 Pitchblende Storage Igloos)" (Parsons, 2009a) requires the establishment of ICs. The elements that composed the remedy included:

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

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehousing Area. Addendum 4 to the SEAD LUC RD added SEADs 1, 2, 5, 16, 17, 59, 71, 121C and 121I in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the PID/Warehousing Area, including properties that had been previously retained (including SEAD-2) by the Army in 2008, was recorded in the Seneca County Clerk's office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-2 is presented in **Table B.2.1** based on the data and risk presented in the ROD and the LUC RD."

SEAD-2, as part of the “PID Retained Parcels”, was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehousing Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehousing Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table B.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/ Warehousing Area	Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Groundwater	Yes	Yes	SEAD PID/ Warehousing Area	Prevent access or use of the groundwater until New York States GA ground water Standards are achieved.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last FIVE-YEAR REVIEW

This section includes the protectiveness determinations and statements from the last five-year review (Table B.3.1) as well as the recommendations from the last five-year review and the current status of those recommendations (Table B.3.2).

Table B.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-2	Protective	The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table B.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-2	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR process.

4.3 Site Inspection

SEAD-2 was inspected July 22, 2020 to assess whether required LUCs imposed by the approved ROD are being maintained. FYR site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-2.
- No access to or use of groundwater were observed at SEAD-2.

4.4 Interviews

Since SEAD-2 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-2.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for SEAD-2 within the PID/Warehousing Area have been completed and documented. No continuing active remediation is required in the PID/Warehousing Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted July 22, 2020, all remedies are functioning as intended by the decision documents.

The remedy implemented at the SEAD-2 is currently protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the AOCs within the PID/Warehousing Area of the former Depot has been implemented and is currently being maintained, monitored, and reported upon periodically; and
- a second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds, and which also has been expanded to include all land within the PID/Warehousing Area has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment. No early indicators of potential issues have been identified for SEAD-2. SEAD-2 is currently monitored and reported annually. No significant changes in site conditions have been noted over the last two five-year reviews; therefore, optimization may be appropriate, and a lesser frequency of monitoring and reporting should be considered.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased

or decreased values of the cleanup and screening levels, depending on the specific compounds. The revised toxicity values are not yet reflected in the NYSDEC SCOs. **Table B.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

A total of six contaminants have either screening levels or cleanup goals that are less than those presented in the ROD (**Table B.5.1**).

- Three contaminants are PAHs (benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene) have screening values that have increased since the ROD, but have SCOs that have decreased. Since the revised toxicity values for these contaminants are not yet reflected in the SCOs, the SCOs are overly conservative at this time. Therefore, cleanup levels and screening values are still protective.
- Two contaminants (naphthalene and 2,4-dinitrotoluene) have screening values that have decreased since the ROD and have SCOs that have decreased (naphthalene) or do not have an SCO (2,4-dinitrotoluene). Therefore, the risk should be re-evaluated to determine if the cleanup levels and screening values are still protective.
- One contaminant (dibenzofuran) has screening values that have decreased since the ROD, but have SCOs that have increased. Therefore, the risk should be re-evaluated to determine if the cleanup levels and screening values are still protective.

Table B.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Acenaphthylene	--	--	41	100	Y	N
Benzo(a)anthracene	0.62	1.1	0.224	1	Y	N
Benzo(a)pyrene	0.062	0.11	0.061	1	Y	N
Benzo(b)fluoranthene	0.62	1.1	1.1	1	Y	Y
Benzo(g,h,i)perylene	--	--	50	100	Y	N
Benzo(k)fluoranthene	6.2	11	1.1	0.8	Y	Y
Chrysene	62	110	0.4	1	Y	N
Dibenz(a,h)anthracene	0.062	0.11	0.014	0.33	Y	N
Indeno(1,2,3-cd)pyrene	0.62	1.1	3.2	0.5	Y	Y
Naphthalene	5.6	2.0	13	12	Y	Y
Phenanthrene	--	--	50	100	Y	N
SVOCs						
2,4-Dinitrotoluene	12	1.7	--	--	Y	Y
Carbazole	2.4	--	--	--	Y	N
Dibenzofuran	15	7.8	6.2	7	Y	Y
Metals						
Aluminum	7,600	7,700	19,300	--	Y	N
Antimony	3.1	3.1	5.9	--	Y	N
Arsenic	0.39	0.68	8.2	13	Y	N
Cadmium	3.7	7.1	2.3	2.5	Y	N
Chromium	21	12000 ⁽³⁾	29.6	30	Y	N
Iron	2,300	5,500	36,500	--	Y	N
Lead	400	400	24.8	63	Y	N
Manganese	180	180	1,060	1,600	Y	N
Phosphorus	0.16 ⁽⁴⁾	0.16 ⁽⁴⁾	--	--	N	N
Silica	--	430,000	--	--	Y	N

Table B.5.1 Comparison of Toxicity Data and Cleanup Levels (continued)

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
Silicon	--	--	--	--	--	--
Sulfur	--	--	--	--	--	--
Vanadium	7.8	39	150	--	Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

(3) Evaluated as chromium (III)

(4) Evaluated as white phosphorus

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-2 and the PID Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-2.
- If UU/UE can be met in soil, collect groundwater samples to allow a site-specific risk assessment to determine if Class GA standards can be met in groundwater at SEAD-2.

7.0 Protectiveness Statement

The remedy implemented for SEAD-2 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1


PHOTO LOG


Attachment B-1
Five-Year Review- Site Visit Photo Log
SEAD-2 PCB Transformer Storage Facility (Building 301)

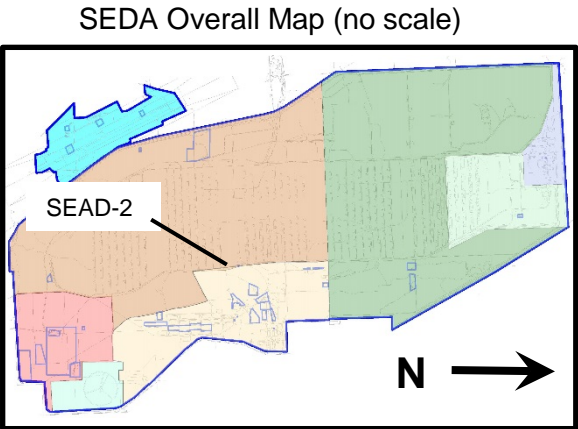
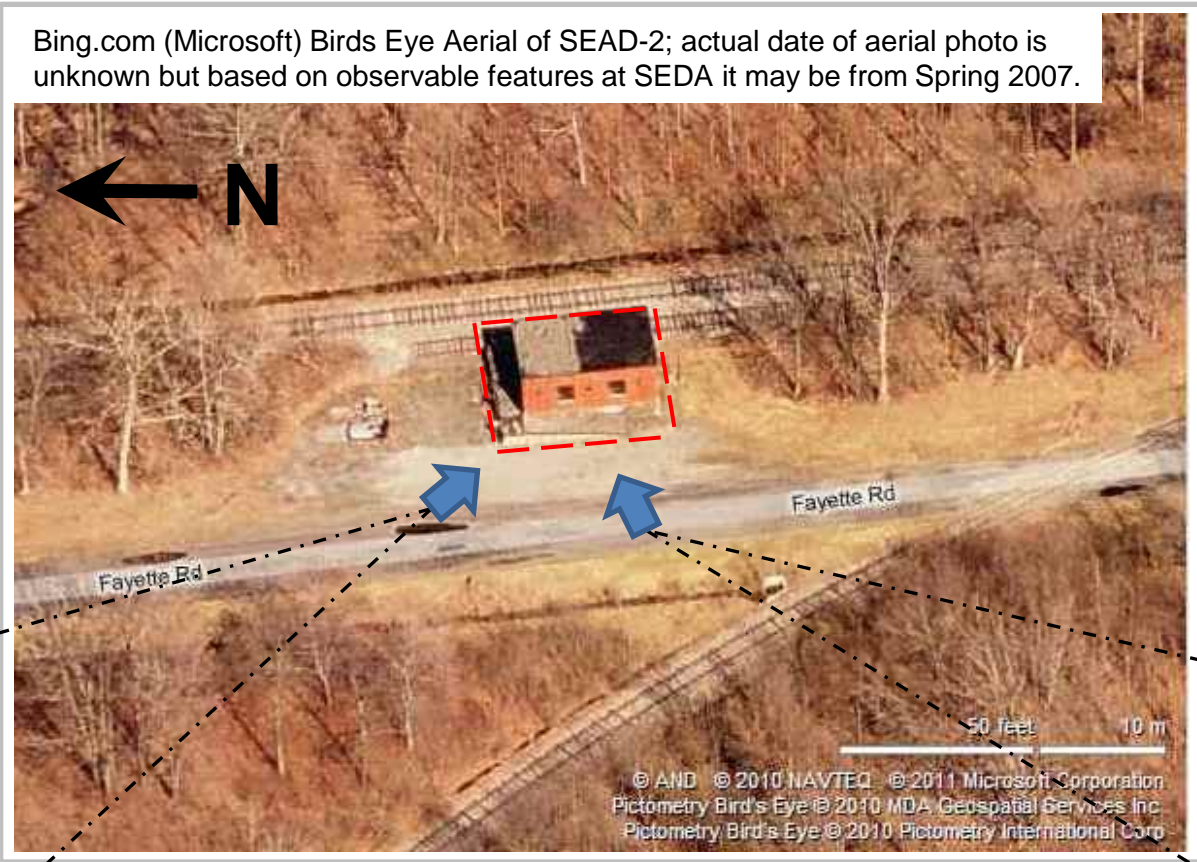
PROJECT: Seneca Army Depot LUC Inspection
PROJECT #: 110043.10000

LOCATION: SEAD-2, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

SEAD-2 is located within the PID/
Warehouse Area Parcel.

 Approximate Site Boundary

 Photo Viewing Direction



2020 Site Visit Photo 1



Status as of: 7/22/2020
Description: Building 301

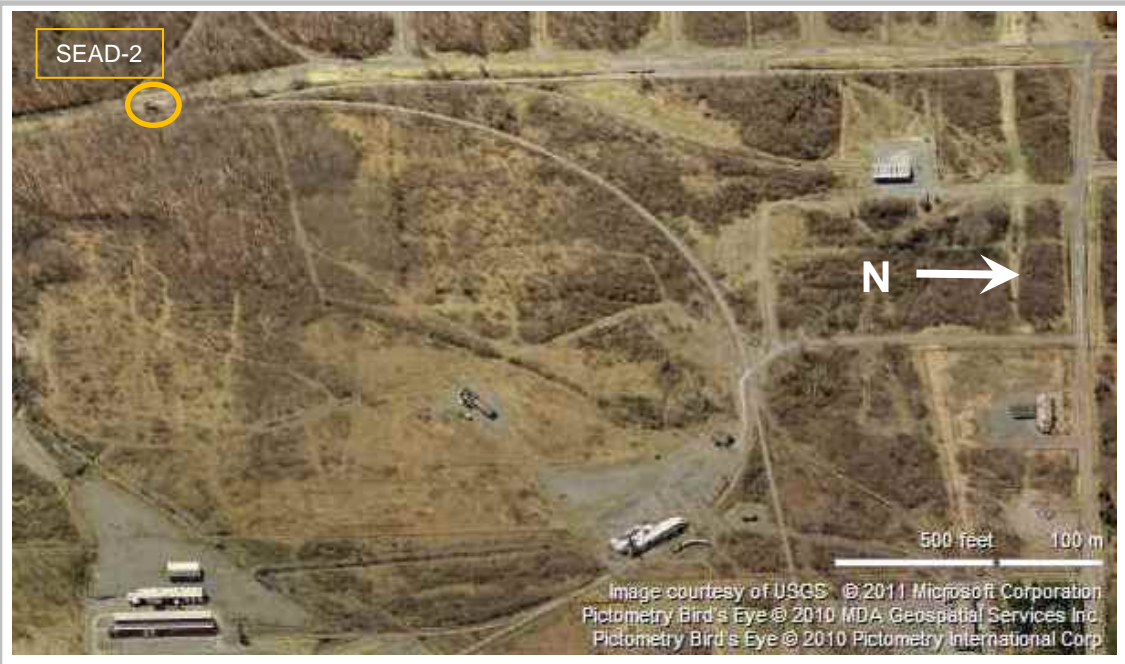
Photo ID: IMG_3910.jpg

2020 Site Visit Photo 2



Status as of: 7/22/2020
Description: Building 301

Photo ID:IMG_3909.jpg



ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX C

SEAD-5: SEWAGE SLUDGE WASTE PILES

APPENDIX C: SEAD-5 SEWAGE SLUDGE WASTE PILES

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-5 is located in the east-central portion of SEDA, approximately 3,000 ft. west-southwest of the Depot's main entrance off State Route 96. SEAD-5 encompasses an area measuring approximately 150 ft. by 250 ft. in size. Between 1980 and roughly June 1992, sewage sludge from two Army wastewater treatment plants was stockpiled at this AOC. This area was also used as a location where the Depot's Department of Public Works (DPW) type storage and staging area for heavy equipment, materials and supplies was located.

1.2 Initial Response

The historic sewage sludge waste piles were removed from SEAD-5, and disposed at off-site landfills, in accordance with prevailing environmental requirements. A TCRA was performed at SEAD-5 between 2003 and 2006 to address hazardous substance contamination that remained in soil underlying and surrounding the location of the historic sludge piles.

1.3 Basis for Taking Action

Due to human health risk in soil and groundwater an action was required at SEAD-5 to ensure land use remains protective of site users. SEAD-5 is part of the PID/Warehousing Area and the planned future use for this tract of land is for industrial, office development, and/or warehousing areas.

1.3.1 CONTAMINANTS OF CONCERN

Data presented in the ROD (Parsons, 2009a) for SEAD-5 summarized that hazardous substances and constituents were present at levels that exceed Federal and State soil guidance values and at levels that pose potential risks to future industrial and commercial users or occupants of the land.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-5 the human health cancer risks were less than the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} for construction workers and adolescent trespassers. The calculated cancer risk for the industrial worker was slightly above the USEPA's recommended range at a level of 1.3×10^{-4} . The calculated non-cancer HI for the industrial worker, construction worker, and the adolescent trespasser are all less than 1.0.

The human health risk assessment was computed using the 95th UCL of the mean as the EPC for each of the COCs. The elevated RME cancer risk was largely driven by concentrations of a single hazardous substance (benzo[a]pyrene) that was found at a few isolated, non-contiguous locations within the soil at the AOC. These elevated concentrations may be associated with asphalt pieces that have become intermixed with the soil at the AOC due to its historic use as a DPW-type storage and staging area (Parsons ES, 1995; Parsons, 2009a).

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "Five Former Solid Waste Management Units (SWMUs), SEAD 1 (Hazardous Waste Container Storage Facility), SEAD 2 (PCB Transformer Storage Facility), SEAD 5 (Sewage Sludge Waste Piles), SEAD 24

(Abandoned Powder Burn Pit) and SEAD 48 (Row E0800 Pitchblende Storage Igloos)” (Parsons, 2009a) requires the establishment of ICs. The elements that composed the remedy at SEAD-5 included:

- Establishing, maintaining, monitoring, and reporting on a LUC that prohibits residential housing, elementary and secondary schools, childcare facilities and playgrounds until unrestricted use and unlimited exposure criteria are attained within the AOCs;
- Establishing, maintaining, monitoring, and reporting on a second LUC that prohibits access to and use of groundwater at the AOCs until its quality allows for unrestricted use and unlimited exposures;
- Covering of contaminated soils (including those originating at SEADs-59 and 71) with at least one foot of clean fill that meets New York’s Restricted Commercial Use SCO;
- Placing demarcation fabric (e.g., colored “snow” or safety fence) between the contaminated soil and the clean fill; and
- Establishing, maintaining, monitoring, and reporting on a third LUC that prohibits unauthorized excavations or activities that might compromise the integrity of the engineered cover.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) implemented land use controls for the entire SEAD PID/Warehousing Area. Addendum 4 to the SEAD LUC RD added SEADs 1, 2, 5, 16, 17, 59, 71, 121C and 121I in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the PID/Warehousing Area including properties that had been previously retained (including SEAD-5) by the Army in 2008 was recorded in the Seneca County Clerk’s office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-5 is presented in **Table C.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-5 as part of the “PID Retained Parcels” was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehousing Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehousing Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table C.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/ Warehousing Area	Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning

Groundwater	Yes	Yes	SEAD PID/ Warehousing Area	Prevent access or use of the groundwater until New York States GA ground water Standards are achieved.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant
Subsurface	Yes	Yes	SEAD-5	Prohibit unauthorized excavations or activities that might compromise the integrity of the engineered cover. (Note that the environmental easement prohibits any excavation within SEAD-5 without coordination with the Army and EPA)	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning

In June through July 2009, a soil cover was constructed to inter a portion of SEAD-5 where analytical results from soil samples indicated that elevated levels of certain hazardous substances were present at concentrations that posed potential human health risks to future industrial occupants and users of the land. The initial cover layer soil consisted of approximately 5,620 cubic yards of SEAD-59/71 stockpile soil. This soil covered approximately 1.57 acres of land. A layer of demarcation fabric was placed atop the initial layer of spread stockpile soil to delineate the lateral extent of the covered soil. One foot of borrow material of quality that meets Restricted Commercial Use SCOs defined by the NYSDEC was then placed as a protective barrier layer (Parsons, 2009a).

The CCR for the Former Sewage Sludge Waste Piles (Parsons, 2010a) provided record documentation of the completed remedial action construction activities and that accessible soil remaining in the area of the former sludge pile locations met the remedial goals defined in the ROD for AOC. The ROD indicates that the unauthorized excavation LUC for SEAD-5 is implemented only at that location where the protective cover is established over SEAD-5 soils. The environmental easement requires coordination with Army and EPA for any excavation within SEAD-5 property.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table C.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table C.3.2**).

Table C.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-5	Protective	The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table C.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Description	Status	Completion Date (if applicable)
SEAD-5	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.		N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-5 was inspected July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-5.
- No access to or use of groundwater were observed at SEAD-5.
- The cover is in acceptable condition with no evidence of unauthorized excavation.

The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEAD-5 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-5.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for SEAD-5 within the PID/Warehousing Area have been completed and documented. No continuing active remediation is required in the PID/Warehousing Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at the SEAD-5 is currently protective of human health and the environment because:

- Contaminated soils were covered with at least one foot of clean fill, and demarcation fabric was placed between the contaminated soil and clean fill;
- A LUC that prevents access to, and use of, groundwater within the AOCs within the PID/Warehousing Area of the former Depot has been implemented and is currently being maintained, monitored, and reported upon periodically;
- A second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds, and which also has been expanded to include all land within the PID/Warehousing Area has been implemented and is currently being maintained, monitored, and reported upon periodically; and
- A third LUC that prohibits unauthorized excavations or activities that might compromise the integrity of the engineered cover at SEAD-5 has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehousing Area of the former SEDA.
- The toxicity data and cleanup levels have changed from those used at the time of the remedy.

Summary of toxicity data and cleanup level changes:

Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO

were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Table C.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table C.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Acenaphthylene	--	--	1000	100	Y	Y
Benzo(a)anthracene	0.62	1.1	11	1	Y	Y
Benzo(a)pyrene	0.062	0.11	1.1	1	Y	Y
Benzo(b)fluoranthene	0.62	1.1	11	1	Y	Y
Benzo(g,h,i)perylene	--	--	1,000	100	Y	Y
Benzo(k)fluoranthene	35	11	110	0.8	Y	Y
Chrysene	62	110	110	1	Y	Y
Dibenz(a,h)anthracene	0.062	0.11	1.1	0.33	Y	Y
Fluoranthene	230	240	1,000	100	Y	Y
Indeno(1,2,3-cd)pyrene	0.62	1.1	11	0.5	Y	Y
Naphthalene	5.6	2.0	1,000	12	Y	Y
Phenanthrene	--	--	1,000	100	Y	Y
Pyrene	230	180	1,000	100	Y	Y
Metals						
Arsenic	0.39	0.68	16	13	Y	Y
Chromium	21	12000 ⁽³⁾	800	30	Y	Y
Lead	400	400	3,900	63	Y	Y
Mercury	2.3	2.3	--	0.18	N	N
Selenium	39	39	6,800	3.9	N	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

(3) Evaluated as chromium (III)

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is **no** new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-5 and the PID/Warehousing Areas. The exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy are still valid. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-5.
- Collect new groundwater samples and perform a site-specific risk assessment to determine if Class GA standards can be met in groundwater at SEAD-5.

7.0 Protectiveness Statement

The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment C-1
Five-Year Review - Site Visit Photo Log
SEAD-5 Sewage Sludge Waste Piles

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-5, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1

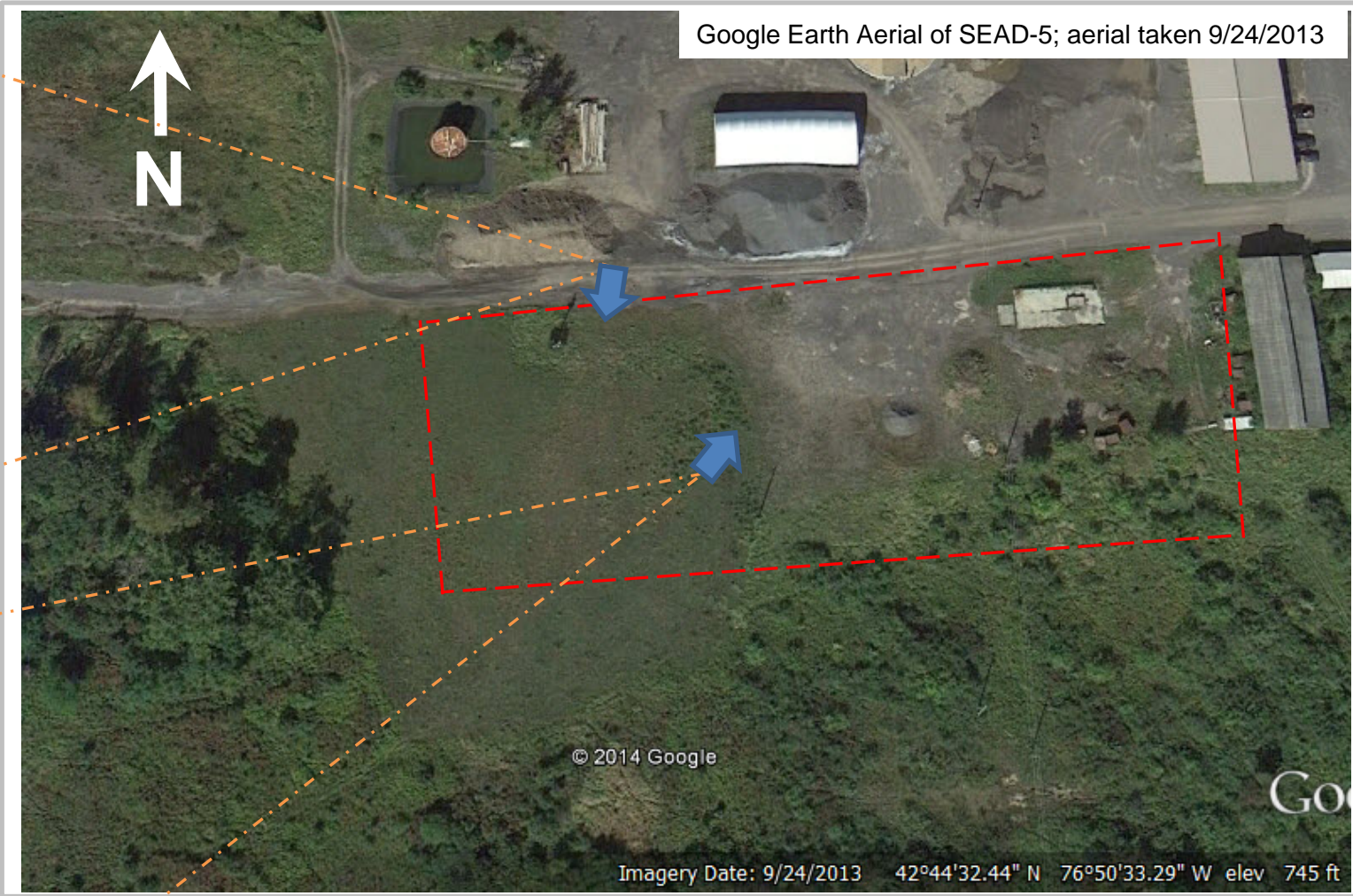


Status as of: 7/22/2020
Description: SEAD-5 Cap
Photo ID: IMG_3863.jpg



2020 Site Visit Photo 2

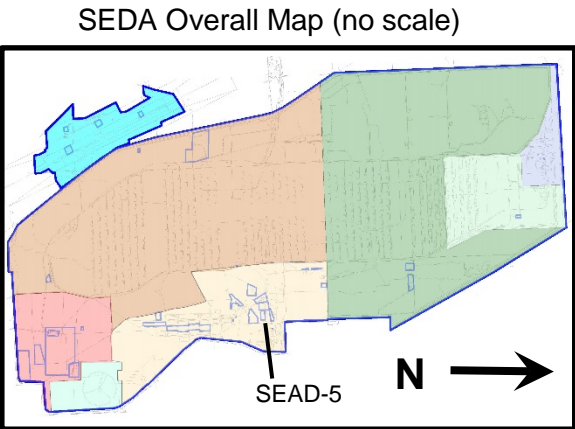


Status as of: 7/22/2020
Description: SEAD-5 cap
Photo ID: IMG_3868.jpg



SEAD-5 is located within the PID/Warehouse Area Parcel.

-  Photo Viewing Direction
-  Approximate Site Boundary



ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply) <div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> Landfill Cover Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other </div> <div style="width: 35%;"> Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls </div> </div>	
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX D
SEAD-16/17
SEAD-16: THE FORMER ABANDONED DEACTIVATION
FURNACE
AND
SEAD-17: THE FORMER ACTIVE DEACTIVATION
FURNACE

APPENDIX D: SEAD-16 ABANDONED DEACTIVATION FURNACES AND SEAD-17 ACTIVE DEACTIVATION FURNACES

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The former Abandoned Deactivation Furnace (SEAD-16) is located in the east-central portion of SEDA. SEAD-16 consists of 2.6 acres of fenced land with grasslands in the north, east, and west, a former storage area for empty boxes and wooden debris, and an unpaved roadway in the south. Also previously located onsite was the building that housed the deactivation furnace, a smaller abandoned building known as the Process Support Building, two sets of SEDA railroad tracks, and some utilities. Two underground storage tanks were removed from SEAD-16 and documented in a Final Closure Report for the Underground Storage Tank Removal (Science Applications International Corporation, May 1994).

SEAD-16 was used for the demilitarization of various small arms munitions. The process of deactivation of munitions involved heating the munitions within a rotating steel kiln, which caused the munitions to detonate. The byproducts produced during this detonation were then swept out of the kiln through the stack. SEAD-16 has been inactive and abandoned since the 1960s.

The former Active Deactivation Furnace (SEAD-17) is located in the east-central portion of SEDA. SEAD-17 consisted of a deactivation furnace building that was surrounded by a crushed shale road. Beyond the perimeter of the crushed shale road was grassland. Two small sheds are located in the eastern portion of SEAD-17, and there is vehicular access to SEAD-17 from an unpaved road to the north. Access to SEAD-17 is restricted because it is located in the former ammunition storage area.

SEAD-17 was constructed to replace the operation of SEAD-16 and was also used for the demilitarization of various small arms munitions. The process of deactivation of munitions involved heating the munitions within a rotating steel kiln, which caused the munitions to detonate. The byproducts produced during this detonation were then swept out of the kiln through the stack. SEAD-17 operated prior to the establishment of RCRA and then under RCRA Interim status until the early 1990s. During the 1990s, the Army upgraded the incinerator; however, the upgrades did not meet incinerator requirements for temperature and residence time and the incinerator was not subsequently operated to dispose of hazardous materials. Henceforth, SEAD 17 was closed under RCRA in approximately 2005 (Parsons, 2006f).

1.2 Initial Response

SEAD-16 has been inactive and abandoned since the 1960s. SEAD-17 was constructed to replace the operation of the deactivation furnace at SEAD-16. However, SEAD-17 has been inactive since 1989 because of RCRA permitting issues.

All facilities that engage in the treatment, storage, and/or disposal of hazardous wastes are required to obtain a RCRA permit. The deactivation furnace at SEAD-17, which operated until 1989, was used to incinerate and deactivate or destroy small munitions and other materials associated with munitions or explosives. With the enactment of RCRA in 1976, waste explosives were classified as hazardous wastes, and thus the deactivation unit was classified as a hazardous waste treatment process. Because of the historical ongoing operations at the deactivation furnace at SEAD-17, the furnace at SEAD-17 was subject to RCRA permitting and is subject to RCRA closure requirements. The former deactivation furnace at SEAD-16 was not subject to RCRA requirements since it was not active subsequent to the enactment of RCRA in 1976. The State of New York has been delegated the RCRA program by the USEPA for oversight and closure of the RCRA unit.

SEAD-17 consisted of two distinct units: (1) contamination in the surrounding soils and groundwater, and (2) contamination of the deactivation furnace, building, and equipment. Contamination in the soil and groundwater is being addressed under CERCLA, and remediation of these media was covered in the ROD (Parsons, 2006f).

The FFA details the relationship between CERCLA and RCRA, and under the FFA, remediation of releases under CERCLA “obviate the need for further corrective actions under RCRA for those releases (i.e. no further corrective action shall be required) and RCRA shall be considered an applicable or relevant and appropriate requirement.” Therefore, in performing the remedy outlined in the ROD in a manner approved by USEPA and NYSDEC, the substantive requirements of RCRA would be met for the soil and groundwater at SEAD-17.

The deactivation furnace, building, and equipment at SEAD-17 have been addressed during RCRA interim closure actions as outlined below.

The following summarizes the regulatory history of the deactivation furnace at SEAD-17:

- 1962-1980 - Deactivation Furnace operated to destroy small arms ammunition.
- 1976 - RCRA enacted; legislation allowed owners and operators of hazardous waste TSDFs that were in existence as of November 19, 1980 to operate under Interim Status until their RCRA permit was issued or their request was denied.
- 1980-1989 - The Army submitted a Title 6 NYCRR Part 373 Part A and a Part B permit application to permit the Seneca Army Depot as a TSDF. The Deactivation Furnace at SEAD-17 was listed as a hazardous waste incinerator for small arms ammunition. As was customary at the time, all facilities that submitted Part A permit applications were allowed to continue to operate under Interim Status.
- 1980-1989 - Deactivation Furnace continued to operate under Interim Status.
- 1989 - Deactivation Furnace was shutdown to allow for the addition of a new air pollution control device (APCD) system. As part of the upgrade, NYSDEC required that the furnace be closed in accordance with RCRA Interim Status requirements.
- November 6, 1989 - RCRA Interim Closure Plan for the deactivation furnace was approved by NYSDEC.
- 1989-1991 - The Army undertook interim closure actions at SEAD-17, which included the following:
 - Removal of all hazardous waste residues, containers, and removal of the baghouse filters, and dust.
 - Sampled the building, equipment, drains, and soils and subsequent decontamination and removal of releases.
- August 21, 1991 - Interim Closure of the Deactivation Furnace was approved by NYSDEC in a letter, pending an independent certification by NYS Professional Engineer. The letter noted the following:
 - Interim closure measures were completed and accepted for equipment, drains, walls, and concrete.
 - The soil sampling determined contamination existed in and around the facility because of past operations. The Army, USEPA, and NYSDEC agreed to address this contamination as an AOC under the FFA. Because of the potential of recontamination of the building, the fact that contamination in soils will remain, and wipe samples of walls and floors failed to meet the criteria that was set, clean closure could not be achieved.
- March 3, 1992 - Independent certification by NYS Professional Engineer submitted to NYSDEC, on behalf of the Army, stated that the deactivation furnace was “dirty closed”.
- 1995 - Base closure was announced; Army withdrew its RCRA permit application.
- 1989-2005 - The furnace was not used for wastes, test material was processed for the upgrade equipment prove-out, and a pilot study was performed to evaluate its use as a Low Temperature Thermal Desorption (LTTD) system for lightly contaminated soil, which was not considered hazardous.

At SEAD-16, debris was removed from inside Building S-311 (the Abandoned Deactivation Furnace), Building 366, and both of these buildings were demolished and removed from the site due to safety concerns. At SEAD-17, Building 367, the Deactivation Furnace assembly and the supporting air pollution control device system were demolished. The detailed discussion of the building demolition actions can be found in the Building Demolition and Cleaning Report (Parsons, 2008a).

1.3 Basis for Taking Action

Because of COC in soil and groundwater an action was required at SEAD-16/17 to ensure land use remains protective of site users. SEAD-16/17 is part of the PID/Warehousing Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas. The potential future hazards or risks identified at SEAD-16/17 is either suitable for the defined use, or associated with compounds that are present at concentrations that are equal to or less than naturally occurring levels.

1.3.1 CONTAMINANTS OF CONCERN

The primary COC at SEAD-16 were four metals (i.e., arsenic, copper, lead, and zinc), PAHs, and nitroaromatics. The most impacted soils were those adjacent to the abandoned deactivation furnace. Many of these compounds were present in concentrations that exceeded their respective NYSDEC guidelines. The COC are believed to have been released to the environment during the former deactivation furnace's period of operation (approximately 1945 to the mid-1960s). Seven metals (i.e., aluminum, antimony, iron, lead, manganese, sodium, and thallium) were detected in groundwater samples at concentrations that exceeded the NYSDEC Ambient Water Quality Standards (AWQS) Class GA groundwater quality standards or Federal Maximum Contaminant Level (MCL) standards. Additional sampling of the groundwater indicated that elevated thallium concentrations may have been the result of high turbidity in the samples. PAHs, pesticides, antimony, cadmium, copper, lead, and nickel were found at elevated concentrations in all of the drainage ditches that were investigated at SEAD-16 (Parsons ES, 1999a).

At SEAD-17, the primary COC were six metals (i.e., antimony, arsenic, copper, lead, mercury, and zinc), PAHs and pesticide compounds. All of these compounds were likely to have been released to the environment during the active deactivation furnace's period of operation (approximately 1962 to 1989). Low concentrations of Semi Volatile Organic Compounds (SVOCs) and metals were detected in groundwater. Those that exceeded their respective MCL criteria were either essential nutrients (e.g., sodium) or a result of high turbidity in the samples. No VOCs, pesticides, PCBs, or nitroaromatics were detected in the samples (Parsons ES, 1999a).

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-16, the human health cancer risks were within the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} for all receptors except the future industrial worker (5×10^{-3}). The calculated non-cancer HI for all receptors were greater than or equal to 1.0. The results of the BRA at SEAD-16 indicated that the HI was above the USEPA target of 1.0 for the future industrial worker (HI=20), future on-site construction worker (HI=1), future day care center child (HI=6), and future day care center worker (HI=2). The risk assessment was conducted using data collected during the RI.

The risk assessment concluded that at SEAD-17, the human health cancer risks were within the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} for all receptors. The calculated non-cancer hazard indexes (HI) for all receptors except for the future day care center child (HI=1.0) were less than 1.0.

The reasonable maximum ecological exposure was also evaluated. The results of the ecological risk assessment presented in the RI report (Parsons ES, 1999a) concluded that there was negligible risk to the ecosystems of the SEAD-16 and SEAD-17 study areas. An ecological risk assessment was conducted to evaluate potential risk to deer mouse and the creek chub posed by the contaminants of potential concern (COPCs) detected in soils,

surface water, and ditch sediment/soils. The quantitative ecological risk evaluation initially suggested that a possibility existed for the COPCs to present a small potential for environmental effects because of soil, surface water, and ditch sediment/soils at both SEAD-16 and SEAD-17. However, given the conservative nature of the assessment, the poor quality of the SEAD-16 and SEAD-17 habitat, and the future land use designation as industrial, it was not likely that SEAD-16 and SEAD-17 supported or would support a significant portion of the community of species that occupy the area surrounding and including these areas.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “The Final Record of Decision for the Abandoned Deactivation Furnace SEAD 16 and the Active Deactivation Furnace SEAD 17” (Parsons, 2006f) require the establishment of ICs. The elements that composed the remedy included:

- Conduct additional sampling as part of the pre-design sampling program to further delineate the areas of excavation;
- Remove, test, and dispose of the SEAD-16 building debris off-site;
- Excavate approximately 275 cy of ditch soil with lead concentrations greater than 1250 mg/Kg until cleanup standards are achieved;
- Excavate approximately 1760 cy of surface soils to a depth of 1 ft. at SEAD-16 with lead concentrations greater than 1250 mg/Kg, and polycyclic aromatic hydrocarbon (PAH) and metal concentrations greater than risk-based derived cleanup standards;
- Excavate approximately 67 cy of subsurface soils to a depth of 2 ft. to 3 ft. at SEAD-16 (areas around SB16-2, SB16-4, and SB16-5) with lead concentrations greater than 1250 mg/Kg, and PAH and metal concentrations greater than risk-based derived cleanup standards;
- Excavate approximately 2590 cy of surface soils to a depth of 1 ft. at SEAD-17 with lead concentrations greater than 1250 mg/Kg and metal concentrations greater than risk-based derived cleanup standards;
- Stabilize soils from SEAD-16 and SEAD-17 and building debris from SEAD-16 exceeding the Toxicity Characteristic Leaching Procedure (TCLP) criteria in order to attain Land Disposal Restrictions (LDR);
- Dispose of the excavated material in an off-site landfill;
- Backfill the excavated areas with clean backfill;
- Conduct groundwater monitoring at SEAD-16 and SEAD-17 until concentrations are below the GA criteria; and
- Remediate material potentially presenting an explosive hazard and munitions and explosives of concern to meet the Department of Defense Explosive Safety Board (DDESB) requirements for unrestricted use or to put into place land use restrictions as may be required by DDESB;
- Submit a Completion Report following the remedial action;
- Establish and maintain LUCs to:
 - Prevent access to or use of the groundwater until cleanup levels are met; and
 - Prevent residential housing, elementary and secondary schools, childcare facilities and playgrounds activities.

- Complete a review of the selected remedy every five years (at minimum), in accordance with Section 121(c) of the CERCLA.

To complete RCRA closure of the deactivation furnace at SEAD-17, the Army further decontaminated or demolished and disposed offsite the structures that failed to meet closure standards during the interim closure (i.e., concrete slabs and block walls).

2.2 Remedy Implementation

The CCR (Parsons, 2008c) for the Abandoned Deactivation Furnace (SEAD-16) and the Active Deactivation Furnace (SEAD-17) provides documentation of the removal action construction activities addressing contaminated soil, building debris, and groundwater completed at the two historic AOCs. The CCR provides documentation that all soil exceeding cleanup goals were removed and NFA is required for soil at the AOCs.

The selected remedy at SEAD-16 and SEAD-17 resulted in the removal of soil and groundwater as a pathway for potential receptors. At SEAD-16, approximately 2,100 cubic yards of impacted soil were removed and disposed of at an off-site landfill. At SEAD-17, approximately 2,590 cubic yards of lead impacted soil were removed and disposed of at an off-site landfill and the excavated areas were backfilled with clean backfill. Soil was excavated from both SEAD-16 and SEAD-17 until confirmatory soil samples collected from the sidewalls (when appropriate), the excavation floor, and the perimeter yielded analytical results below site-specific cleanup standards established in the Remedial Design Work Plan (see below). The depth of excavation completed at SEAD-16 varied from approximately 1 to 3 feet below ground surface (bgs) and the excavation depth at SEAD-17 varied from approximately 1 to 2 feet bgs. Deeper excavations at SEAD-16 and SEAD-17, including excavation areas surrounding the railroad tracks, were backfilled with clean bank-run gravel. SEAD-16 and SEAD-17 were graded to promote positive drainage. The areas at SEAD-17 that were vegetated prior to the RA were seeded to restore the vegetation. SEAD-16 was not seeded since it was not previously vegetated.

SEAD-16/17 Soil Removal Cleanup Goals		
Analyte	Cleanup Goal (mg/Kg)	Goal Met?
Antimony	41	Yes
Arsenic	21.5	Yes
Cadmium	60	Yes
Copper	10,000	Yes
Lead	1250	Yes
Mercury	5.7	Yes
Thallium	6.7	Yes
Zinc	10,000	Yes
cPAHs (BTE)*	10	Yes

*cPAHs were only sampled at SEAD-16 and were compared to the Benzo(a)pyrene Toxicity Equivalence. NYSDEC. 2006. Remedial Program Soil Cleanup Objectives. 6 NYCRR Subpart 375-6. NYSDEC Restricted Use Soil Cleanup Objective for Industrial Use

Groundwater was monitored to ensure that soil contamination left on-site did not further degrade groundwater quality. SEAD-16 and SEAD-17 were placed under a long-term monitoring (LTM) program for groundwater monitoring until concentrations are below the NYS Class GA groundwater quality standards (Parsons, 2006f; 2007c). LTM began in 2007 and is currently on-going at the site (Parsons, 2020a). Post-remediation groundwater sampling results indicate that groundwater has not been significantly impacted by site activities and are further discussed in Section 5.0. Groundwater use restriction continues until groundwater constituent concentrations have been reduced to levels that allow for unlimited exposure and unrestricted use. With USEPA

approval, once groundwater cleanup standards are achieved, the groundwater use restrictions may be eliminated.

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehouse Area. Addendum 4 to the SEAD LUC RD added SEADs 1, 2, 5, 16, 17, 59, 71, 121C and 121I in accordance with the SEAD LUC RD Supplementation provision. A summary of the institutional controls currently implemented at SEAD-16 and SEAD-17 is presented in **Table D.2.1** based on the data and risk presented in the ROD and the LUC RD.

An Environmental Easement for the PID/Warehouse Area including properties that had been previously retained (including SEAD-16 and SEAD-17) by the Army in 2008 was recorded in the Seneca County Clerk's office on June 10, 2011.

SEAD-16 and SEAD-17 as part of the "PID Retained Parcels" was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehouse Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table D.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/Warehousing Area	Restrict activities to limit soil interaction.	CERCLA Section 120(h)(3) notice and covenant, Residential Use Prohibited.
Groundwater	Yes	Yes	SEAD PID/Warehousing Area	Restrict use of groundwater.	CERCLA Section 120(h)(3) notice and covenant, Ground Water Use Prohibited.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table D.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table D.3.2**).

Table D.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-16 and SEAD-17	Protective	The remedy implemented for the SEAD-16, SEAD-17, and PID/Warehousing Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years. Additionally, SEAD-16 and SEAD-17 are located within the PID area, within which an environmental easement and deed restriction prohibit both residential use and the use of groundwater.

Table D.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-16 and SEAD-17	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.	N/A
SEAD-16 and SEAD-17	N/A	Based on the current area-wide LUC prohibiting the use of groundwater within the PID/Warehousing Area (including SEAD-16/17), the Army recommends concluding LTM	Complete	Based on this recommendation, agreement was reached between the EPA and Army via email dated 28 October 2016 to conduct the next round of groundwater sampling at SEAD-16/17 in 2019 (year 3 of the FYR cycle). This will allow for an additional round of sampling, if necessary, before the next 2021 five-year review. The sampling was conducted as planned in 2019.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

An evaluation of all pre- and post-Remedial Action (RA) groundwater results from SEAD-16 and SEAD-17 is provided for each AOC independently in the Year 9 Report (Parsons, 2020). Summaries of the Year 9

groundwater monitoring results and exceedances are provided in Table 2 and Table 3 of the report for SEAD-16 and SEAD-17, respectively. Note that no metals exceeded applicable groundwater standards at any of the SEAD-17 wells in the Year 9 event. The complete dataset for the Year 1 through Year 9 events are provided for SEAD-16 and SEAD-17 in Appendix D of the report.

Between 2007 and 2019, there were nine LTM sampling events at SEAD-16, during which five metals have exceeded project action limits: antimony, iron, lead, manganese, and sodium. Although iron concentrations typically exceed its action level, in the past three events, iron concentrations are similar to the action level. Iron is not expected to pose a risk beyond what is naturally found in local groundwater. Manganese concentrations are historically below its NYS Class GA standard (300 µg/L). One exceedance (631µg/L) of manganese was detected in well MW16-7 during Event 1.

During the period of the nine LTM sampling events, five metals have exceeded project action limits including antimony, iron, lead, manganese, and sodium. Historically, lead and manganese exceeded their applicable screening levels once and twice, respectively; sodium exceeded its screening criterion three times. Except for the maximum detected concentration (25,500 µg/L, Year 3), all of the exceedances of iron have been below the SEDA background (4,476 µg/L). None of these three metals exceeded their respective criteria in Event 9. Lead, manganese, and sodium are not persistent COCs at SEAD- 17.

The following conclusions were made in the 2019 Year 9 Annual Report for SEAD-16 and SEAD-17:

- The soil excavation remedy at SEAD-16 and SEAD-17 was an effective method for controlling, and in some cases eliminating, the migration of select metals from soil to groundwater based on the evaluation of the results of the nine post-RA LTM sampling events. Trends demonstrate that the remedial action performed did not adversely impact groundwater.
- There is no ongoing treatment process at either site to continue monitoring for concentration reductions.
- Antimony is a COC in one well, MW16-7; the concentrations at this well are stable.
- Antimony is not migrating, as evidenced by absence of increasing antimony concentrations in other wells.
- Lead was detected above its applicable action level at one well, MW16-7, for the first time since year 2. Lead will continue to be closely monitored. At this time, well MW16-7 is recommended to be abandoned. A new replacement well will be installed in close proximity to the existing location.
- Groundwater use is prohibited by the area-wide LUC and an alternate potable water source is available. The land use and groundwater use restrictions imposed at SEAD-16 and SEAD-17 are maintained as part of both the approved RODs for SEAD 16/17 and the larger PID area (Parsons, 2004a; 2006f). There are no signs of unauthorized use or access to the AOCs. Based on these results, the Army recommends no additional groundwater sampling at SEAD 17.

4.3 Site Inspection

SEAD-16 and SEAD-17 were inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-16/17.

- Observations of the monitoring wells at SEAD-16/17 indicate that the wells located on the site are in acceptable condition with the exception of MW16-7 which was recommended for replacement due to turbidity concerns.
- The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEAD-16/17 are uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-16/17.

4.5 Institutional Controls Verification

The LUCs, environmental easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LTM Reports, LUC RD, environmental easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-16/17 currently protects human health and the environment because:

- Previously contaminated soils containing lead at concentrations in excess of 1250 mg/Kg, and other metals and PAHs above risk-based derived cleanup standards at SEAD-16, have been excavated, stabilized to prevent potential leaching, and disposed at an off-site landfill.
- Previously contaminated soils containing lead at concentrations in excess of 1250 mg/Kg and other metals above risk-based derived cleanup standards at SEAD-17, have been excavated, stabilized to prevent potential leaching, and disposed at an off-site landfill.
- An Unexploded Ordnance (UXO) technician witnessed the excavation of contaminated soil materials from SEAD-16 and SEAD-17, the dismantling of process equipment, and the cleaning of the basement of Building S-311 (former Abandoned Deactivation Furnace) to assess whether materials presenting potential explosive hazard (MPPEH) were present. No MPPEH was found in the excavated soil or debris removed during these operations, and the process equipment was safely dismantled and transported to the OB Grounds (SEAD-23) where it was heat treated to remove any propellant residues. Treated process equipment was subsequently disposed at an off-site landfill.
- LUCs that prohibit access to, and use of, groundwater and prevents residential housing, elementary or secondary schools, childcare facilities, or playground activities until cleanup standards have been met have been implemented and continue to be monitored by the Army.

The selected remedy is still protective of human health and the environment. No early indicators of potential issues have been identified for SEAD-16/17. Recommendations for optimization of the LTM program are discussed further in Section 6.0.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

Because the SEAD-16/17 is undergoing active LTM, the screening levels and cleanup levels are reviewed and updated in the Annual LTM report (Parsons, 2020a). In the latest report groundwater concentrations were compared against NYS Water Quality Standards, Class GA (6 CRR-NY 703.5) or, if not available, EPA Regional Screening Levels (RSLs) (TR=1E-06, THQ=1.0, May 2020) for Tap Water.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the standards are reviewed on an annual basis and updated as needed **the cleanup standards remain protective of human health.**

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is **no new information** of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-16/17 and PID/Warehousing Area. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

Based on the current area-wide LUC prohibiting the use of groundwater within the PID area (includes SEADs 16) and the stable conditions at the SEAD-16 the Army recommends that sampling be performed every five years at SEAD-16. The next sampling event would occur in 2024. As noted, the Army recommends abandoning MW16-7 consistent with NYSDEC regulations and installing a replacement well prior to the 2024 sampling event. Annual LUC inspections will continue at SEAD-16 to ensure that the groundwater is not accessed.

The Army recommends no further groundwater monitoring at SEAD-17 since the groundwater data are in compliance with the GA Standard. After further discussion with the EPA based on comments on the Annual LTM report, the Army has agreed to collect two more rounds of data in support of no further sampling at SEAD-17. Once sampling is complete, wells at SEAD-17 are recommended for decommissioning at a mutually agreed upon time. The ROD notes "Groundwater use restrictions will continue until groundwater constituent concentrations have been reduced to levels that allow for unlimited exposure and unrestricted use. The Army recommends that with USEPA approval, once groundwater cleanup standards are achieved, the groundwater use restrictions may be eliminated."

7.0 Protectiveness Statement

The remedy implemented for the SEAD-16, SEAD-17, and PID/Warehousing Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years. Additionally, SEAD-16 and SEAD-17 are located within the PID area, within which an environmental easement and deed restriction prohibit both residential use and the use of groundwater.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

\\mabos07fs01\PI\Projects\Huntsville WERS\Seneca LTM, TO 23\10 - Five Year Review\Draft FYR 2020\03 Attachment 1\Att D-1 SEAD-16_Aerial_n_Ground_Photos.ppt

Attachment D-1
Five-Year Review- Site Visit Photo Log
SEAD-16 Abandoned Deactivation Furnaces

PROJECT: Seneca Army Depot LUC Inspection
PROJECT #: 110043.10000

LOCATION: SEAD-16, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1



Status as of: 7/22/2020
Description: SEAD-16

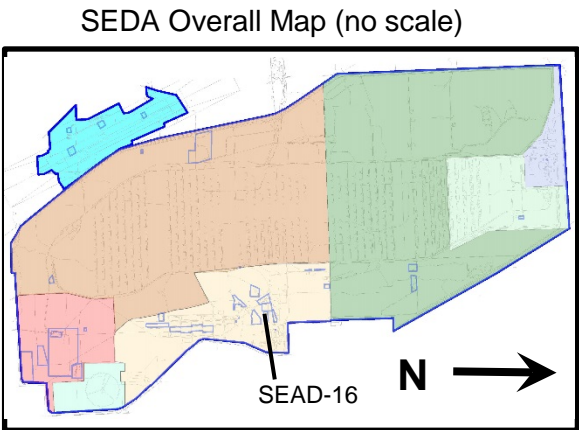
Photo ID: IMG_3847.jpg

2020 Site Visit Photo 2



Status as of: 7/22/2020
Description: SEAD-16

Photo ID: IMG_3849.jpg



SEAD-16 is located within the
PID/Warehouse Area Parcel.

Approximate Site
Boundary

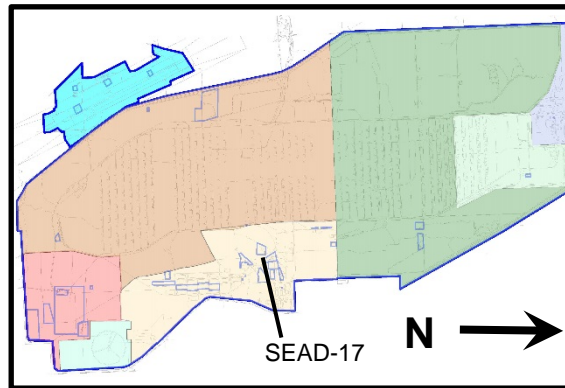
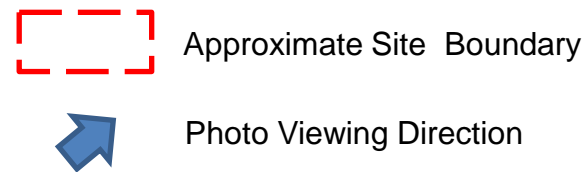
Photo Viewing
Direction



Attachment D-2
Five Year Review- Site Visit Photo Log
SEAD-17 Active Deactivation Furnace

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-17, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers



SEDA Overall Map
(no scale)

SEAD-17 is located within the
PID/Warehouse Area Parcel.

2020 Site Visit Photo 1



2020 Site Visit Photo 3



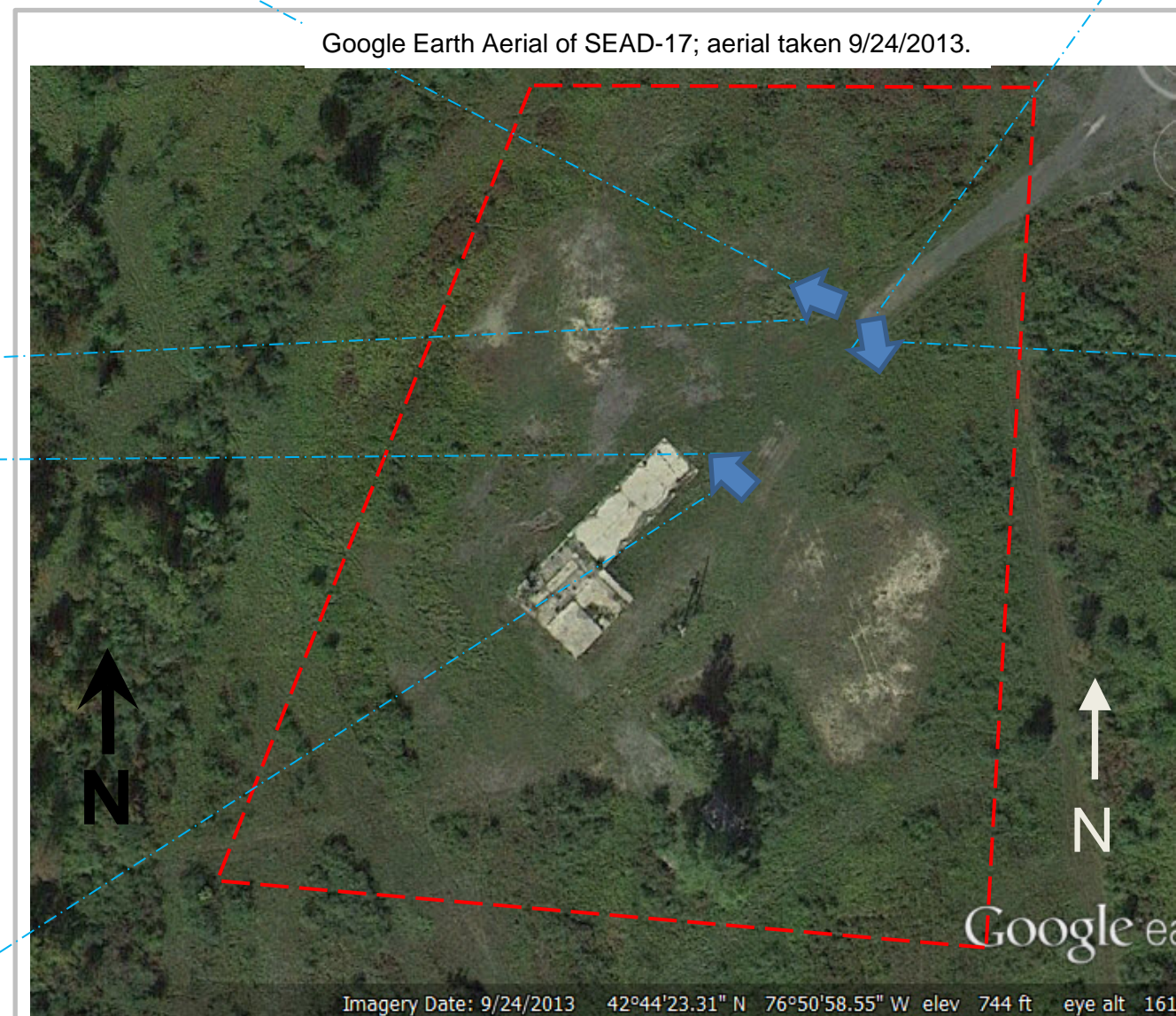
Status as of: 7/22/2020 Photo ID:IMG_3851.jpg
Description: SEAD-17, Building 367 foundation.

Status as of: 7/22/2020 Photo ID:IMG_3852.jpg
Description: SEAD-17, Building 367 foundation.

2020 Site Visit Photo 2



Status as of: 7/22/2020 Photo ID: IMG_3850.jpg
Description: SEAD-17, Building 367 foundation.



ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
<div style="display: flex; justify-content: space-between;"> <div> Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other </div> <div> Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls </div> </div>	
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX E

SEAD-59: FILL AREA WEST OF BUILDING 135

APPENDIX E: SEAD-59 FILL AREA WEST OF BUILDING 135

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-59 (Fill Area West of Building 135) is approximately 6.2 acres in size and encompasses an area located along both sides of an unnamed east-west dirt road that runs from the intersection of 4th Avenue, Administration Avenue, and South Street in the Depot's former Administration Area to the former location of Building 311 in SEAD-16. SEAD-59 was used for the disposal of construction debris and oily sludge. SEDA personnel have also indicated the area of SEAD-59 was used as the Army's version of a local "Department of Public Works" yard where vehicles and materials were staged, and as a result a large quantity of miscellaneous "roads and grounds" debris remains, and has become intermixed with the native soils (Parsons, 2009c).

1.2 Initial Response

Work performed at SEAD-59 includes the ESI in 1994, a Phase I RI in 1997, a TCRA conducted in 2002, and a Phase II RI completed in 2006. A TCRA performed in 2002 included excavation and staging of impacted soils, sampling and analysis of excavated areas and stockpiled excavated soils, disposal of approximately 3,805 tons of contaminated soil (total from SEAD-59 and SEAD-71) at an approved off-site landfill, installation of groundwater monitoring wells, and backfilling and grading of open excavations with acceptable soil from the stockpiles (Parsons, 2002e; 2006d). The CCR for the Former Sewage Sludge Waste Piles (SEAD-5) (Parsons, 2010c) provided record documentation of the completed remedial action construction activities for SEADs 59 and 71. Stockpiled soil generated during the SEAD-59/71 remedial actions (approximately 5,620 cubic yards) was used as the initial cover layer in the engineered cover at SEAD-5.

1.3 Basis for Taking Action

Because of the human health risk in the soil and groundwater an action was required at SEAD-59 to ensure land use remains protective of site users. SEAD-59 is part of the PID/Warehouse Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

The SEAD-59 soil and groundwater sample summary results and data evaluated for SEAD-59 are provided in the ROD (Parsons, 2009c). Results of test pitting operations completed during site investigation activities indicated that full and empty 15- and 55-gallon drums, one-, two- and five-gallon paint cans, 20-gallon waste cans, and chain-linked fence were found buried at the site. No COCs were identified for SEAD-59 soil.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-59 the human health cancer risks were less than the CERCLA cancer risk management upper limit of 1×10^{-4} for industrial workers, construction workers, and adolescent trespassers. The calculated non-cancer HI for the adolescent trespasser receptor was less than 1. The non-cancer HIs determined for the industrial worker and construction worker were 1 and 9, respectively.

It was determined that the elevated risks associated with exposure to metals in SEAD-59 groundwater result from metals that are associated with the native soils and waters in the geologic formation at the Depot and were not associated with a release from the AOC. When the hazard index contribution from SEAD-59 groundwater is removed, the HI levels computed for the industrial worker and the construction worker both fall to less than 1. A Screening Level Ecological Risk Assessment (SLERA) was conducted and the results indicate that soil at SEAD-59 and in SEAD-59 stockpiled soil does not significantly impact ecological receptors in the area. No COCs were

identified for SEAD-59 soil or SEAD-59 stockpiled soil. The SEAD-59 soil stockpiles ultimately were removed from SEAD-59 to be used as an initial cover layer in the engineered cover at SEAD-5.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled the “Fill Area West of Building 135 (SEAD 59) and the Alleged Paint Disposal Area (SEAD-71)” (Parsons, 2009c) requires the establishment of ICs for SEAD 59. The elements that composed the remedy included:

- Establish, maintain, and monitor land use control (LUCs) at SEAD-59 that:
 - Prohibit access to or use of the groundwater until unrestricted use and unlimited exposure criteria are attained; and
 - Prohibit the development or use of the property for residential housing, elementary and secondary schools, childcare facilities and playgrounds until unrestricted use and unlimited exposure criteria are attained at SEAD-59.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) (USACE, 2006) implemented land use controls for the “PID/Warehouse Area. This SEAD LUC RD exempted 14 sites, or parcels, identified as Army Retained Sites. Addendum 4 to the SEAD LUC RD (USACE, 2009) included SEADs 1, 2, 5, 16, 17, 59, 71, 121C and 121I in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the PID/Warehousing Area including properties that had been previously retained (including SEAD-59) by the Army in 2008 was recorded in the Seneca County Clerk’s office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-59 is presented in **Table E.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-59, as part of the “PID Retained Parcels,” was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehousing Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table E.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/ Warehousing Area	Restrict site use.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
Groundwater	Yes	Yes	SEAD PID/ Warehousing Area	Restrict use of groundwater.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table E.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table E.3.2**).

Table E.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-59	Protective	The remedy implemented for PID/Warehousing Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table J.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-59	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-59 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-59.
- No apparent access to or use of groundwater were observed at SEAD-59.

4.4 Interviews

Since SEAD-59 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-59.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the PID/Warehousing Area have been completed and documented. No continuing active remediation is required in the PID/Warehousing Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-59 is currently protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the PID/Warehousing Area of the former Depot has been implemented and is currently being maintained, monitored, and reported upon periodically; and
- a second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds, and which also has been

expanded to include all land within the PID Area has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- However, there have been changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA. The soil stockpiles that were evaluated in the ROD have been removed from SEAD-59 and used in the cap at SEAD-5. Therefore, the risk assessment that considered exposure to stockpiled soil is no longer applicable. The risk assessment that evaluated surface and subsurface soil is still applicable, as the surface and subsurface soil that was evaluated in the risk assessment is still present at the site.

Summary of toxicity data and cleanup level changes:

There have been changes in the toxicity data and cleanup levels used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables E.5.1 and E.5.2** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, the cleanup levels and RAOs from earlier RODs **are still considered valid**. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, the cleanup standards remain protective of human health.

Table E.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Benzo(a)anthracene	0.62	1.1	0.224	1	Y	N
Benzo(a)pyrene	0.062	0.11	0.061	1	Y	N
Benzo(b)fluoranthene	0.62	1.1	1.1	1	Y	Y
Benzo(k)fluoranthene	6.2	11	1.1	0.8	Y	Y
Chrysene	62	110	0.4	1	Y	N
Dibenz(a,h)anthracene	0.062	0.11	0.014	0.33	Y	N
Indeno(1,2,3-cd)pyrene	0.62	1.1	3.2	0.5	Y	Y
Pesticides/PCBs						
4,4'-DDE	1.7	2.0	2.1	0.0033	Y	Y
4,4'-DDT	1.7	1.9	2.1	0.0033	Y	Y
Metals						
Aluminum	7,600	7,700	19,300	--	Y	N
Antimony	3.1	3.1	5.9	--	Y	N
Arsenic	0.39	0.68	8.2	13	Y	N
Iron	2,300	5,500	36,500	--	Y	N
Manganese	180	180	1,060	1,600	Y	N
Thallium	0.52	0.078	0.7	--	Y	Y
Vanadium	7.8	39	150	--	Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table E.5.2 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Groundwater Cleanup Objectives (Class GA) ⁽²⁾		
Metals						
Antimony	1.5	0.78	3	3	Y	Y
Arsenic	0.045	0.052	10	25	Y	N
Iron	1,100	1,400	300	300	Y	N
Manganese	88	43	50	50	Y	Y
Thallium	0.24	0.020	2	2	Y	Y
Vanadium	3.6	8.6	--	--	Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal groundwater and surface water screening values are EPA Regional Screening Levels (RSL) for tapwater based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-59 and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-visit the conclusions of the risk assessment to demonstrate that UU/UE conditions can be met in soil at SEAD-59 and that all risk exceedances can be attributed to naturally occurring concentrations of metals.
- If UU/UE can be met in soil, re-visit the conclusions of the risk assessment to demonstrate that either Class GA groundwater standards can be met, or that the observed concentrations can be attributed to naturally occurring concentrations of metals.

7.0 Protectiveness Statement

The remedy implemented for PID/Warehousing Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

ATTACHMENT 1

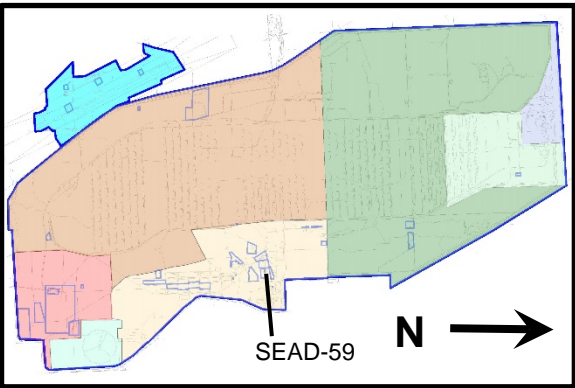
PHOTO LOG

Attachment E-1
Five-Year Review- Site Visit Photo Log
SEAD-59 Fill Area West of Building 135

PROJECT: Seneca Army Depot Five-Year Plan
PROJECT #: 110043.10000

LOCATION: SEAD-59, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

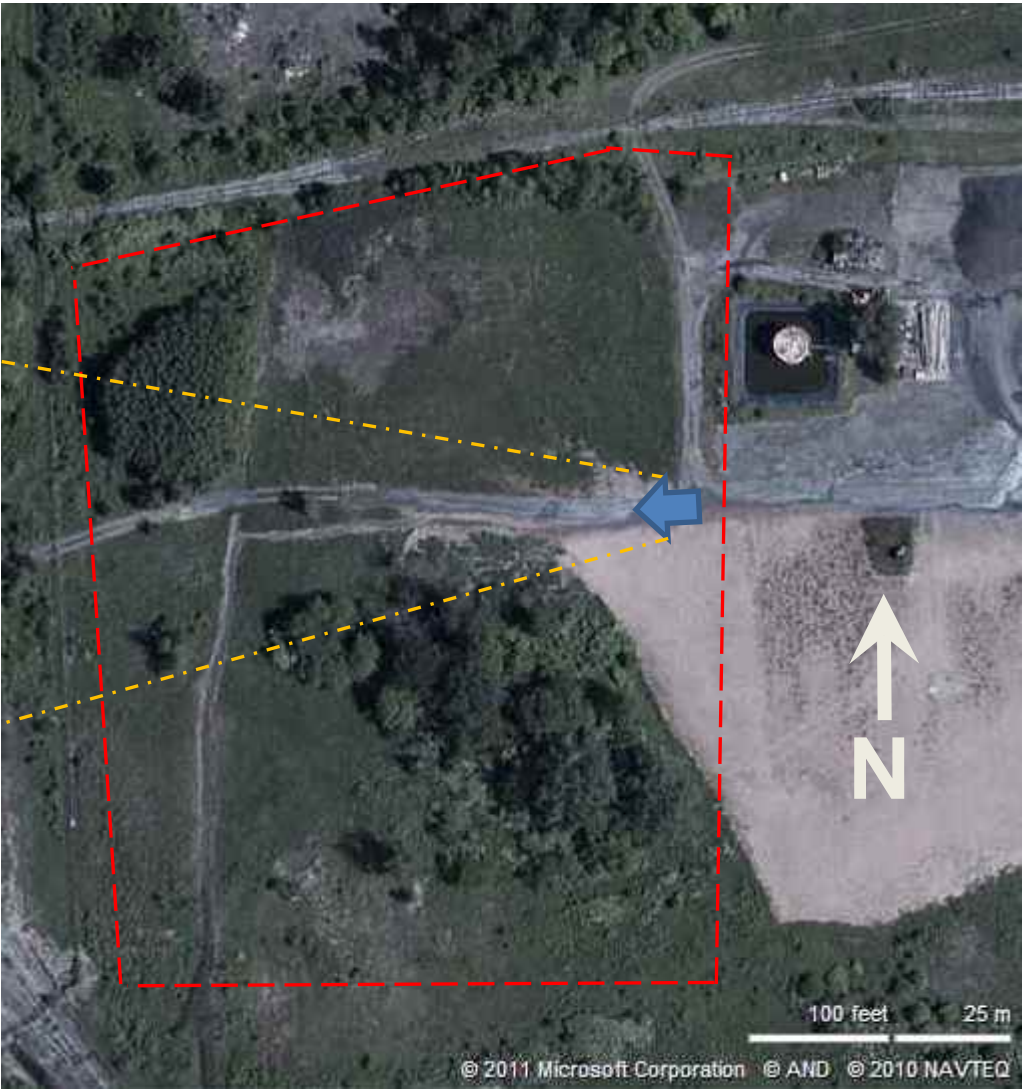
SEDA Overall Map (no scale)



SEAD-59 is located within the
PID/Warehouse Area Parcel.

-  Approximate Site Boundary
-  Photo Viewing Direction

Bing.com (Microsoft)
Aerial of SEAD-59; actual
date of aerial photo is
unknown, but based on
observable features at
SEDA it may be from
Spring 2010.



2020 Site Visit Photo 1



Status as of: 7/22/2019
Description: SEAD-59

Photo ID: IMG_3857.jpg

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX F

SEAD-71: ALLEGED PAINT DISPOSAL AREA

APPENDIX F: SEAD-71 ALLEGED PAINT DISPOSAL AREA

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-71 (the Alleged Paint Disposal Area) is wedge shaped and is located west of 4th Avenue near Buildings 114 and 127. The entire AOC is approximately 2.4 acres in size and bounded on the north and south by railroad tracks serving Buildings 114 and 127.

Prior to the 2001 RI, rumors suggested that paints and/or solvents were disposed at SEAD-71 in burial pits (Parsons, 2001). The results of the RI test pitting operations failed to confirm the paint and oil disposal rumors, but did indicate that the area had been used for the disposal of construction debris, including sheet metal, asphalt, chain link fencing, sand and stone, piping, railroad ties, wood and cinders. No dates of disposal are available nor is there any information on the number of suspected disposal pits that may have been used.

1.2 Initial Response

An ESI, consisting of geophysical investigations, soil investigations (including soil boring and test pitting), and groundwater monitoring well installation and sampling was performed in 1994. A Phase I RI included a ground penetrating radar survey, a surface soil investigation, and a test pitting program was conducted in 1997. The TCRA performed in 2002 included excavation and staging of impacted soils, sampling and analysis of excavated areas and stockpiled excavated soils, disposal of approximately 3,805 tons of contaminated soil (total from SEAD-59 and SEAD-71) at an approved off-site landfill, installation of groundwater monitoring wells, and backfilling and grading of open excavations with acceptable soil from the stockpiles. The Phase II RI, completed in 2006, included validating and evaluating the soil data generated during the 2002 TCRAs, conducting groundwater monitoring, and performing risk assessments to characterize potential residual risks to human health and the environment. The Construction Completion Report for the Former Sewage Sludge Waste Piles (SEAD-5) (Parsons, 2010c) provided record documentation of the completed remedial action construction activities for SEADs 59 and 71. Stockpiled soil generated during the SEAD-59/71 remedial actions was used as the initial cover layer at SEAD-5.

1.3 Basis for Taking Action

Due to the potential human health risk in soil and groundwater an action was required at SEAD-71 to ensure land use remains protective of site users. SEAD-71 is part of the PID/Warehouse Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

Summary results of chemical analyses performed on all SEAD-71 soil and groundwater samples, and a complete copy of the analytical data for the all SEAD-71 surface and subsurface soil and groundwater evaluated during the investigation are provided in the ROD (Parsons, 2009c). The results of the RI test pitting operations indicated that the area had been used for the disposal of construction debris as mentioned in Section 1.1.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that the human health cancer risks associated with all soil (i.e., inside and outside of Fenced Area) and groundwater at SEAD-71 were less than the CERCLA cancer risk management upper limit of 1×10^{-4} for both the construction worker and the adolescent trespasser. The potential cancer risk determined for the industrial worker is 2×10^{-4} . Results for two reasonable maximum exposure scenarios are presented in the ROD (Parsons, 2009c); one including all SEAD-71 soil (i.e., inside and outside of the Fenced Area) and one considering only soil located exterior to the Fenced Area.

It was concluded that the elevated cPAH concentrations in surface soil within the Fenced Area at SEAD-71 are not associated with any release at the site, but are directly associated with the pavement and crushed rock pad that is still in place at the AOC. Therefore, a risk assessment was conducted for SEAD-71 in which all soil data from the Fenced Area was excluded from the risk evaluation.

For exposure to SEAD-71 soil and groundwater outside the Fenced Area, the cancer risks for all receptors are below the USEPA upper limit of 1×10^{-4} . The total non-cancer hazard index for the adolescent trespasser is below the USEPA target limit of 1. The non-cancer hazard indices for the industrial worker and construction worker are 3.5 and 13, respectively. The risk associated with groundwater intake contributes a significant portion of the total non-cancer hazard indices for the receptors. However, it was noted that elevated concentrations in SEAD-71 groundwater are generally comparable with the SEDA background, and may have been overstated in upgradient wells due to limited volume and potentially elevated turbidity.

A SLERA was conducted and the results indicate that soil at SEAD-71 does not significantly impact ecological receptors in the area. No COCs were identified for SEAD-71 soil for ecological receptors.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Record of Decision for the Fill area West of Building 135 (SEAD-59) and the Alleged Paint Disposal Area (SEAD-71)” (Parsons, 2009c) requires the establishment of ICs. The elements that composed the remedy included:

- Establishing, maintaining, monitoring, and reporting on a LUC that prohibit the development or use of the property for residential housing, elementary and secondary schools, childcare facilities and playgrounds until unrestricted use and unlimited exposure criteria are attained at SEAD-71; and
- Establishing, maintaining, monitoring, and reporting on a second LUC that prohibits access to or use of groundwater until unrestricted use and unlimited exposure criteria are attained.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) (USACE, 2006) implemented land use controls for the “PID/Warehouse Area. This SEAD LUC RD exempted 14 sites, or parcels, identified as Army Retained Sites. Addendum 4 to the SEAD LUC RD (USACE, 2009) included SEADs 1, 2, 5, 16, 17, 59, 71, 121C and 121I in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the PID/Warehousing Area including properties that had been previously retained (including SEAD-59) by the Army in 2008 was recorded in the Seneca County Clerk’s office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-71 is presented in **Table F.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-71, as part of the “PID Retained Parcels,” was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehousing Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section

121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table F.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/ Warehousing Area	Restrict site use.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
Groundwater	Yes	Yes	SEAD PID/ Warehousing Area	Restrict use of groundwater.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (Table F.3.1) as well as the recommendations from the last five-year review and the current status of those recommendations (Table F.3.2).

Table F.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-71	Protective	The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table F.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-71	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-71 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-71.
- No apparent access to or use of groundwater.

4.4 Interviews

Since SEAD-71 is uninhabited and unoccupied, no interviews were conducted during the Five-Year Review process for SEAD-71.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision document.

The remedy implemented at SEAD-71 is currently protective of human health and the environment because:

- A LUC that prevents access to, and use of, groundwater within the AOCs within the PID/Warehousing Area of the former Depot has been implemented and is currently being maintained, monitored, and reported upon periodically; and
- A second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds, and which also has been

expanded to include all land within the PID/Warehousing Area has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables F.5.1 and F.5.2** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

Overall, the cleanup levels and RAOs from earlier RODs are considered still valid. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, the cleanup standards remain protective of human health.

Table F.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
PAHs						
2-Methylnaphthalene	31	24	36.4	NA	Y	Y
Benzo(a)anthracene	0.62	1.1	0.224	1.0	Y	N
Benzo(a)pyrene	0.062	0.11	0.061	1.0	Y	N
Benzo(b)fluoranthene	0.62	1.1	1.1	1.0	Y	Y
Benzo(k)fluoranthene	6.2	11	1.1	0.80	Y	Y
Chrysene	62	110	0.4	1.0	Y	N
Dibenz(a,h)anthracene	0.062	0.11	0.014	0.33	Y	N
Indeno(1,2,3-cd)pyrene	0.62	1.1	3.2	0.50	Y	Y
Naphthalene	5.6	2	13.0	12	Y	Y
Metals						
Aluminum	7,600	7700	19,300	NA	Y	N
Antimony	3.1	3.1	5.9	NA	N	N
Arsenic	0.39	0.68	8.2	13	Y	N
Iron	2,300	5500	36,500	NA	Y	N
Lead	400	400	24.8	63	Y	N
Manganese	180	180	1,060	1600	Y	N
Thallium	0.52	0.078	0.7	NA	Y	Y
Vanadium	7.8	39	150	NA	Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table F.5.2 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
SVOCs						
4-Nitroaniline	3.2	25	5	NA	Y	N
Metals						
Aluminum	3600	2000	50	NA	Y	Y
Antimony	1.5	0.78	3	NA	Y	Y
Arsenic	0.045	0.052	10	13	Y	N
Chromium	0.011	2200		30	Y	N
Iron	1,100	1400	300	NA	Y	N
Manganese	88	43	50	1600	Y	Y
Thallium	0.24	0.02	2	NA	Y	Y
Vanadium	3.6	8.6	NA	NA	Y	N
Aluminum	3600	2000	50	NA	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal groundwater and surface water screening values are EPA Regional Screening Levels (RSL) for tapwater based on a target HQ = 0.1; updated May 2020.

(3) Evaluated as Chromium (IV)

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-71 and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-71.
- If UU/UE can be met in soil, collect groundwater samples to determine if Class GA standards can be met in groundwater at SEAD-71.

7.0 Protectiveness Statement

The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

\\mabos07fs01\PIT\Projects\Huntsville WERS\Seneca LTM, TO 2310 - Five Year Review\Draft FYR 2020\03 Attachment 1\Att F-1 SEAD-71_Aerial_n_Ground_Photos.ppt

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

Figure F-1
Five-Year Review - Site Visit Photo Log
SEAD-71 Alleged Paint Disposal Area

LOCATION: SEAD-71, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1



Status as of: 7/22/2020
Description: SEAD-71

Photo ID: IMG_3859.jpg

2020 Site Visit Photo 2



Status as of: 7/22/2020
Description: SEAD-71

Photo ID: IMG_3861.jpg

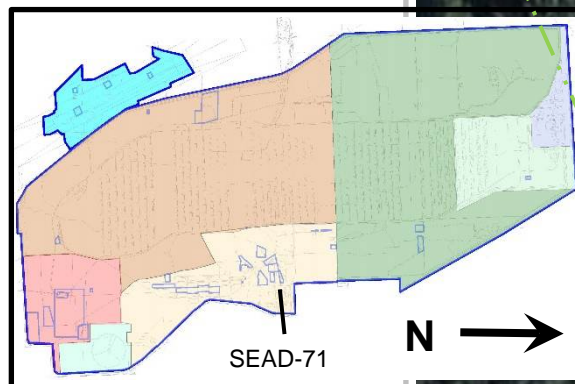
2020 Site Visit Photo 3



Status as of: 7/22/2020
Description: SEAD-71

Photo ID: IMG_3862.jpg

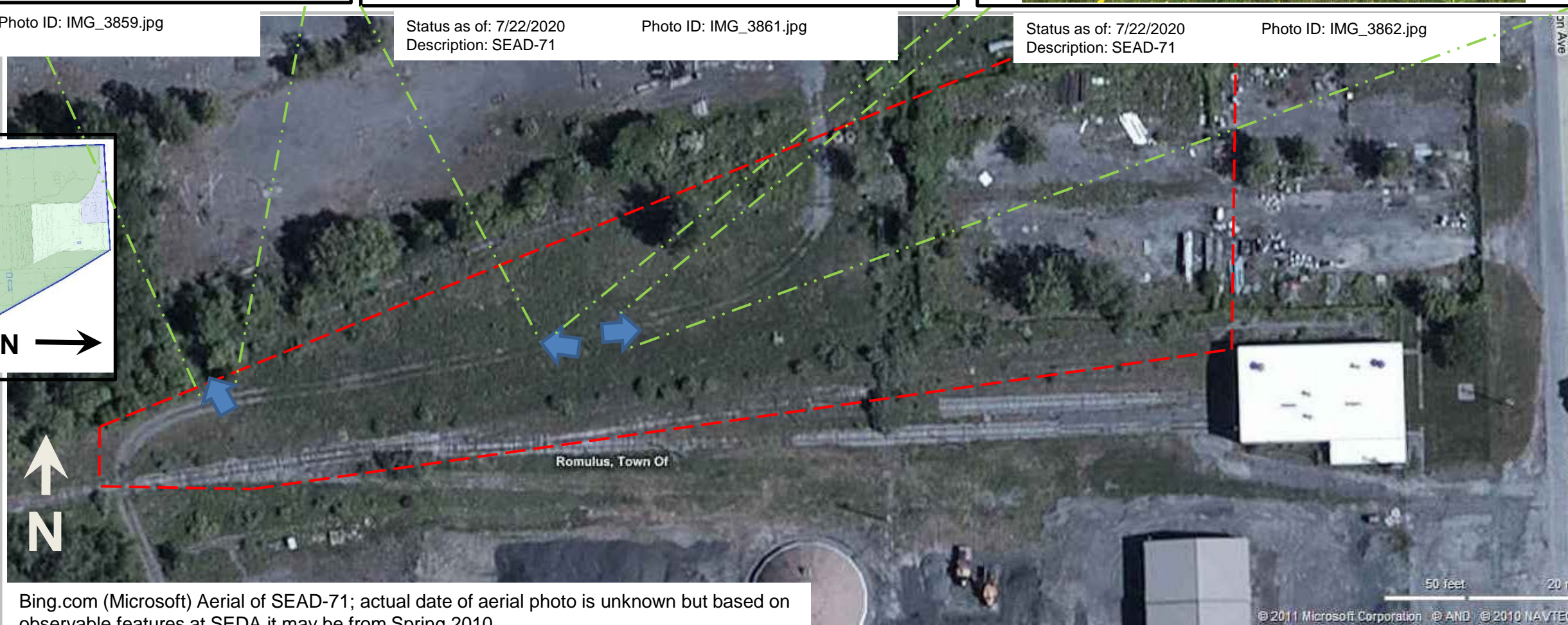
SEDA Overall Map (no scale)



Approximate Site Boundary

Photo Viewing Direction

SEAD-71 is located within the PID/Warehouse Area Parcel.



Bing.com (Microsoft) Aerial of SEAD-71; actual date of aerial photo is unknown but based on observable features at SEDA it may be from Spring 2010.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
<div style="display: flex; justify-content: space-between;"> <div> Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other </div> <div> Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls </div> </div>	
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX G

SEAD-121C: DEFENSE REUTILIZATION AND
MARKETING OFFICE YARD
AND
SEAD-121I: RUMORED COSMOLINE OIL DISPOSAL
AREA

APPENDIX G: SEAD-121C DEFENSE REUTILIZATION AND MARKETING OFFICE YARD AND 121I RUMORED COSMOLINE OIL DISPOSAL AREA

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-121C, the Defense Reutilization and Marketing Office (DRMO) Yard, is a triangular-shaped gravel lot, approximately 8.75 acres in size, located roughly 4,000 ft. southwest of the former Depot's main entrance off State Route 96. The DRMO Yard was used by the Army to store scrap metal, vehicles, and other items that were no longer needed for national defense, or that did not comply with legislative and regulatory requirements. The group using the yard was responsible for property reuse (including resale), hazardous property disposal (off site, at licensed/permitted facilities), precious metals recovery and recycling program support (Parsons ES, 1999b; Parsons, 2008b).

SEAD-121I, the Rumored Cosmoline Oil Disposal Area, encompasses four rectangular-shaped, open grass and dirt covered areas that are bounded by 3rd and 7th Streets (north and south ends, respectively) and Avenues C and D (west and east sides, respectively). The overall size of the AOC is approximately 16.8 acres. Approximately 1.2 acres of this area were previously used for the staging of strategic stockpiles of ferromanganese ore (Parsons, 2008b).

1.2 Initial Response

Two environmental investigations were conducted to document the environmental conditions present at SEAD-121C, the DRMO Yard and at SEAD-121I, the Rumored Cosmoline Oil Disposal Area. In addition, two removal action were also performed independently at SEAD-121C and SEAD-121I, and confirmatory soil sample data were developed as part of the removal action activities.

Sampling was performed at both 121C and 121I in 1998 (limited EBS) to determine if hazardous substances were present, and between 2002 and 2003 (RI) to more thoroughly investigate Site conditions; the results of these efforts were reported in the RI Report (Parsons, 2006e). Additional data pertinent to the existing environmental conditions remaining at the AOC was subsequently developed during an interim removal action in 2007. Soil excavations were performed at SEAD 121C for the elevated levels of lead, and at the former stockpile locations in SEAD 121I to address manganese residuals. The sampling and analysis conducted during the cleanup action are presented in the Construction Completion Report for SEAD-121C and SEAD-121I and are summarized in Section 3 of the ROD (Parsons, 2008b).

1.3 Basis for Taking Action

Due to human health risk in soil and potential risk in groundwater which hasn't been fully investigated an action was required at SEAD-121I and SEAD-121C to ensure land use remains protective of site users. SEAD-121I and SEAD-121C are part of the PID/Warehouse Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

Conditions present at SEAD-121C were investigated during a multimedia RI conducted in 2002 and 2003 (Parsons, 2006e). Samples of surface and subsurface soil, groundwater, surface water, and "ditch soil" found in man-made culverts adjacent to the AOC were collected and analyzed for TCL/TAL compounds (Parsons, 2006e). The only analytes found at concentrations in excess of NYSDEC's TAGM Industrial Use Soil Cleanup Objectives were two cPAHs [(carcinogenic Polycyclic Aromatic Hydrocarbons (benzo[a] pyrene and benzo[b] fluoranthene)] and lead. Additional data pertinent to the existing environmental conditions remaining at the AOC was subsequently developed during the interim removal action that was performed at the site (Parsons, 2008d). These data are provided in the CCR for SEAD-121C that describes and summarizes the results of the interim

removal action that was performed for the elevated levels of lead. The primary human health constituents of concern (COCs) identified at SEAD-121C, the DRMO Yard, include benzene, seven cPAHs, dieldrin, three aroclor congeners (i.e., 1242, 1254, and 1260) and several metals (e.g., arsenic, lead, etc.).

The Army indicated that the rail spur and sidings were used for delivery of equipment and machinery that was frequently packed in Cosmoline (oil). Cosmoline oil is a commonly used substance that prevents corrosion on metal parts and components. During delivery and unpacking of the equipment and machinery, oil from the packing may have been deposited on the ground. The U.S. Government historically staged strategic stockpiles of ferromanganese ore in portions of SEAD-121I, and these stockpiles were present during the EBS and RI sampling events and into the early part of 2007. Samples of surface and subsurface soil, surface water and “ditch soil” found in man-made culverts adjacent to the AOC were collected and analyzed for TCL/TAL compounds. The primary human health constituents of concern (COCs) identified at SEAD-121I, the Rumored Cosmoline Disposal Area, include seven cPAHs, dieldrin, heptachlor epoxide, and six metals (e.g., arsenic, chromium, iron, manganese, thallium, and vanadium).

No groundwater COPCs were identified for SEAD 121C or SEAD 121I. Chemicals detected in the groundwater at SEAD 121C were not found at levels that surpassed EPA’s risk assessment screening values, while groundwater was not encountered in the thin overburden layer that overlies the bedrock in SEAD 121I.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

Human Health Risk

The risk assessment concluded that at SEAD-121C the human health cancer risks are within or below the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0. However, there was an area in the northern portion of this AOC where soil concentrations of lead were present at levels in excess of NYSDEC’s Restricted Commercial and Industrial Use SCOs, and where prudent management decisions indicated that a focused removal action should be performed to lessen future exposures to users or occupants of the land. An excavation was performed, and confirmatory soil sampling results indicate that the identified area of elevated lead was removed. For SEAD-121C, complete details of the human health risk assessment for each exposure route evaluated are presented in Appendix E of the Final RI report (Parsons, 2006e) for soil, ditch soil, groundwater, and surface water exposure.

The risk assessment concluded that at SEAD-121I the human health cancer risks are within or below the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors except for the construction worker (1.5) are less than 1.0. For SEAD-121I, the post-cleanup action non-carcinogenic hazard indices and carcinogenic risk results for the scenarios evaluated are summarized in Table 7-9 of the ROD (Parsons, 2008b). Details of the revised human health risk assessment for each exposure route are presented in Appendix E of the ROD for soil, ditch soil, and surface water exposure. Since this calculation, the ore piles were removed and the former staging areas cleaned up. The most significant contributing COPC (i.e., manganese) was reduced to levels below commercial and industrial cleanup objective levels, and the associated risk at SEAD-121I is considered suitable for its continuing use as industrial or commercial property.

Ecological Risk

An ecological risk assessment was performed for SEAD-121C. Preliminary screening level HQs were computed, and the Army applied the USEPA’s recommended refinement of COC process to the results of the SLERA to determine if evaluation of ecological risks was warranted. After application of the refinement of COC process, no COCs were identified for SEAD-121C soil, SEAD-121C ditch soil, or SEAD-121C surface water and the rationales are summarized below. Specific details of the Refinement of COC Process are presented in the Final RI Report (Parsons, 2006e) Section 7.6.2 through 7.6.4. Based on the discussion, soil, ditch soil, surface water, and

groundwater at SEAD-121C are not expected to significantly impact ecological receptors and no further action is warranted at SEAD-121C based on the ecological risk assessment.

An ecological risk assessment was performed for SEAD-121I. Preliminary screening level HQs were computed, and the Army applied the USEPA's recommended refinement of COC process to the results of the SLERA to determine if evaluation of ecological risks was warranted. After application of the refinement of COC process, no COCs were identified for SEAD-121I soil, ditch soil, or surface water and the rationales are summarized below. The reader is referred to the Final RI Report (Parsons, 2006e) Section 7.6.5 through 7.6.7 for specific details of the Refinement of COC Process. The source of the metal contamination at SEAD-121I was the strategic stockpiles of ferrous-manganese ore previously stored at the AOC. These stockpiles were removed in 2007, and a post-mission cleanup action was taken to remove residues associated with the historic stockpiling activities. Based on the above discussion, soil, ditch soil, and surface water at SEAD-121I are not expected to significantly impact ecological receptors and no further action is warranted at SEAD-121I based on the ecological risk assessment.

2.0 Remedial Actions

2.1 Remedy Selection

The RODs titled "Defense Reutilization and Marketing Office (DRMO) Yard (SEAD 121C) and the Rumored Cosmoline Oil Disposal Area (SEAD-121I)" (Parsons, 2008b) require the establishment of ICs. The elements that composed the remedy included:

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

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehouse Area. Addendum 4 to the SEAD LUC RD added SEADs 1, 2, 5, 16, 17, 59, 71, 121C and 121I in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the PID/Warehouse Area including properties that had been previously retained (including SEAD-121C and SEAD-121I) by the Army in 2008 was recorded in the Seneca County Clerk's office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-121C and SEAD-121I is presented in **Table G.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-121C and SEAD-121I as part of the "PID Retained Parcels" was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehouse Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table G.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/ Warehousing Area (including SEAD-121C and SEAD-121I)	Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Groundwater	No (121C); unknown (121I) ⁽¹⁾	Yes ⁽²⁾	SEAD PID/ Warehousing Area (including SEAD-121C and SEAD-121I)	Prevent access or use of the groundwater until New York States GA ground water Standards are achieved.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

Note:

(1) For SEAD-121C, chemicals detected in the groundwater were not found at levels that surpassed EPA's risk assessment screening values. For SEAD-121I, groundwater was not encountered and thus no equivalent evidence of poor groundwater quality exists for this AOC.

(2) SEAD-121C and SEAD-121I are located within the PID/Warehouse Area where an area-wide IC is present. This IC prohibits use or access to groundwater and prohibits land use for residential housing, elementary and secondary schools, childcare facilities and playground activities. Although no risk was identified within the soil and risk was not identified and unknown with respect to groundwater, this site is physically located within the boundary of the PID/Warehouse area, and therefore, the ICs are applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (Table G.3.1) as well as the recommendations from the last five-year review and the current status of those recommendations (Table G.3.2).

Table G.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
------	------------------------------	--------------------------

SEAD-121C and SEAD-121I	Protective	The remedy implemented for PID Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.
-------------------------	------------	--

Table G.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Description	Status	Completion Date (if applicable)
SEAD-121C and SEAD-121I	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.		N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-121C and SEAD-121I was inspected July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-121C and 121I.
- No apparent access to or use of groundwater were observed at SEAD-121C and 121I.

4.4 Interviews

Since SEAD-121C and SEAD-121I is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-121C and SEAD-121I.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-121I and SEAD-121C is currently protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the AOCs within the PID/Warehousing Area of the former Depot has been implemented and is currently being maintained, monitored, and reported upon periodically; and,
- a second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds, and which also has been expanded to include all land within the PID/Warehousing Area has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables G.5.1, G.5.2, and G.5.3** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table G.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil for SEAD 121C

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Benzo(a)anthracene	1	1.1	ROD did not establish cleanup levels		Y	N
Benzo(a)pyrene	1	0.11			Y	Y
Benzo(b)fluoranthene	1	1.1			Y	N
Benzo(k)fluoranthene	0.8	11			Y	N
Chrysene	1	110			Y	N
Dibenz(a,h)anthracene	0.33	0.11			Y	Y
Indeno(1,2,3-cd)pyrene	0.5	1.1			Y	N
Pesticides/PCBs						
Dieldrin	0.005	0.034	ROD did not establish cleanup levels		Y	N
Aroclor-1242	0.74	0.23			Y	Y
Aroclor-1254	0.10	0.12			Y	N
Aroclor-1260	0.10	0.24			Y	N
VOCs						
Benzene	0.06	1.2	ROD did not establish cleanup levels		Y	N
Metals						
Antimony	--	3.1	ROD did not establish cleanup levels		Y	N
Arsenic	13	0.68			Y	Y
Copper	50	310			Y	N
Iron	--	5500			Y	N
Lead	63	400			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table G.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment for SEAD 121I

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Benzo(a)anthracene	1	1.1	ROD did not establish cleanup levels		Y	N
Benzo(a)pyrene	1	0.1			Y	Y
Benzo(b)fluoranthene	1	1.1			Y	N
Benzo(k)fluoranthene	0.8	11.0			Y	N
Chrysene	1	110.0			Y	N
Dibenz(a,h)anthracene	0.33	0.1			Y	Y
Indeno(1,2,3-cd)pyrene	0.5	1.1			Y	N
Pesticides/PCBs						
Dieldrin	0.005	0.034	ROD did not establish cleanup levels		Y	N
Heptachlor Epoxide	--	0.1			Y	N
Metals						
Arsenic	13	0.7	ROD did not establish cleanup levels		Y	Y
Chromium	30	12000			Y	N
Iron	--	5500			Y	N
Manganese	1600	180			Y	Y
Thallium	--	0.078			Y	N
Vanadium	--	39			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table G.5.3 Comparison of Toxicity Data and Cleanup Levels in Surface Water for SEAD 121C

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TB C in ROD ⁽¹⁾	Current NYSDEC Groundwater Cleanup Objectives (Class GA) ⁽²⁾		
Metals						
Arsenic	150	0.052	ROD did not establish cleanup levels		Y	Y
Cadmium	3.84	7.1			Y	N
Chromium	139.45	2200			Y	N
Iron	300	1400			Y	N
Lead	1.4624632	15			Y	N
Manganese	--	43			Y	N
Thallium	8	0.02			Y	Y
Vanadium	14	8.6			Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal screening levels are from EPA Regional Screening Levels (RSL) for Tap Water based on a target HQ = 0.1; updated May 2020.

State groundwater cleanup goals are from 6 CRR-NY 703.5 Class GA; Verified 9/21/2020.

"–" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-121C, SEAD-121I, and the PID Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-121C and SEAD-121I.
- If UU/UE can be met in soil, collect groundwater samples to determine if Class GA standards can be met in groundwater at SEAD-121C and SEAD-121I.

7.0 Protectiveness Statement

The remedy implemented for PID Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment G-1
Five-Year Review - Site Visit Photo Log
SEAD-121C Defense Reutilization and Marketing Office (DRMO) Yard

PROJECT: Seneca Army Depot Five-Year Review 2019 Site Visit Photo 3
PROJECT #: 110043.10000

LOCATION: SEAD-121C, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

SEAD-121C is located within the PID/
Warehouse Area Parcel.

2020 Site Visit Photo 1



Status as of: 7/22/2020 Photo ID: IMG_3845.jpg
Description: SEAD-121C

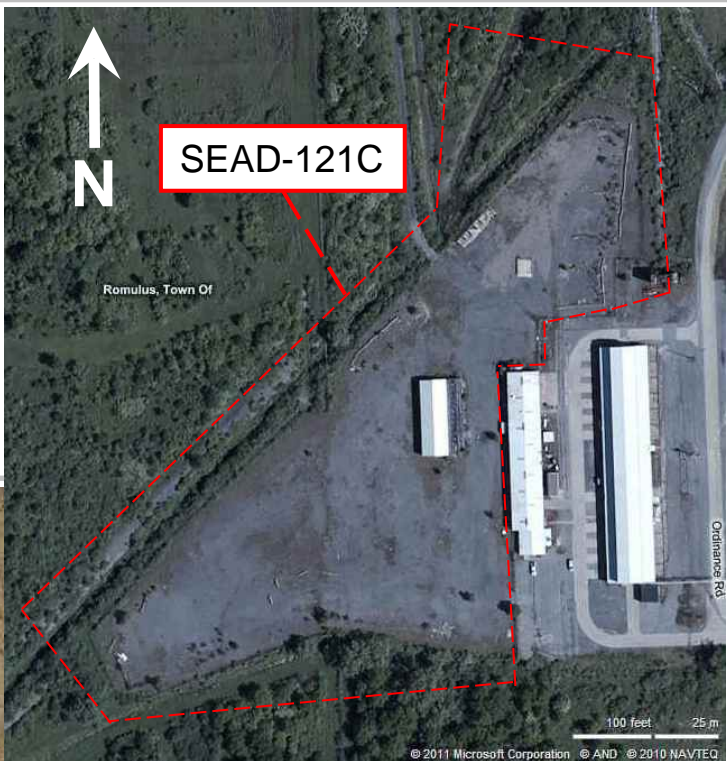
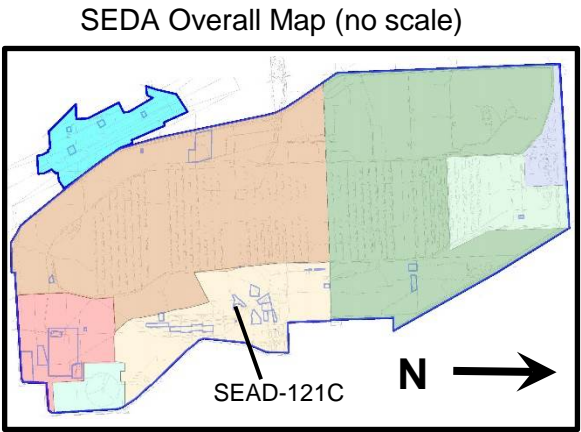
2020 Site Visit Photo 2



Status as of: 7/22/2020 Photo ID: IMG_3842.jpg
Description: SEAD-121C



Status as of: 7/22/2020 Photo ID: IMG_3843.jpg
Description: SEAD-121C



Bing.com (Microsoft) Aerial of SEAD-121C; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2010.



Bing.com (Microsoft) Birds Eye Aerial of SEAD-121C; actual date of aerial photo is unknown but based on observable features at SEDA it may be from Spring 2007.

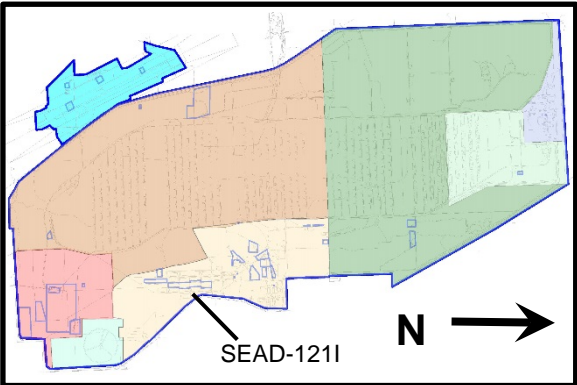
- Approximate Site Boundary
- Photo Viewing Direction

Attachment G-2
Five-Year Review - Site Visit Photo Log
SEAD-121I Rumored Cosmoline Oil Disposal Area

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-121I, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

SEDA Overall Map (no scale)



Approximate Site Boundary
Photo Viewing Direction

2020 Site Visit Photo 1

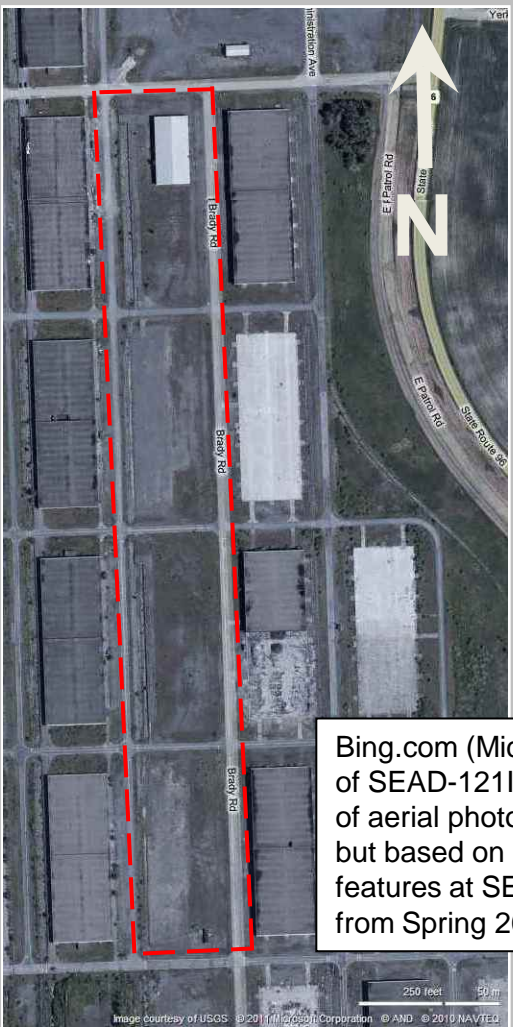


Status as of: 7/22/2020
Description: SEAD-121I
Photo ID: IMG_3833.jpg

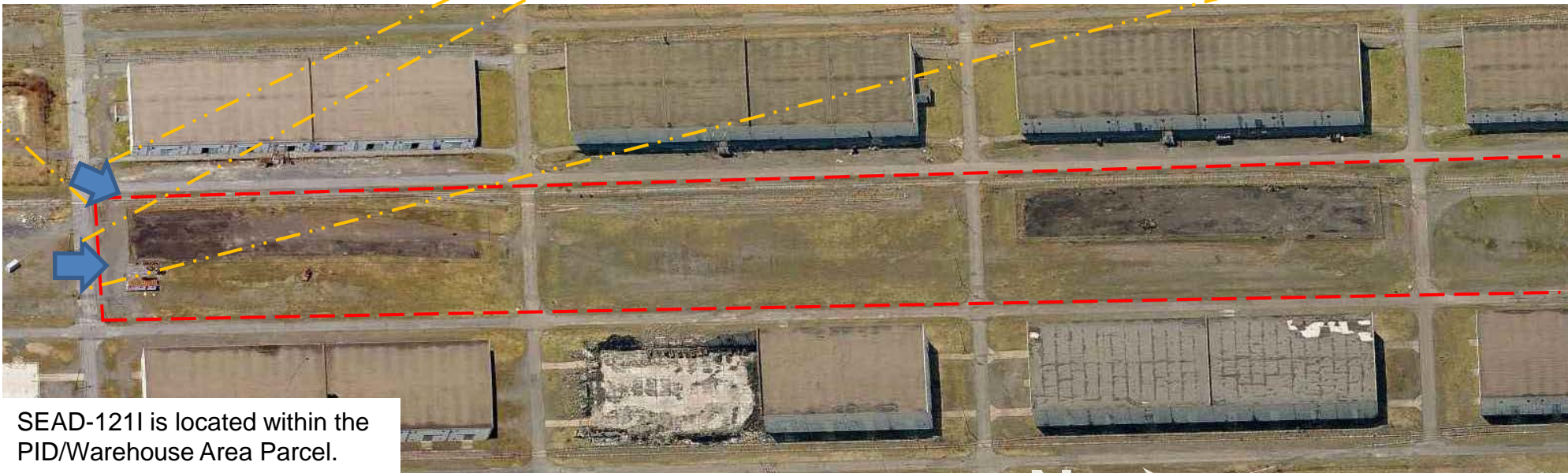
2020 Site Visit Photo 2



Status as of: 7/22/2020
Description: SEAD-121I
Photo ID: IMG_3836.jpg



Bing.com (Microsoft) Aerial of SEAD-121I; actual date of aerial photo is unknown but based on observable features at SEDA it may be from Spring 2010.



SEAD-121I is located within the PID/Warehouse Area Parcel.

Bing.com (Microsoft) Birds Eye Aerial of SEAD-121I; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2007.

100 feet 25 m
N
© 2011 Microsoft Corporation
Pictometry Bird's Eye © 2010 MDA Geospatial Services Inc.
Pictometry Bird's Eye © 2010 Pictometry International Corp

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
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As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX H

SEAD-25: FIRE TRAINING AND DEMONSTRATION PAD

APPENDIX H: SEAD-25 FIRE TRAINING AND DEMONSTRATION PAD

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LIST OF ATTACHMENTS

Attachment 1	Photo Log
Attachment 2	Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The Fire Training and Demonstration Pad (SEAD-25) site is located in the east-central portion of SEDA. The site is bounded to the east by Administration Avenue beyond which is undeveloped land covered by deciduous trees; to the south by Ordnance Drive beyond which is an open grassy field and a stand of coniferous trees; to the west by grassland, brush and conifers; and to the north by grassland and a baseball field.

SEAD-25 was in use from the late 1960s to the late 1980s. The pad was used for fire control training. During the 1980s, the pad was used twice for firefighting demonstrations, once in 1982 or 1983 and in 1987.

In 2017, the Army launched a site investigation (SI) at three previously investigated sites (SEAD-25, SEAD-26, and SEAD-122E), which were formerly used as fire training areas, to determine whether the sites were impacted with per- and polyfluoroalkyl substances (PFAS) due to the use of Aqueous Film Forming Foam (AFFF). The data from the SI showed that the concentrations of the two primary PFAS constituents, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), were measured in exceedance of the EPA Health Advisory (HA) levels in all 12 of the wells sampled at SEAD-25. As a result, SEAD-25 proceeded to an Expanded Site Investigation with a focus on further delineating the PFAS extents in the area (Parsons, 2018). The investigation of SEAD-25 for PFAS is ongoing at this time.

1.2 Initial Response

SEAD-25 is described in three reports issued prior to the RI. The first report was the Work Plan for CERCLA ESI of Ten SWMUs written by Parsons Main, Inc. in January 1993. This report detailed the site work and sampling performed under the ESI. The second report was a SWMU Classification Report (Parsons ES, 1994a), which was undertaken to describe and evaluate the SWMU at SEDA. The third was an ESI Report (Parsons ES, 1995), which described a more detailed investigation of SEAD-25. The fieldwork for the ESI was conducted according to the Work Plan for CERCLA ESI of Ten SWMUs. Based on the results of the ESI, a RI Work Plan was prepared and the RI field program was conducted. A RI and Feasibility Study (FS) were completed for SEAD-25/26 in May 1998 and October 1998, respectively.

As part of a 2005 remedial action, approximately 961 cubic yards of BTEX impacted soil was removed from the pad area and approximately 761 cubic yards of SVOC impacted soils were removed from a swale. The excavations were completed down to bedrock and the excavated soils were disposed of off-site. The pad excavation was backfilled and restored to the existing grade (Parsons, 2005a; 2006a). LTM for BTEX constituents is on-going at SEAD-25 and has been conducted since 2007 (Parsons, 2007b; 2019). BTEX detections are limited to a single well and the concentrations are trending down. As such, in May 2020 EPA approved a ramp-down strategy to reduce sampling frequency. In addition, as of the time of this report the site is being investigated for PFAS constituents as part of an ESI.

1.3 Basis for Taking Action

Because of the human health risk in soil and groundwater an action was required at SEAD-25 to ensure land use remains protective of site users. SEAD-25 is part of the PID/Warehousing Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

The primary COCs at SEAD-25 are VOCs, specifically benzene, toluene, ethylbenzene, and xylene (BTEX) compounds in both soil and groundwater, as well as lesser amounts of chlorinated ethene compounds in

groundwater. The VOC contaminants were believed to have been released to the environment during fire training activities at the Pad. In addition, varying concentrations of SVOCs were also detected in the soil and sediment, mainly in the drainage ditches on the periphery of the site. The primary impact to the groundwater resulted from two overlapping VOC plumes that both originated at the southwestern portion of SEAD-25 pad, neither of which extended beyond Ordnance Drive. The primary plume was approximately 200 feet long and composed of BTEX which is typically associated with gasoline. Results of groundwater contour mapping indicated that groundwater flow is radial below the pad, with a strong horizontal gradient to the south and west. The radial groundwater flow that has developed below the pad at SEAD-25 is believed to be a local phenomenon that is present because of the influence of the anthropomorphic bedrock topographic mound located below the pad. Less significant impacts from other contaminants were also detected at the site.

PFOA and PFOS are being investigated as part of an ESI. These constituents were identified after the ROD was completed. The investigation of SEAD-25 for PFAS is ongoing at this time.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-25 there are human health cancer risks were within the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} for the current and future on-site construction worker, but above for the future on-site resident (1×10^{-3}). The calculated non-cancer HI for the construction worker (HI=4) and resident (HI=10) for child and (HI=5) for adult were greater than 1.0, but less than 1.0 for the current site worker. These risks are mainly due to inhalation of VOCs in the ambient air and potential exposure of receptors to on-site groundwater containing benzene as their sole drinking water source.

The results of the ecological risk assessment presented in the RI report (Parsons ES, 1998) concluded that there was negligible risk to the ecosystems of the SEAD-25 study area. During the field evaluation, no overt acute toxic impacts were noted. The quantitative ecological risk evaluation determined that a possibility exists for the COPCs to present a small potential for environmental effects due to sediment at SEAD-25.

The investigation of SEAD-25 for PFAS is ongoing at this time.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "The Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area (SEAD-26) (Parsons, 2004b) required the following remedy and establishment of ICs. The elements that composed the remedy included:

- Excavate soil at the source in an area approximately 60 feet by 100 feet to a depth of 6 feet (approximately 1,350 cubic yards);
- Excavate a volume of sediment approximately 780 feet long, 3 feet wide and 2 feet deep (approximately 175 cubic yards) from the northwest ditch;
- Dispose of excavated soils in an appropriate off-site facility;
- Dewater the excavation pit;
- Treat groundwater that is recovered during excavation and during dewatering of excavation pit with an on-site air stripper;
- Replace excavated soil with clean backfill and establish a ground cover to avoid soil erosion;

- Conduct groundwater monitoring of the plume until NYSDEC Class GA groundwater standards are achieved (approximately 10 years);
- Establish and maintain land use controls to prevent access to or use of groundwater until cleanup standards are met. LUCs include to:
 - Prohibit the development and use of property for residential housing, elementary and secondary schools, childcare facilities and playground activities.
 - Prevent access to or use of the groundwater until NYS Class GA Groundwater Standards are met.
 - Maintain the integrity of any current or future remedial or monitoring system at SEAD-25.
- Complete a review of the selected remedy every five-years (at minimum), in accordance with Section 121(c) of the CERCLA;
- Prepare a contingency plan that may include additional monitoring and air sparging of the plume, as necessary; and
- Once NYSDEC Class GA groundwater cleanup standards are achieved, the groundwater use restriction may be eliminated.

2.2 Remedy Implementation

The CCR (Parsons, 2006a) for the Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area (SEAD-26), describes remedial action activities at SEAD-25 and SEAD-26 and presents sample collection and laboratory test results, record survey data, record (as-built) drawings, and photo documentation to demonstrate compliance with the requirements set forth by the ROD (Parsons, 2004b) and the Remedial Design Work plan and Design Report (Parsons, 2005a).

The excavation of the BTEX impacted soil at the pad at SEAD-25 began on November 15, 2005 and was completed on December 1, 2005, with soil removal totaling 961 cubic yards (cy). All confirmatory soil samples collected from the sidewalls of the excavation area and analyzed for VOCs and SVOCs representative of soil remaining onsite at the pad achieved the site-specific cleanup goals, and the soils at SEAD-25 do not require further action. The excavation of the soil at the pad removed the source of groundwater contamination.

Excavation of the SVOC impacted swale at SEAD-25 began on November 7, 2005 and was completed on November 8, 2005. The excavation extended from the toe of slope on one bank to the toe of slope on the other bank, resulting in the removal and off-site disposal of the swale soil (761 cy) at SEAD-25. Since the swale bottom consisted of exposed competent bedrock following excavation, no native material remained in the swale and confirmatory samples were not collected.

A total of 1,722 cubic yards (approximately 2,600 tons) of soil were excavated from the pad and the swale at SEAD-25 and disposed off-site at Ontario County Landfill. The pad excavation was backfilled and restored to the existing grade. LTM is currently on-going at SEAD-25 and has been conducted since 2007 (Parsons, 2007b; 2019).

SEAD-25 and SEAD-26 Soil Removal Cleanup Goals		
Analyte	Cleanup Goal (µg/Kg)	Goal Met?
Volatile Organic Compounds		
1,1,1-Trichloroethane	800	Yes
1,1-Dichloroethane	200	Yes

Benzene	60	Yes
Chloroform	300	Yes
Ethyl Benzene	5,500	Yes
Toluene	1,500	Yes
Trichloroethene	700	Yes
Xylene (total)	1,200	Yes
Semivolatile Organic Compounds		
2-Methylnaphthalene	36,400	Yes
Naphthalene	13,000	Yes
Phenol	30	Yes
cPAHs (SEAD-26 only)		
cPAHs (BTE)*	10	Yes

*cPAHs were only sampled at SEAD-26 and were compared to the Benzo(a)pyrene Toxicity Equivalence. NYSDEC TAGM values from Technical and Administrative Guidance Memorandum HWR-92-4046, January 24, 1994

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehouse Area. Addendum 1 to the SEAD LUC RD (USACE, 2007) added SEAD 25, and 26 in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the PID/Warehousing Area including properties that had been previously retained (including SEAD-25) by the Army in 2008 was recorded in the Seneca County Clerk's office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-25 is presented in **Table H.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-25 as part of the "PID Retained Parcels" was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehouse Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table H.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/Warehousing Area	Prohibit residential housing, elementary and secondary schools, child care facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
Groundwater	Yes	Yes	SEAD PID/Warehousing Area	Prevent access or use of the groundwater until	Environmental Easement, Deed Restriction,

					New York State's GA ground water Standards are achieved.	CERCLA Section 120(h)(3) notice and covenant.
Monitoring Well Network	Yes	Yes	SEAD-25		Maintain the integrity of any current or future remedial or monitoring system.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table H.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table H.3.2**).

Table H.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-25	Protective	The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years. Additionally, SEAD-25 is located within the PID area, within which, an environmental easement and deed restriction prohibit both residential use and the use of groundwater.

Table H.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-25	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020.	N/A
SEAD-25	N/A	Continue groundwater monitoring on a semi-annual basis at SEAD-25 until the 2010 - 2011 (Fourth Year)	Ongoing	Proposed changing the sampling frequency from annual to every five years in a Technical	N/A

		sampling cycle is completed. It was recommended that groundwater monitoring continue on an annual basis, and be conducted during a season (e.g., winter – early to mid-spring) when an adequate quantity of water is likely to be present in the overburden aquifer to support the required sampling		Memorandum submitted in March 2020.	
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4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

In accordance with the ROD for the Fire Training and Demonstration Pad (SEAD-25) and the Final Remedial Design Report [(RDR) (Parsons, 2005a)], long-term groundwater monitoring is being performed at SEAD-25 as part of the continuing post-closure monitoring and maintenance operations.

There have been sixteen groundwater monitoring events conducted at SEAD-25, which have been documented in twelfth LTM reports. Groundwater monitoring was initially required as a condition of the ROD since contaminant concentrations found in the groundwater at the AOCs prior to the remedial action exceeded applicable groundwater standards. Semi-annual (i.e., twice each year) groundwater monitoring was performed at SEAD-25 from 2006 through 2011, and annual groundwater monitoring has been performed from 2011 to 2019 (present). A summary of the groundwater trends based on the RI results, post-remedial action to date is summarized in the Draft 2019 Long-Term Monitoring Report for SEAD-25 (Parsons, 2019).

Based on the post-RA monitoring event results for SEAD-25 the Army currently reports that:

- The concentrations of BTEX in the groundwater at SEAD-25 have decreased by up to two orders of magnitude since 1994;
- With the exception of MW25-2, COCs were not detected above cleanup goals in four of the five wells sampled during the 2019 LTM event;
- VOC concentrations at SEAD-25 have attenuated to levels close to or below the applicable groundwater standards;
- The general trends of the field indicator parameters for most of the LTM wells provide inconclusive evidence due to the historic lack of VOC contamination at these wells and the lack of an upgradient or background well for comparison; however, typically low DO and negative ORP values at MW25-2 suggests an environment conducive to anaerobic degradation;

- COCs are limited in concentration and are not migrating outside the vicinity of MW25-2. In general, any remaining contamination is restricted to the area in the vicinity of MW25-2;
- Based on evaluation of available LTM data, the soil excavation remedy at SEAD-25 has been effective;
- The land and groundwater use restrictions imposed at SEAD-25 are maintained as part of both the approved ROD for SEAD-25 and the larger Planned Industrial/Office or Warehousing Area ("PID Area") (Parsons, 2004a; 2004b). There are no signs of unauthorized use or access; and,
- Based on the information and discussion provided above, it appears that BTEX concentrations observed at MW25-2 fluctuate in correlation with changes in saturated thickness of the groundwater table, indicating that the BTEX concentrations are largely influenced by dilution of a small, localized source.

4.3 Site Inspection

SEAD-25 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-25.
- No apparent access to or use of groundwater.

The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEAD-25 is uninhabited and unoccupied, no interviews were conducted during the Five-Year Review process for SEAD-25.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LTM Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-25 currently protects human health and the environment from contaminants identified in the ROD because:

- Contaminated soils and sediments previously identified at SEAD-25 to contain aromatic volatile organic compound and cPAHs have been excavated and disposed at licensed and approved off-site landfills where they are being managed in controlled and monitored environments;
- The open excavations were allowed to backfill with contaminated groundwater from the immediate vicinity of the excavation sites, and then this water was pumped from the excavation site, placed into storage vessels, sampled and analyzed, approved for disposal and then disposed at a wastewater treatment plant where treatment was performed in accordance with applicable environmental limitations;
- The open excavations were then backfilled with approved soil meeting required cleanup goals, and then a vegetative cover over the disturbed site was re-established;
- A post-remedial action groundwater monitoring program was also implemented at SEAD-25, and data collected from the monitoring program indicates that concentrations of groundwater contaminants identified prior to the remedial action have fallen to levels significantly below pre-remedial action concentrations, but continue to show periodic evidence of being above identified groundwater quality criteria in a single well. However, the data collected from the ongoing monitoring program show no evidence of migration.
- Access to and use of groundwater continues to be restricted; and
- The integrity of the monitoring well network present at SEAD-25, where the LTM continues, is being monitored and maintained; and
- The results of the continuing LTM must not provide evidence that volatile organic compound concentrations are increasing back toward pre-removal action levels, or that the existing groundwater plume is expanding in size, or migrating into previously unaffected areas.

The selected remedy is still protective of human health and the environment with respect to contaminants identified in the ROD. The investigation of SEAD-25 for PFAS is ongoing at this time. However, groundwater restrictions are in place at the site and will continue to remain in place while PFAS investigations continue. The investigation shows early indicators of potential issues related to PFAS in groundwater at SEAD-25. Recommendations for optimization of the LTM program are discussed further in Section 6.0.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy **are still valid**.
- There have been **no changes** in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

Because the SEAD-25 is undergoing active LTM, the screening levels and cleanup levels are reviewed and updated in the Annual LTM report (Parsons, 2019). In the latest report, groundwater concentrations were compared against NYS Water Quality Standards, Class GA (6 CRR-NY 703.5) or, if not available, EPA Regional Screening Levels (RSLs) (TR=1E-06, THQ=1.0, May 2020) for Tap Water.

As a result, the cleanup levels and RAOs from earlier RODs are considered still valid. Since the standards are reviewed on an annual basis and updated as needed the cleanup standards remain protective of human health.

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

The investigation of SEAD-25 for PFAS is ongoing at this time. The investigation shows early indicators of potential issues related to PFAS in groundwater at SEAD-25. The remedy in place is for the contaminants identified in the ROD, which did not include PFAS as this contaminant had not been known at the time of the ROD. Further investigation is underway to determine if a remedy is needed for PFAS at this site.

According to the data reviewed and the site inspection, the current remedy is functioning as intended by the RODs for SEAD-25 and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. Based on the current area-wide LUC prohibiting the use of groundwater within the PID Area (which includes SEAD-25), the Army has the following recommendations, which will be addressed in the Annual Report:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Remove wells MW25-3, MW25-9, MW25-10 and MW25-17 from the LTM sampling program as no COCs have been detected in these wells in at least two rounds of sampling. These wells will not be abandoned at this time due to use related to a PFAS investigation.
- Abandon and replace well MW25-2.
- Sample new monitoring well MW25-2 in five years to confirm that the remedy is proceeding as expected. Changing the sampling frequency for VOCs from annually to every five years will ensure that COC concentration reductions continue to be documented and the point at which COC concentrations decline below the NYS GA cleanup standard is reported.
- Maintain the current land use control (LUC) preventing groundwater use within the Seneca County Industrial Development Association defined "Planned Industrial Development Area", which encompasses SEAD 25.
- Once a well has documented concentrations below the applicable groundwater quality standard after two rounds of sampling, no further groundwater monitoring is needed. Pending regulatory approval, the monitoring well will be abandoned in accordance with state regulations.

Annual LUC inspections will continue to ensure that the groundwater is not accessed. Based on EPA request, the Army has agreed to sample for PFAS at sites where Aqueous Film Forming Foams (AFFF) (e.g., firefighting foams) may have been used. As part of this program, future sampling for PFAS at SEAD-25 is expected.

7.0 Protectiveness Statement

The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years. PFAS is a concern at this site and is currently undergoing investigation; however, SEAD-25 is located within the PID area, within which, an environmental easement and deed restriction prohibit both residential use and the use of groundwater.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

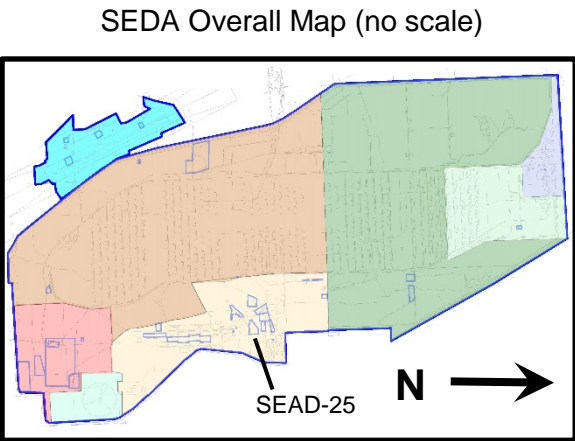
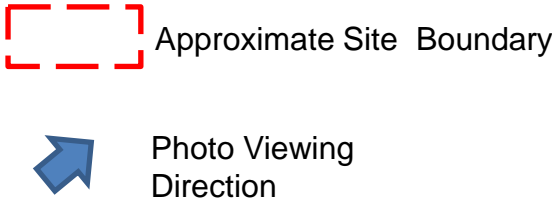
PHOTO LOG

Attachment H-1
Five-Year Review - Site Visit Photo Log
SEAD-25 Fire Training and Demonstration Pad

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-25, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

SEAD-25 is located within the
PID/Warehouse Area Parcel.



2020 Site Visit Photo 1



Status as of: 7/22/2020 Photo ID: IMG_3854.jpg
Description: SEAD-25 Former Pad Area



ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
<div style="display: flex; justify-content: space-between;"> <div> Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other </div> <div> Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls </div> </div>	
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX I

SEAD-26: FIRE TRAINING PIT AND AREA

APPENDIX I: SEAD-26 FIRE TRAINING PIT AND AREA

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
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1.0 Area Specific Background Information

1.1 History of Contamination

The Fire Training Pit (SEAD-26) site is located in the southeastern portion of SEDA. The site is bounded to the east and west by SEDA railroad tracks; on the south by grassland and low brush; and on the north by 7th Street. Vehicular access is provided to the site via a locking gate on 7th Street.

SEAD-26 was in use from 1977 to 1994. The pit was approximately 75 feet in diameter and approximately 3 feet deep. A bentonite liner was installed in the pit in 1982 or 1983. The pit was used one to four times a year for firefighting training during which time various flammable materials were floated on water, ignited, and extinguished. Prior to 1977, the fire training area surrounding the pit may have also been used for fire demonstrations (Parsons, 2004b).

In 2017, the Army launched a site investigation (SI) at three previously investigated sites (SEAD-25, SEAD-26, and SEAD-122E), which were formerly used as fire training areas, to determine whether the sites were impacted with per- and polyfluoroalkyl substances (PFAS) due to the use of Aqueous Film Forming Foam (AFFF). The data from the SI showed that the concentrations of the two primary PFAS constituents, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), were measured in exceedance of the EPA Health Advisory (HA) levels in four of the eight wells sampled at SEAD-26. As a result, SEAD-26 proceeded to an Expanded Site Investigation with a focus on further delineating the PFAS extents in the area (Parsons, 2018). The investigation of SEAD-26 for PFAS is ongoing at this time.

1.2 Initial Response

SEAD-26 is described in three reports before the RI. The first report was the Work Plan for CERCLA ESI of Ten SWMUs written by Parsons Main, Inc. in January 1993. This report detailed the site work and sampling performed under the ESI. The second report was a SWMU Classification Report (Parsons ES, 1994a), which was undertaken to describe and evaluate the SMWU at SEDA. The third was an ESI Report (Parsons ES, 1995), which described a more detailed investigation of SEAD-26. The fieldwork for the ESI was conducted according to the Work Plan for CERCLA ESI of Ten SWMUs. Based on the results of the ESI, a RI Work Plan was prepared and the RI field program was conducted. An RI and FS were completed for SEAD-25/26 in May 1998 and October 1998, respectively.

1.3 Basis for Taking Action

Due to human health risk in soil and groundwater an action was required at SEAD-26 to ensure land use remains protective of site users. SEAD-26 is part of the PID/Warehouse Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

At SEAD-26, the primary contaminants detected included SVOCs and metals in the soil and sediments. In addition, low levels of volatiles were also detected in the groundwater at levels above NYSDEC GA Standards. However, the contaminants that exceeded NYSDEC GA Standards in the groundwater were no longer found in the soil of SEAD-26 due to attenuation of the contaminants in the soil (Parsons ES, 1998).

PFOA and PFOS are being investigated as part of an ESI. These constituents were identified after the ROD was completed. The investigation of SEAD-26 for PFAS is ongoing at this time.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-26 there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors except for the future residential child (HI=1.3) are less than 1.0. The child receptor under the future residential scenario had a HI that slightly exceeded the target value due to dermal contact with groundwater and ingestion of site soils with cPAHs and arsenic.

The results of the ecological risk assessment presented in the RI report (Parsons ES, 1998) concluded that there was negligible risk to the ecosystems of SEAD-26 study area. During the field evaluation, no overt acute toxic impacts were noted. The quantitative ecological risk evaluation determined that a possibility exists for the COPCs (SVOCs) to present a small potential for environmental effects to terrestrial receptors and aquatic-amphibian population due to sediment, soil, and surface water at SEAD-26. At SEAD-26, terrestrial receptors were mostly affected by COPCs in the soil.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "The Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area (SEAD-26) (Parsons, 2004b) required the following remedies and establishment of ICs at SEAD-25 and SEAD-26. The preferred remedy consisted of the following elements:

- Excavate surface soils with total cPAH concentrations above 10 ppm, for an estimated total of 1050 cubic yards;
- Dispose of excavated soils in an appropriate off-site facility;
- Conduct groundwater monitoring until the groundwater cleanup standards are met (approximately 20 years) in order to ensure that the VOCs present do not migrate off-site;
- Establish and maintain groundwater use controls to restrict groundwater access and use until cleanup standards are achieved;
- Complete a review of the selected remedy every five-years (at minimum), in accordance with Section 121(c) of the CERCLA;
- Prepare a contingency plan that may include additional monitoring and air sparging of the plume, as necessary, which would protect against VOC contamination migrating off-site; and
- Remove groundwater use restrictions once groundwater cleanup standards are achieved.
- Establish and maintain LUCs to:
 - Prevent access to or use of the groundwater until cleanup levels are met; and
 - Prevent residential housing, elementary and secondary schools, childcare facilities and playgrounds activities.
 - Maintain the integrity of any current or future remedial or monitoring system.

2.2 Remedy Implementation

The CCR (Parsons, 2006a) for the Fire Training and Demonstration Pad (SEAD-25) and the Fire Training Pit and Area (SEAD-26), describes remedial action activities at SEAD-25 and SEAD-26 and presents sample collection and laboratory test results, record survey data, record (as-built) drawings, and photo documentation to

demonstrate compliance with the requirements set forth by the ROD (Parsons, 2004b) and the Remedial Design Work plan and Design Report (Parsons, 2005a).

The initial excavation at SEAD-26 began on November 9, 2005 and was completed on November 15, 2005. Five distinct areas at SEAD-26 were excavated to a depth of 1 foot bgs, and a total of 828 cubic yards (1,248 tons) of soil was excavated and disposed off-site. Confirmatory soil samples were collected from the perimeter and the base of each of the five excavation areas and were analyzed for cPAHs. The edges of the five excavation areas were smoothed. All confirmatory samples representative of soil remaining on-site met the soil cleanup goals. Additional remediation of soils at SEAD-26 was not required.

SEAD-25 and SEAD-26 Soil Removal Cleanup Goals		
Analyte	Cleanup Goal (µg/Kg)	Goal Met?
Volatile Organic Compounds		
1,1,1-Trichloroethane	800	Yes
1,1-Dichloroethane	200	Yes
Benzene	60	Yes
Chloroform	300	Yes
Ethyl Benzene	5,500	Yes
Toluene	1,500	Yes
Trichloroethene	700	Yes
Xylene (total)	1,200	Yes
Semivolatile Organic Compounds		
2-Methylnaphthalene	36,400	Yes
Naphthalene	13,000	Yes
Phenol	30	Yes
cPAHs (SEAD-26 only)		
cPAHs (BTE)*	10	Yes

*cPAHs were only sampled at SEAD-26 and were compared to the Benzo(a)pyrene Toxicity Equivalence.

NYSDEC TAGM values from Technical and Administrative Guidance Memorandum HWR-92-4046, January 24, 1994

LTM was conducted beginning in 2007; however, groundwater monitoring at SEAD-26 was terminated by the Army, with the approval of the USEPA and the NYSDEC, after the first year of sampling and analysis indicated that no COCs were present in the groundwater at concentrations above defined cleanup goals.

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") (USACE, 2006) implemented land use controls for the "PID/Warehouse Area. Addendum 1 to the SEAD LUC RD added SEAD 25, and 26 in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the PID/Warehousing Area including properties that had been previously retained (including SEAD-26) by the Army in 2008 was recorded in the Seneca County Clerk's office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-26 is presented in **Table I.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-26 as part of the "PID Retained Parcels" was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehousing Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table I.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/ Warehousing Area	Prohibit residential housing, elementary and secondary schools, child care facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
Groundwater	Yes	Yes	SEAD PID/ Warehousing Area	Prevent access or use of the groundwater until New York States GA ground water Standards are achieved.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.
Monitoring Well Network	Yes	Yes	SEAD-26	Maintain the integrity of any current or future remedial or monitoring system.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table H.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table H.3.2**).

Table H.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-26	Protective	The remedy implemented for PID Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table H.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-26	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020.	N/A
SEAD-26	N/A	Based on EPA request, the Army has agreed to sample for perfluoroalkyl substances [PFAS] at sites where Aqueous Film Forming Foams (AFFF) (e.g., firefighting foams) may have been used. As part of this program, future sampling for PFAS at SEAD-26 is expected. A sampling plan for SEAD-26 will be documented in a future report.	Completed	In 2017, the Army launched a site investigation (SI) at three previously investigated sites (SEAD-25, SEAD-26, and SEAD-122E). SEAD-26 was reopened and proceeded to an Expanded Site Investigation with a focus on further delineating the PFAS extents in the area (Parsons, 2018). The investigation of SEAD-26 for PFAS is ongoing at this time.	Started 2017, ongoing.

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-26 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-26.
- No apparent access to or use of groundwater observed at SEAD-26.

The selected remedy is still protective of public health and the environment.

4.4 Interviews

Since SEAD-26 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-26.

4.5 Institutional Controls Verification

The LUCS, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-26 currently protects human health and the environment from contaminants identified in the ROD because:

- contaminated soils and sediments previously identified at SEAD-25 and SEAD-26 to contain aromatic VOCs and cPAHs have been excavated and disposed at licensed and approved off-site landfills where they are being managed in controlled and monitored environments;
- the open excavations were allowed to backfill with contaminated groundwater from the immediate vicinity of the excavation sites, and then this water was pumped from the excavation site, placed into storage vessels, sampled and analyzed, approved for disposal and then disposed at a wastewater treatment plant where treatment was performed in accordance with applicable environmental limitations;

- the open excavations were then backfilled with approved soil meeting required cleanup goals, and then a vegetative cover over the disturbed site was re-established;
- a post-remedial action groundwater monitoring program was also implemented at SEAD-26 (Fire Training Area Pit), and data collected during the first year of quarterly monitoring indicated that contaminants identified as being of concern in the groundwater prior to the remedial action were no longer present at concentrations in excess of groundwater standards. As a result of this finding, the Army requested regulatory approval to terminate groundwater monitoring at SEAD-26; this request was approved by both the USEPA and the NYSDEC; and
- access to and use of groundwater at both AOCs continues to be restricted.

The selected remedy is still protective of human health and the environment with respect to contaminants identified in the ROD. The investigation of SEAD-26 for PFAS is ongoing at this time. However, groundwater restrictions are in place at the site and will continue to remain in place while PFAS investigations continue. The investigation shows early indicators of potential issues related to PFAS in groundwater at SEAD-26. No opportunities for optimization or early indicators of potential issues have been identified for SEAD-26.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy **are still valid**.
- There have been **no changes** in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.
- Following a year of quarterly monitoring, USEPA, NYSDEC, and the Army agreed that LTM sampling at SEAD-26 would terminate in 2006. As a result, **the cleanup levels and RAOs from the RODs are considered still valid**.

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

The investigation of SEAD-26 for PFAS is ongoing at this time. The investigation shows early indicators of potential issues related to PFAS in groundwater at SEAD-26. The remedy in place is for the contaminants identified in the ROD, which did not include PFAS as this contaminant had not been known at the time of the ROD. Further investigation is underway to determine if a remedy is needed for PFAS at this site.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-26 and the PID Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No new issues were identified during this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and the annual frequency of periodic reviews; and
- Continue ongoing PFAS investigation.

7.0 Protectiveness Statement

The remedy implemented for PID Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG



\\mabos07fs01\PI\Projects\Huntsville WERS\Seneca LTM, TO 23\10 - Five Year Review\Draft FYR 2020\03 Attachment 1\Att I-1 SEAD-26_Aerial_n_Ground_Photos.ppt

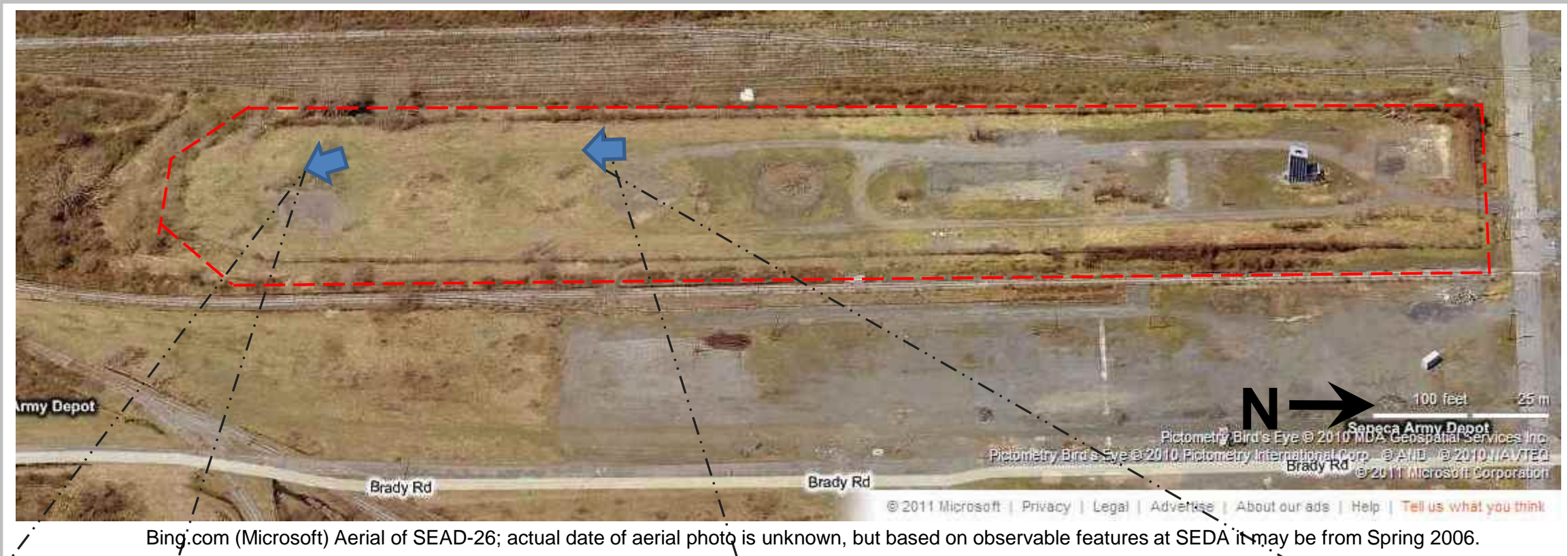
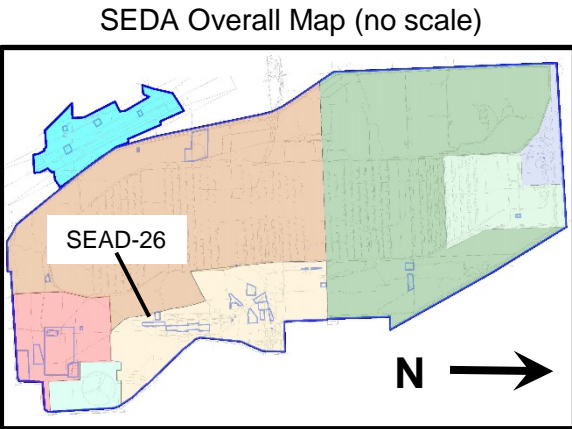
Attachment I-1
Five-Year Review - Site Visit Photo Log
SEAD-26 Fire Training Pit and Area

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-26, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

SEAD-26 is located within the PID/Warehouse Area Parcel.

 Approximate Site Boundary
 Photo Viewing Direction



2020 Site Visit Photo 1



Status as of: 7/22/2020
Description: SEAD-26
Photo ID: IMG_3829.jpg

2020 Site Visit Photo 2



Status as of: 7/22/2020
Description: SEAD-26
Photo ID: IMG_3832.jpg

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX J

SEAD-27: BUILDING 360, STEAM JENNY PIT

APPENDIX J: SEAD-27 BUILDING 360, STEAM JENNY PIT

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

Building 360 is located in the eastern-central portion of the Depot. The building was used for refurbishing and reconstructing old equipment. Lathes, presses, and metal-working machines were degreased with steam, high-pressure water and detergents in the cleaning area. No solvent materials were ever used in the cleaning operation. After steam cleaning, the equipment was moved to other portions of Building 360 for rehabilitation.

The Steam Jenny Accumulation Pit (SEAD-27) is located within a high bay area of Building 360 that is located near the north end of the building and is separated from the remainder of the building by cinder block walls. The steam cleaning waste tank is a belowground, concrete tank above which track-mounted cars loaded with equipment requiring cleaning can be positioned and steam cleaned. Use of the Steam Cleaning Waste Tank began in 1976 and cleaning operations ceased on January 2, 1990.

1.2 Initial Response

A closure investigation was performed under the RCRA program in July of 1995 and the determination was made that the accumulation pit in Building 360 satisfied the RCRA requirements for clean closure (Parsons, 2004a). More details of these activities can be found in the Building 360 Closure report. The results of the chemical analyses can be found in the Mini Risk Assessment - Appendix B, Tables B-1 and B-2 (Parsons, 2002a) for soil and groundwater, respectively. Monitoring of the water elevation in the waste tank and the removal of accumulated water (if present) ceased once RCRA closure was completed and certified.

1.3 Basis for Taking Action

Due to human health risk in groundwater an action was required at SEAD-27 to ensure land use remains protective of site users. SEAD-27 is part of the PID/Warehousing Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

The RCRA Closure Work Plan required testing of all potential contaminants found at the site during the operation of the Steam Jenny Tank. Therefore, soil and groundwater samples were collected and analyzed for VOCs, PCBs, cadmium, chromium, and lead. Groundwater samples were also analyzed for SVOCs. No compounds of concern were detected in SEAD-27 soils. Acetone and naphthalene were detected in groundwater; however, at the time no NYS Class GA groundwater quality standards existed for these compounds. If the site were to be used as a residential area, the human health risk assessment determined that a LUC on groundwater use would be necessary.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-27 under an industrial scenario there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors except for the day care center child (HI=3) are less than 1.0. Maximum site concentrations were used as the exposure EPCs for SEAD-27. The elevated HI for the day care center child was due solely to ingestion of groundwater, with naphthalene, acetone and chromium being the significant risk contributors.

A risk assessment was also conducted for a residential scenario. The total cancer risk from all exposure routes was within or below the USEPA target range for both receptors (adult resident and child resident). The total non-cancer HI from all exposure routes exceeded one for the adult resident (HI=2) and the child resident (HI=7). The

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-27 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-27.
- No apparent access to or use of groundwater were observed at SEAD-27.

4.4 Interviews

Since SEAD-27 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-27.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-27 is currently protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the AOC, within the PID Area of the former Depot has been implemented and is currently being maintained, monitored and reported upon periodically; and
- a second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds for all land within the PID Area

has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment. SEAD-27 is currently monitored and reported annually. No significant changes in site conditions have been noted over the last two five-year reviews; therefore, optimization may be appropriate, and a lesser frequency of monitoring and reporting should be considered.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are **still valid**.
- There have been **no changes** in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Table J.5.1 summarizes the change in the screening levels listed in the Final ROD, which are for groundwater. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The screening values from the ROD, which are for groundwater, are considered still valid. Since the cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, the cleanup standards remain protective of human health.

Table J.5.1 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Groundwater Cleanup Objectives (Class GA) ⁽²⁾		
VOCs						
1,1-Dichloroethane	5	5	1000	100	Y	Y
1,1,2,2-Tetrachloroethane	5	5.0	11	1	Y	Y
Acetone	--	--	1.1	1	Y	Y
Total Xylenes	5	5.0	11	1	Y	Y
1,1-Dichloroethane	5	5	1000	100	Y	Y
SVOCs						
Methylnaphthalene	--	--	110	1	Y	Y
Naphthalene	--	--	1,000	12	Y	Y
Metals						
Chromium	50	50	800	30	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal groundwater and surface water screening values are EPA Regional Screening Levels (RSL) for tapwater based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-27 and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Collect new groundwater samples and perform a site-specific risk assessment to determine if Class GA standards can be met in groundwater at SEAD-27.

7.0 Protectiveness Statement

The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment J-1
Five-Year Review - Site Visit Photo Log
SEAD-27 Building 360, Steam Jenny Pit

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

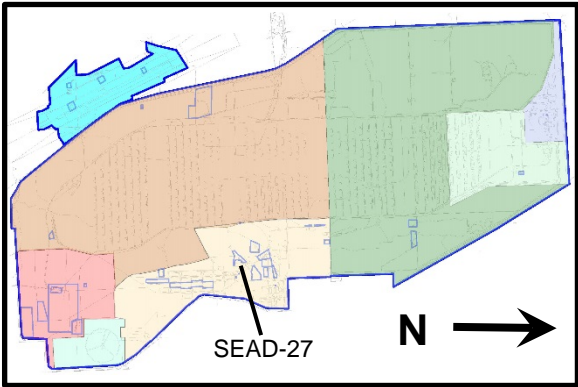
LOCATION: SEAD-27, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1



Status as of: 7/22/2020
Description: SEAD-27
Photo ID: IMG_3846.jpg

SEDA Overall Map (no scale)



SEAD-27 is located within the PID/
Warehouse Area Parcel.



Bing.com (Microsoft) Aerial of SEAD-27 actual date
of aerial photo is unknown but based on observable
features at SEDA its from Spring 2010.



Bing.com (Microsoft) Birds Eye Aerial of SEAD-27; actual
date of aerial photo is unknown but based on observable
features at SEDA it may be from Spring 2007.

- Approximate Site Boundary
- Photo Viewing Direction

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX K

SEAD-64A: GARBAGE DISPOSAL AREA

APPENDIX K: SEAD-64A GARBAGE DISPOSAL AREA

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5.2	Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?.....	K-5
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6.0	ISSUES, RECOMMENDATIONS AND FOLLOW-UP ACTIONS.....	K-10
7.0	PROTECTIVENESS STATEMENT	K-10

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-64A is located in the east-central portion of SEDA. The site is bounded to the north by a square storage pad, to the east by the SEDA railroad tracks beyond which is the area where the Fire Training site (SEAD-26) is located, and to the south and west by undeveloped grassland. SEAD-64A was used during the period from 1974 to 1979 when the on-site solid waste incinerator was not in operation. The types of wastes disposed at the site are suspected to be primarily household items (Parsons, 2002a).

1.2 Initial Response

A field investigation was conducted at SEAD-64A beginning in February 1994 as part of the ESI for Seven Low Priority AOCs (Parsons ES, 1996). A geophysical survey was conducted, and soil and groundwater samples were collected and submitted for analysis.

1.3 Basis for Taking Action

Because of the human health risk due to soil and groundwater an action was required at SEAD-64A to ensure land use remains protective of site users. SEAD-64A is part of the PID/Warehousing Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas. The potential future hazards or risks identified at SEAD-64A is either suitable for the defined use, or associated with compounds that are present at concentrations that are equal to or less than naturally occurring levels.

1.3.1 CONTAMINANTS OF CONCERN

During the ESI sampling, aluminum, iron, manganese, and thallium were detected in groundwater at levels that exceeded their respective comparative criteria levels. Results are summarized in the ROD (Parsons, 2004a).

Several cPAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenz[a,h]anthracene, indeno[1,2,3-cd]pyrene), phenol, and several metals (aluminum, arsenic, chromium, copper, lead, potassium, and zinc) were detected at levels that exceeded applicable TAGM 4046 soil cleanup objectives in one or more soil samples. In groundwater, aluminum, iron, manganese, and thallium were detected at levels that exceeded their respective comparative criteria levels (Parsons, 2004a).

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-64A under a warehouse land use scenario the human health cancer risks are within the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0.

In addition, risks to residential receptors (i.e., residential adult and residential child) have been evaluated based on the 1994 soil and groundwater data. The total cancer risks are below or at the USEPA upper target limit for all receptors. The total non-cancer HI from all exposure routes are equal to or greater than 1.0 for residential receptors. Groundwater ingestion is the only exposure route that would result in significant risk to residential receptors; however, the non-cancer hazard indices are overstated as the metal concentrations in groundwater were elevated due to the elevated turbidities in the groundwater samples.

The risk assessments was conducted for SEAD-64A based on the 1994 soil and groundwater data. The results of total cancer risk and total non-cancer hazard index can be found in Table 3.5-10 of the Final Decision Document - Mini Risk Assessment, Seneca Army Depot Activity (Parsons, 2002a).

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

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas” (Parsons, 2004a) required the establishment of the following ICs. The elements that composed the remedy included:

- Establishing, maintaining, monitoring, and reporting on a LUC that prohibits residential housing, elementary and secondary schools, childcare facilities and playgrounds until unrestricted use and unlimited exposure criteria are attained within the AOCs;
- Establishing, maintaining, monitoring, and reporting on a second LUC that prohibits access to and use of groundwater at the AOCs until its quality allows for unrestricted use and unlimited exposures; and
- Establishing, maintaining, monitoring, and reporting on a third LUC prohibiting digging within the bounds of the site will be established.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) implemented land use controls for the entire SEAD PID/Warehouse Area.

An Environmental Easement for the PID/Warehousing Area was recorded in the Seneca County Clerk’s office on March 4, 2008. A summary of the institutional controls currently implemented at SEAD-64A is presented in **Table K.2.1** based on the data and risk presented in the ROD and LUC RD .

SEAD-64A was transferred to the SCIDA with a Quitclaim Deed executed on September 30, 2005. The PID/Warehouse Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehousing Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table K.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	No ⁽¹⁾	Yes ⁽²⁾	SEAD PID/ Warehousing Area	Prevent residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Groundwater	Yes	Yes	SEAD PID/ Warehousing Area	Prevent access to or use of the groundwater until NYS Class GA Groundwater Standards are met.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Subsurface	Yes	Yes	SEAD 64A Controlled Property	Prevent unauthorized excavation	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning

Note:

(1) Although cPAH levels that exceeded applicable TAGM 4046 soil cleanup objectives were identified in one or more soil samples, no risks associated with soil were identified. It was determined that groundwater ingestion is the only exposure route that would result in significant risk to residential receptors and SEAD-64A would not pose significant risk to potential ecological receptors.

(2) SEAD-64A is located within the PID/Warehouse Area where an area-wide IC is present. The IC prohibits use or access to groundwater and prohibits land use for residential housing, elementary and secondary schools, childcare facilities and playground activities. Although no risk was identified within the soil, this site is physically located within the boundary of the PID/Warehouse area, and therefore, the ICs are applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table K.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table K.3.2**).

Table K.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-64A	Protective	The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table K.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Description	Status	Completion Date (if applicable)
SEAD-64A	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.		N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data was reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-64A was inspected on July 22, 2020 to assess whether required LUCs imposed by approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-64A.

- No apparent use of groundwater was observed.
- No visual indications of digging or excavation were observed.

4.4 Interviews

Since SEAD-64A is uninhabited and unoccupied, no interviews were conducted during the Five-Year Review process for SEAD-64A

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at the SEAD-64A is currently protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the PID Warehousing Area of the former Depot has been implemented and is currently being maintained, monitored and reported upon periodically;
- a second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds for all land within the PID Area has been implemented and is currently being maintained, monitored, and reported upon periodically; and
- a third LUC that prevents unauthorized excavation at the SEAD 64A site alone has been implemented, monitored, and periodically reported upon.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

Some toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6

NYCRR) Part 375-6 (NYSDEC, 2006) values. The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. The revised toxicity values are not yet reflected in the NYSDEC SCOs. **Tables K.5.1** and **K.5.2** summarizes the change in the screening levels and potential cleanup levels listed as ARARs or TBCs in the Final ROD.

Of the nine contaminants in soil and one in groundwater with screening levels less than those presented in the ROD, only two (indeno(1,2,3-cd)pyrene and naphthalene) in soil and manganese in groundwater are documented to be present at concentrations greater than the new screening levels.

The exposure assumptions and toxicity values that were used in the HHRA to estimate the potential risk and hazards to human health from exposure to the contaminants followed the general practice at the time that the risk assessment was performed. Although toxicity values may have changed, the risk assessment process that was used is still consistent with current practices, and the conclusions remain valid.

Table K.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
2-Methylnaphthalene	36.4	24	ROD did not establish cleanup levels		Y	Y
Acenaphthene	50	360			Y	N
Acenaphthylene	41	NA			N	N
Anthracene	50	1800			Y	N
Benzo(a)anthracene	0.224	1.1			Y	N
Benzo(a)pyrene	0.061	0.11			Y	N
Benzo(b)fluoranthene	1.1	1.1			N	N
Benzo(g,h,i)perylene	50	NA			N	N
Benzo(k)fluoranthene	1.1	11			Y	N
bis(2-ethylhexyl)phthalate	50	39			Y	Y
Carbazole	NA	NA			N	N
Chrysene	0.4	110			Y	N
Di-n-butylphthalate	8.1	630			Y	N
Dibenz(a,h)anthracene	0.014	0.11			Y	N
Dibenzofuran	6.2	7.8			Y	N
Fluoranthene	50	240			Y	N
Fluorene	50	240			Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1			Y	Y
Naphthalene	13	2			Y	Y
Phenanthrene	50	NA			N	N
Phenol	0.03	1900			Y	N
Pyrene	50	180			Y	N
VOCs						
Benzene	0.06	1.2	ROD did not establish cleanup levels		Y	N
Toluene	1.5	490			Y	N
Trichloroethene	0.7	0.41			Y	Y

Table K.5.1 Comparison of Toxicity Data and Cleanup Levels (continued)

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
Pesticides/PCBs						
4,4'-DDD	2.9	0.19	ROD did not establish cleanup levels		Y	Y
4,4'-DDE	2.1	2.0			Y	Y
4,4'-DDT	2.1	1.9			Y	Y
Alpha-chlordane	NA	1.7			Y	Y
Dieldrin	0.044	0.034			Y	Y
Endosulfan I	0.9	47			Y	N
Endosulfan sulfate	1	38			Y	N
Heptachlor epoxide	0.02	0.07			Y	N
Metals						
Lead	24.8	400	ROD did not establish cleanup levels		Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table K.5.2 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
Metals						
Manganese	50	43	ROD did not establish cleanup levels		Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal screening levels are from EPA Regional Screening Levels (RSL) for Tap Water based on a target HQ = 0.1; updated May 2020. State groundwater cleanup goals are from 6 CRR-NY 703.5 Class GA; Verified 9/21/2020.

"--" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-64A and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-visit the conclusions of the risk assessment to demonstrate that UU/UE conditions can be met in soil at SEAD-64A.
- Collect new groundwater samples and perform a site-specific risk assessment to determine if Class GA standards can be met in groundwater at SEAD-64A.

7.0 Protectiveness Statement

The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment K-1
Five-Year Review - Site Visit Photo Log
SEAD-64A Garbage Disposal Area

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-64A, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1



Status as of: 7/22/2020
Description: SEAD-64A

Photo ID: IMG_3825.jpg

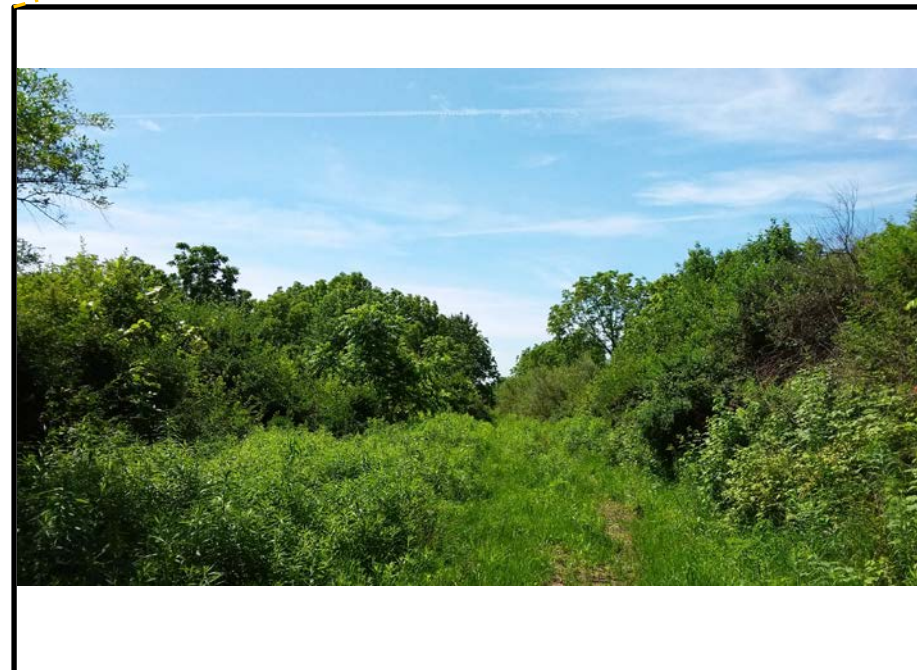
2020 Site Visit Photo 2



Status as of: 7/22/2020
Description: SEAD-64A

Photo ID: IMG_3827.jpg

2019 Site Visit Photo 3



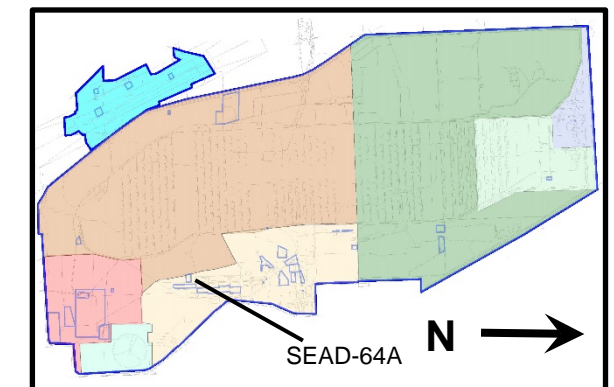
Status as of: 6/28/2019
Description: SEAD-64A

Photo ID: 20190628_110859.jpg



Bing.com (Microsoft) Birds Eye Aerial of SEAD-64A; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2007.

SEDA Overall Map (no scale)



SEAD-64A is located within the
PID/Warehouse Area Parcel.



Approximate Site
Boundary



Photo Viewing
Direction

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name		Title	Date
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name		Title	Date
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX L

SEAD-66: PESTICIDE STORAGE AREA

APPENDIX L: SEAD-66 PESTICIDE STORAGE NEAR BUILDING 5 AND 6

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

Pesticides were reportedly stored in a structure located in the vicinity of Buildings 5 and 6 during the Army's active use of the SEDA. The Pesticide Storage Area near Buildings 5 and 6 (SEAD-66) is located in the east-central portion of SEDA. The exact location of the pesticide storage area is unknown.

1.2 Initial Response

A Limited Sampling Program was performed at SEAD-66 in December 1993. Surface soil samples collected from SEAD-66 were analyzed for Target Compound List pesticides according to the NYSDEC Contract Laboratory Program (CLP) Statement of Work (SOW). Results of the chemical analyses for soil can be found in the Final Decision Document – Mini Risk Assessment (Appendix Q, Table Q-1) (Parsons, 2002a).

1.3 Basis for Taking Action

Due to potential human health risk in groundwater which was not fully evaluated an action was required at SEAD-66 to ensure land use remains protective of site users. SEAD-66 is part of the PID/Warehousing Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

Nine soil samples were collected from SEAD-66. Two pesticides, 4,4'-DDE and 4,4'-DDT were both detected at levels exceeding TAGMs in sample SS66-8 that was taken from a depth of 0-0.2 ft. The soil data are presented in the ROD (Parsons, 2004a). No groundwater samples were collected.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-66 under an industrial scenario the human health cancer risks are within the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0.

A risk assessment was also conducted for a residential scenario. The total cancer risk from evaluated exposure routes is within or below the USEPA target range for the potential adult and child resident receptors. The total non-cancer HI exceeds 1.0 for the child resident. The elevated HI for the child receptor is due solely to ingestion of soil with 4,4'-DDT being the significant risk contributor.

However, the maximum concentration of 4,4'-DDT is an isolated outlier, suggesting that the value is indicative of an isolated "hot spot" of contamination instead of a systemic release. Therefore, based on these results the actual exposure to 4,4'-DDT would be much lower than was used in the risk assessment, as it is unlikely that the child receptor would be exposed only to a small section of the site containing only the highest concentrations. Therefore, 4,4'-DDT is not considered a COC in soil at this site for this exposure scenario.

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

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas” (Parsons, 2004a) required the establishment of the following ICs. The elements that composed the remedy included:

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

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) implemented land use controls for the entire SEAD PID/Warehouse Area.

An Environmental Easement for the PID/Warehousing Area was recorded in the Seneca County Clerk’s office on March 4, 2008. A summary of the institutional controls currently implemented at SEAD-66 is presented in **Table L.2.1** based on the data and risk presented in the ROD and LUC RD

SEAD-66 was transferred to the SCIDA with a Quitclaim Deed executed on September 30, 2005. The PID/Warehouse Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement. .

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table L.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	No ⁽¹⁾	Yes ⁽³⁾	SEAD PID/ Warehousing Area	Restrict site use.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Groundwater	Un-known ⁽²⁾	Yes ⁽³⁾	SEAD PID/ Warehousing Area	Restrict use of groundwater.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

Note:

(1) Results from the risk assessment determined that 4,4'-DDT is not considered a COC in soil at SEAD-66 (Parsons, 2004a).

(2) Groundwater samples were not collected and therefore, risk to human health from groundwater was not evaluated.

(3) SEAD-66 is located within the PID/Warehouse Area where an area-wide IC is present. This IC prohibits use or access to groundwater and prohibits land use for residential housing, elementary and secondary schools, childcare facilities and playground activities. Although no risk was identified within the soil and risk is unknown with respect to groundwater, this site is physically located within the boundary of the PID/Warehouse area, and therefore, the ICs are applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table L.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table L.3.2**).

Table L.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-66	Protective	The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table L.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-66	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data was reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-66 was inspected between on July 22, 2020 to assess whether required LUCs imposed by approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-66.
- No apparent access to or use of groundwater were observed.

The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEAD-66 is uninhabited and unoccupied, no interviews were conducted during the Five-Year Review process for SEAD-66.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at the SEAD-66 is currently protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the PID/Warehousing Area of the former Depot has been implemented and is currently being maintained, monitored and reported upon periodically; and
- a second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds for all land within the PID/Warehousing Area has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.

- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

Some toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Table L.5.1 summarizes the change in the screening levels and potential cleanup levels listed as ARARs or TBCs in the Final ROD. Of the four contaminants in soil with screening levels less than those presented in the ROD, three (4,4'-DDD, 4,4'-DDE, and 4,4'-DDT) are documented to be present at concentrations greater than the new screening levels.

The exposure assumptions and toxicity values that were used in the HHRA to estimate the potential risk and hazards to human health from exposure to the contaminants followed the general practice at the time that the risk assessment was performed. Although toxicity values may have changed, the risk assessment process that was used is still consistent with current practices, and the conclusions remain valid.

Table L.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
Pesticides/PCBs						
4,4'-DDD	2.9	0.19	ROD did not establish cleanup levels		Y	Y
4,4'-DDE	2.1	2.0			Y	Y
4,4'-DDT	2.1	1.9			Y	Y
Alpha-chlordane	–	1.7			Y	Y
Aroclor-1254	1	0.12			Y	Y
Endosulfan I	0.9	47			Y	N
Endosulfan II	0.9	47			Y	N
gamma-BHC (Lindane)	0.06	0.57			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-66 and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-visit the conclusions of the risk assessment to demonstrate that UU/UE conditions can be met in soil at SEAD-66.
- If UU/UE can be met in soil, collect groundwater samples to determine if Class GA standards can be met in groundwater at SEAD-66.

7.0 Protectiveness Statement

The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment L-1
Five-Year Review - Site Visit Photo Log
SEAD-66 Pesticide Storage near Buildings 5 and 6

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

2020 Site Visit Photo 1



Status as of: 7/22/2020
Description: SEAD-66

Photo ID: IMG_3881.jpg

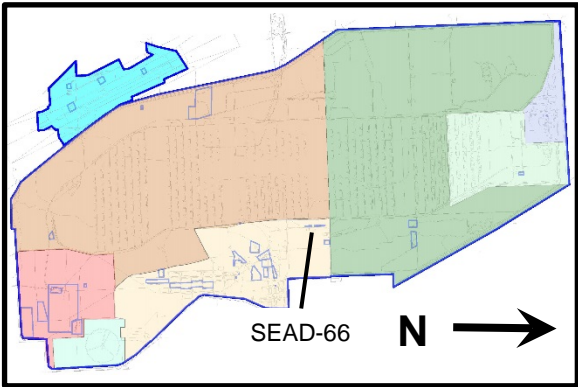


Approximate Site
Boundary



Photo Viewing
Direction

SEDA Overall Map (no scale)



SEAD-66 is located within the
PID/Warehouse Area Parcel.

LOCATION: SEAD-66, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 2



Status as of: 7/22/2020
Description: SEAD-66

Photo ID: IMG_3883.jpg



Bing.com (Microsoft) Birds Eye Aerial of SEAD-66; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2007.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX M

SEAD-39: BUILDING 121 BOILER BLOWDOWN PIT

APPENDIX M: SEAD-39 BUILDING 121 BOILER BLOWDOWN LEACH PIT

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

Building 121 is a boiler plant located in the administrative area of the former SEDA. SEAD-39 is the historic blowdown leaching area that was located exterior to, and immediately north of, Building 121. Use of the leaching area was terminated in 1979 or 1980 when boiler blowdown points within the Depot were connected to a sanitary sewer system (Parsons, 2007a).

1.2 Initial Response

Site work performed at SEAD-39 included a Limited Sampling Plan in 1993 and 1994 and a Time Critical Removal Action (TCRA) conducted in 2003, which included confirmatory sampling. The TCRA included excavating thirty-four (34) tons of soil at SEAD-39 to a depth of 1-foot in August 2003 (Weston, 2004). The excavated area was backfilled and returned to its original grade. The north end of Building 121 and two paved roads helped define and limit the border of the excavation.

Following the TCRA excavation, surface soil samples were collected for chemical analysis of Volatile Organic Compounds (VOCs), PAHs, and metals, but none of the measured concentrations exceeded NYSDEC's TAGM soil cleanup objectives. Average concentrations of metals detected at this AOC were at levels consistent with SEDA site-wide background data. Based on the confirmatory and delineation samples, it was determined that further excavation would not be necessary at SEAD-39 (Parsons, 2002b).

Groundwater samples were not collected at SEAD-39.

1.3 Basis for Taking Action

Groundwater samples were not collected and therefore, risk to human health from groundwater was not evaluated. Due to human health risk in soil and potential risk in groundwater, which is unknown, an action was required at SEAD-39 to ensure land use remains protective of site users. SEAD-39 is part of the PID/Warehouse Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

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

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-39 the human health cancer risks were within or at the upper limit of the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0. The human health risk at SEAD-39 was evaluated using the 95th UCL value for each COC determined from the 15 sample confirmatory soil sample data set as the EPCs. These EPCs were then evaluated in reasonable maximum exposure (RME) scenario for receptors including an industrial worker, a construction worker, an adolescent trespasser, and a daycare center child. The results of the risk assessment indicate that HIs (non-carcinogenic risks) to all industrial receptors were below the USEPA acceptable limits (i.e., HI of 1 or less). The cancer risk for the industrial worker, construction worker, and adolescent trespasser were

each in USEPA's targeted cancer risk range of 10^{-4} - 10^{-6} or less, while the cancer risk determined for the daycare center child was 1×10^{-4} .

2.0 Remedial Actions

2.1 Remedy Selection

The ROD (Parsons, 2007a) titled, "Seventeen No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E)" for seventeen sites includes LUCs as part of the remedy. This ROD refers to the LUCs documented in the "Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas" (Parsons, 2004a) as being applied to the SEAD-39 AOC. These LUCs include:

- Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities; and
- Prohibit access to or use of groundwater until Class GA Groundwater Standards are met.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehouse Area. Addendum 2 to the SEAD LUC RD added SEAD 39, 40, and 67.

An Environmental Easement for the PID/Warehousing Area including properties that had been previously retained (including SEAD-39) by the Army in 2008 was recorded in the Seneca County Clerk's office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-39 is presented in **Table M.2.1** based on the data and risk presented in the ROD and the LUC ROD.

SEAD-39 as part of the "PID Retained Parcels" was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehouse Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table M.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	SEAD PID/Warehousing Area	Restrict site use.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Groundwater	Un-known ⁽¹⁾	Yes ⁽²⁾	SEAD PID/Warehousing Area	Restrict use of groundwater.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

Note:

(1) Groundwater samples were not collected and therefore, risk to human health from groundwater was not evaluated.

(2) SEAD-39 is located within the PID/Warehouse Area where an area-wide IC is present. This IC prohibits use or access to groundwater and prohibits land use for residential housing, elementary and secondary schools, childcare facilities and playground activities. Although risk is unknown with respect to groundwater, this site is physically located within the boundary of the PID/Warehouse area, and therefore, the ICs are applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table M.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table M.3.2**).

Table M.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-39	Protective	The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table M.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Description	Implementation Status	Completion Date (if applicable)
SEAD-39	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater was observed.		N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-39 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-39.
- No apparent access to or use of groundwater were observed at SEAD-39.

The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEAD-39 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-39.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. The exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy are still valid. Remedial Actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LTM Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-39 is currently protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the AOCs, within the PID Area of the former Depot has been implemented and is currently being maintained, monitored and reported upon periodically; and
- a second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds for all land within the PID Area has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehousing Area of the former SEDA.
- The toxicity data and cleanup levels have changed from those used at the time of the remedy.

Summary of toxicity data and cleanup level changes:

Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a). Arsenic is an exception and the Table 375-6.8 unrestricted value is lower (more restrictive) than the TAGM #4046.

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of increasing the values of the cleanup levels for most of these PAHs, therefore the cleanup goals are less restrictive, with the exception of naphthalene. **Table M.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD. A review of the risk assessment results presented in the ROD show that PAHs contributed to 86% of the cancer risk to the on-site daycare child; since the screening levels for these PAHs are currently less restrictive by at least 10-fold, the risk due to PAHs will be significantly reduced. The screening

level for arsenic is more restrictive, but since that accounts for only 14% of the risk reported in the ROD for this scenario, the screening level change will likely not increase the overall risk when combined with the PAHs.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid**. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, the cleanup standards remain protective of human health.

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-39 and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

Table M.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Benzo(a)anthracene	0.224	1.1	ROD did not establish cleanup levels.		Y	N
Benzo(a)pyrene	0.061	0.11			Y	N
Benzo(b)fluoranthene	1.1	1.1			N	N
Benzo(k)fluoranthene	1.1	11			Y	N
Chrysene	0.4	110			Y	N
Dibenz(a,h)anthracene	0.014	0.11			Y	N
Fluoranthene	50	240			Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1			Y	N
Naphthalene	3.7	2.0			Y	Y
Phenanthrene	50	–			Y	N
Pyrene	50	180			Y	N
Metals						
Arsenic	7.5	0.68	ROD did not establish cleanup levels.		Y	Y
Barium	300	1,500			Y	N
Mercury	0.13	1.1			Y	N
Silver	0.763	39			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD.

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-39.
- If UU/UE can be met in soil, collect groundwater samples to determine if Class GA standards can be met in groundwater at SEAD-39.

7.0 Protectiveness Statement

The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

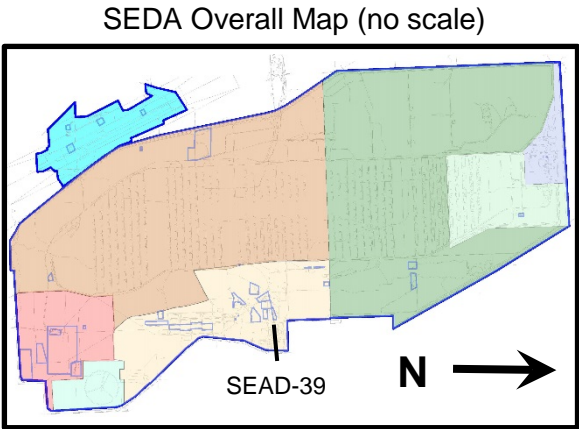
ATTACHMENT 1

PHOTO LOG

Attachment M-1
Five-Year Review - Site Visit Photo Log
SEAD-39 Building 121 Boiler Plant Blowdown Leach Pit

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-39, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

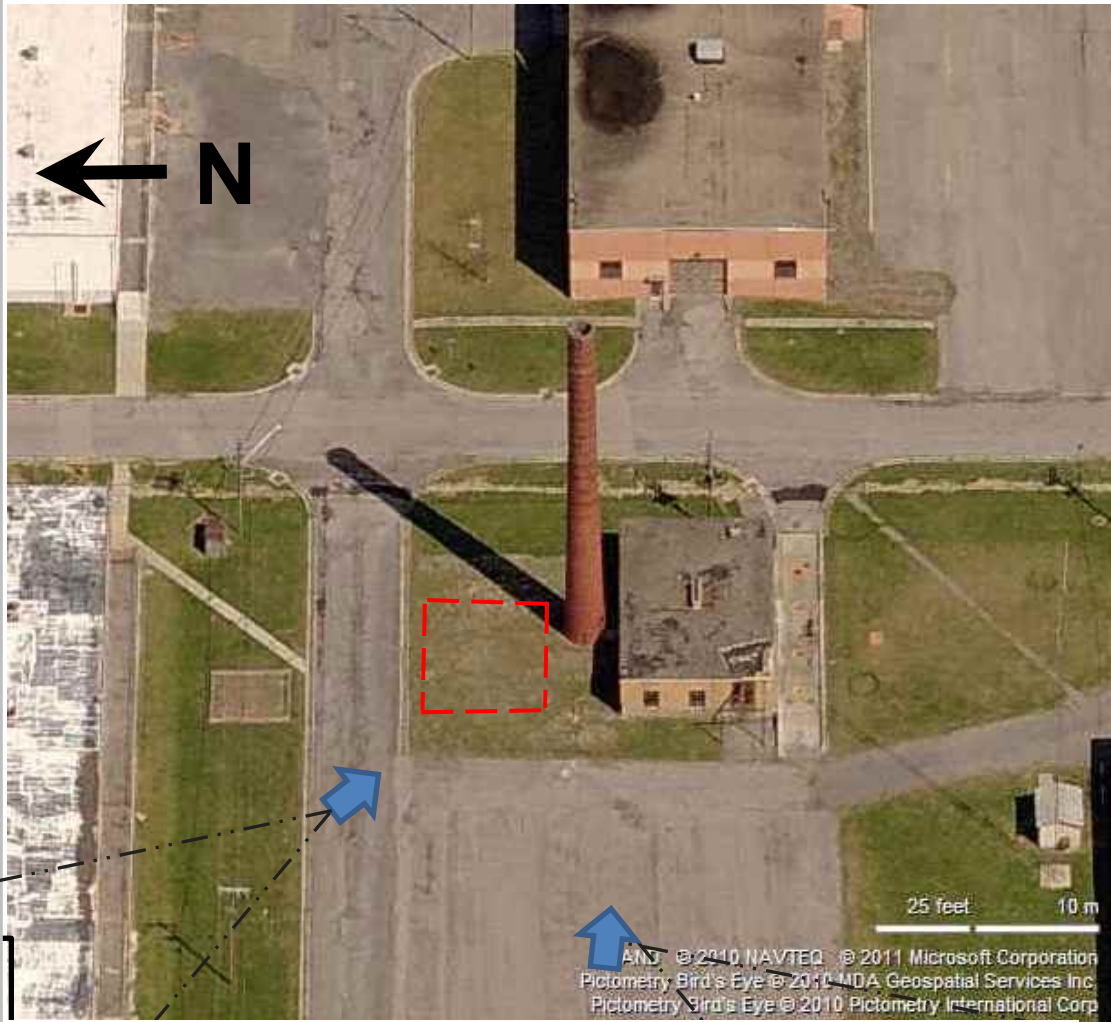


SEAD-39 is located within the
PID/Warehouse Area Parcel.

2020 Site Visit Photo 1



Status as of: 7/22/2020 Photo ID: IMG_3870.jpg
Description: SEAD-39 blowdown pit in foreground



Bing.com (Microsoft) Aerial of SEAD-39; actual date of aerial photo is unknown but based on observable features at SEDA it may be from Spring 2006.

2020 Site Visit Photo 2



Status as of: 7/22/2020 Photo ID:IMG_3873.jpg
Description: SEAD-39, area of blowdown leaching pit.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX N

SEAD-40: BUILDING 319 BOILER BLOWDOWN LEACH PIT

APPENDIX N: SEAD-40 BUILDING 319 BOILER BLOWDOWN LEACH PIT

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-40 is a boiler blowdown leach pit located north of Building 319, a boiler plant located on 1st Street in the east-central portion of the Depot. The historic blowdown leach pit that constitutes SEAD-40 was located in a drainage ditch next to the railroad tracks located north of Building 319. A drainage pipe originating in Building 319 is suspected to have carried blowdown liquids to the drainage ditch, where they were released and allowed to flow onto the ground. The drainage ditch originated at the mouth of the drainage pipe approximately 30 ft. northeast of Building 319 (Parsons, 2007a).

1.2 Initial Response

The investigative work at SEAD-40 included a Limited Sampling Plan in 1993 and 1994 followed by a Time Critical Removal Action (TCRA) conducted in 2002 and 2003. The TCRA was completed at SEAD-40 in August 2003, and approximately 39 tons of soil were removed. The impacted soil was excavated at one section to a depth of 1 foot below ground surface and at another section to a depth of 6 feet below ground surface. Eighteen post-excavation samples were analyzed for VOCs, PAHs, and metals (Weston, 2004). Additional confirmation and delineation samples were collected; the results of which determined that further excavation would not be necessary at SEAD-40 (Parsons, 2002b; 2007a). Groundwater samples were not collected at SEAD-40.

1.3 Basis for Taking Action

Groundwater samples were not collected and therefore, risk to human health from groundwater was not evaluated. Given that groundwater risk is unknown, an action was required at SEAD-40 to ensure land use remains protective of site users. SEAD-40 is part of the PID/Warehouse Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

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

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-40 there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0. Data from the confirmatory sampling performed for the TCRA provided the basis of a risk assessment that was performed to assess potential site risks at SEAD-40.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD (Parsons, 2007a) titled, "Seventeen No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E)" for seventeen sites

includes LUCs as part of the remedy. This ROD refers to the LUCs documented in the “Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas” (Parsons, 2004a) as being applied to SEAD-40. These LUCs include:

- Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities; and
- Prohibit access to or use of groundwater until Class GA Groundwater Standards are met.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) implemented land use controls for the entire SEAD PID/Warehouse Area. Addendum 2 to the SEAD LUC RD added SEAD 39, 40, and 67.

An Environmental Easement for the PID/Warehouse Area including properties that had been previously retained (including SEAD-40) by the Army in 2008 was recorded in the Seneca County Clerk’s office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-40 is presented in **Table N.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-40 as part of the “PID Retained Parcels” was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehousing Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table N.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	No ⁽¹⁾	Yes ⁽³⁾	SEAD PID/Warehousing Area	Restrict site use.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Groundwater	Unknown ⁽²⁾	Yes ⁽³⁾	SEAD PID/Warehousing Area	Restrict use of groundwater.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

Note:

(1) Results from the 2003 TCRA determined that further excavation would not be necessary at SEAD-40 (Parsons, 2002b; 2007a).

(2) Groundwater samples were not collected and therefore, risk to human health from groundwater was not evaluated.

(3) SEAD-40 is located within the PID/Warehouse Area where an area-wide IC is present. This IC prohibits use or access to groundwater and prohibits land use for residential housing, elementary and secondary schools, childcare facilities and playground activities. Although no risk was identified within the soil and risk is unknown with respect to groundwater, this site is physically located within the boundary of the PID/Warehouse area, and therefore, the ICs are applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table N.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table N.3.2**).

Table N.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-40	Protective	The remedy implemented for PID Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table N.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-40	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-40 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-40.
- No apparent access to or use of groundwater were observed at SEAD-40.

The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEAD-40 is uninhabited and unoccupied, no interviews were conducted during the Five-Year Review process for SEAD-40

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. The exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy are still valid. Remedial Actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LTM Reports, LUC RD, Environmental Easements, transfer deeds and FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-40 currently is protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the PID/Warehousing Area, Institutional, and Airfield Parcel of the former Depot has been implemented and is currently being maintained, monitored and reported upon periodically; and
- a second LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds at all land within the PID/Warehousing Area has been implemented and is currently being maintained, monitored, and reported upon periodically;

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance

Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Table N.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

PAHs were screened and included as part of the HHRA, and they did not cause a risk to human health. As such, PAH screening values that are now more restrictive would not impact the outcome of the risk assessment. As a result, the cleanup levels and RAOs from earlier RODs **are considered still valid**.

Table N.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Is there a newly promulgated cleanup goal or published screening level? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
PAHs						
Benzo(a)anthracene	0.224	1.1	0.224	1	Y	N
Benzo(a)pyrene	0.061	0.11	0.061	1	Y	N
Benzo(b)fluoranthene	1.1	1.1	1.1	1	Y	Y
Benzo(k)fluoranthene	1.1	11	1.1	0.8	Y	Y
Chrysene	0.4	110	0.4	1	Y	N
Dibenz(a,h)anthracene	0.014	0.11	0.014	0.33	Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1	3.2	0.5	Y	Y
VOCs						
Methylene Chloride	100	35	100	0.05	Y	Y
Metals						
Arsenic	7.5	0.68	7.5	13	Y	Y
Chromium	29	12000(3)	29	30	Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

(3) Evaluated as Chromium (III)

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-40 and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-40.
- If UU/UE can be met in soil, collect groundwater samples to determine if Class GA standards can be met in groundwater at SEAD-40.

7.0 Protectiveness Statement

The remedy implemented for PID Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1



PHOTO LOG

Attachment N-1
Five-Year Review- Site Visit Photo Log
SEAD-40 Building 319 Boiler Blowdown Leach Pit

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

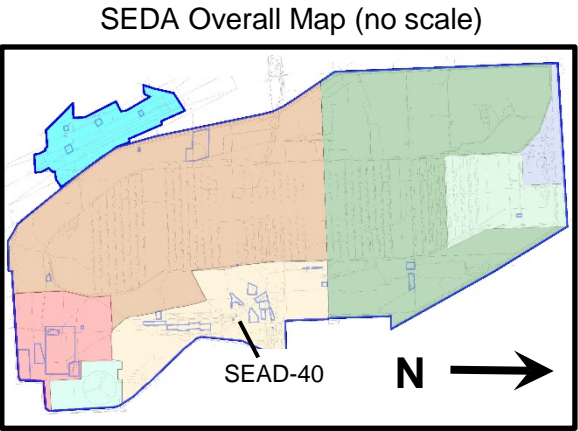
2020 Site Visit Photo 1

LOCATION: SEAD-40, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

 Approximate Site Boundary  Photo Viewing Direction



Status as of: 7/22/2020
Description: SEAD-40
Photo ID: IMG_3841.jpg



ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
<div style="display: flex; justify-content: space-between;"> <div> Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other </div> <div> Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls </div> </div>	
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX O

SEAD-67: DUMP SITE EAST OF SEWAGE TREATMENT PLANT NO. 4

APPENDIX O: SEAD-67 DUMPSITE EAST OF SEWAGE TREATMENT PLANT NO. 4

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-67 (Dump Site East of Sewage Treatment Plant No. 4) is located in the central eastern portion of SEDA, immediately south of West Romulus Road and east of Sewage Treatment Plant No. 4 (SEAD-20). Five waste soil piles and two soil berms were formerly staged at the SEAD-67 site. The origin of the berms and waste piles is unknown.

1.2 Initial Response

Previous work at SEAD-67 included an ESI in 1993 and a TCRA from 2002 to 2004. Analytical results for the samples collected can be found in "Decision Document for Removal Actions at SWMUs SEAD-24, SEAD-50, SEAD-54, and SEAD-67" (Parsons, 2002c). The analytical results of the ESI provided the basis for conducting the TCRA at SEAD-67.

A TCRA to remove the waste soil was performed between 2002 and 2004 (Weston, 2005a). The excavated soil was classified as non-hazardous soil for treatment and disposal. Subsequently, the TCRA expanded to include the removal of surface soil underlying and surrounding the locations of the former piles and berms. Surface soils were excavated to a depth of 12 in. At the end of the TCRA, more than 1,300 cubic yards of soil was removed from the SEAD-67 site. Due to the shallow nature of the final excavations, backfill was not used at SEAD-67; the sidewalls of the excavation were graded to smooth the contour differences between the original ground surface and the bottom of the excavation (Weston, 2005a).

1.3 Basis for Taking Action

Due to the potential human health risk in groundwater which was not fully evaluated an action was required at SEAD-67 to ensure land use remains protective of site users. SEAD-67 is part of the PID/Warehousing Area and the planned future use for this tract of land is for industrial, office development, and/or warehouse areas.

1.3.1 CONTAMINANTS OF CONCERN

Samples collected as part of the ESI were analyzed for VOCs, SVOCs, pesticides/PCBs, metals, and cyanide. Fifty (50) TCL/TAL compounds were detected in the soil samples, and 10 compounds, including five cPAHs and five metals, were detected at concentrations that exceeded their respective TAGM cleanup objective values. Compounds found at concentrations above applicable TAGM 4046 soil cleanup objectives included benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, calcium, lead, manganese, mercury, and potassium. Surface water results indicated that the unnamed stream near SEAD-67 has not been significantly impacted by contaminants. Available data indicated that the groundwater has not been significantly impacted by historic operations at SEAD-67 (Parsons, 2007a).

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-67 the human health cancer risks were within or below the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0. SVOC data from the confirmatory sampling performed for the TCRA provided the basis of the risk assessment and the 95th UCL of the mean was used as the EPC for each of the SVOC COCs. The human health risk assessment evaluated industrial (i.e., industrial worker, construction worker, daycare center child, daycare center worker) and residential (adult resident, child resident, and lifetime resident) receptors.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD (Parsons, 2007a) titled, “Seventeen No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E)” for seventeen sites that include LUCs as part of the remedy. This ROD refers to the LUCs documented in the “Record of Decision for Sites Requiring Institutional Controls in the Planned Industrial/Office Development or Warehousing Areas” (Parsons, 2004a) as being applied to the SEAD-67 AOC. These LUCs include:

- Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities; and
- Prohibits access to or use of groundwater until Class GA Groundwater Standards are met.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) implemented land use controls for the entire SEAD PID/Warehouse Area. Addendum 2 to the SEAD LUC RD added SEAD 39, 40, and 67.

An Environmental Easement for the PID/Warehousing Area including properties that had been previously retained (including SEAD-40) by the Army in 2008 was recorded in the Seneca County Clerk’s office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-67 is presented in **Table 0.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-67 as part of the “PID Retained Parcels” was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The PID/Warehouse Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table 0.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	No ⁽¹⁾	Yes ⁽³⁾	SEAD PID/ Warehousing Area	Restrict site use.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Groundwater	Not evaluated ⁽²⁾	Yes ⁽³⁾	SEAD PID/ Warehousing Area	Restrict use of groundwater.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

Note:

(1) Results from the 2004 TCRA confirmatory sampling indicate the average concentrations of target analytes at this AOC are below recommended levels and a potential threat to human health and the environment posed by formerly impacted soils has been eliminated (Parsons 2007a).

(2) Potential human health risk in groundwater was not fully evaluated.

(3) SEAD-67 is located within the PID/Warehouse Area where an area-wide IC is present. This IC prohibits use or access to groundwater and prohibits land use for residential housing, elementary and secondary schools, childcare facilities and playground activities. Although no risk was identified within the soil and risk is unknown with respect to groundwater, this site is physically located within the boundary of the PID/Warehouse area, and therefore, the ICs are applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

3.1 Recommendations

This section includes the protectiveness determinations and statements from the last five-year review (Table 0.3.1) as well as the recommendations from the last five-year review and the current status of those recommendations (Table 0.3.2).

Table 0.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-67	Protective	The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable

		exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.
--	--	--

Table 0.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-67	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-67 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed.
- No apparent access to or use of groundwater were observed at SEAD-67.

The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEAD-67 is uninhabited and unoccupied, no interviews were conducted during the Five-Year Review process for SEAD-67.

4.5 Institutional Controls Verification

The LUCS, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. The exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy are still valid. Remedial Actions required by completed RODs for AOCs within the PID/Warehouse Area have been completed and documented. No continuing active remediation is required in the PID/Warehouse Area. Based on a review of Closure Reports, LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted on July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at the SEAD-67 is currently protective of human health and the environment because:

- a land use control that prevents access to, and use of, groundwater within the identified AOCs, and which has been expanded to encompass all land within the PID/Warehousing Area, Institutional, and Airfield Parcel of the former Depot has been implemented and is currently being maintained, monitored and reported upon periodically; and
- a second land use control that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds at the three site, and which also has been expanded to include all land within the PID/Warehousing Area has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased

or decreased values of the cleanup and screening levels, depending on the specific compounds. **Table 0.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, the cleanup levels and RAOs from earlier RODs are considered still valid. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, the cleanup standards remain protective of human health.

Table 0.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Benzo(a)anthracene	0.224	1.1	0.22	1.0	Y	N
Benzo(a)pyrene	0.061	0.11	0.061	1.0	Y	N
Benzo(k)fluoranthene	1.1	11	11	0.80	Y	Y
Chrysene	0.4	110	0.40	1.0	Y	N
Dibenz(a,h)anthracene	0.014	0.11	0.14	0.33	Y	N
Metals						
Antimony	5.9	3.1	5.9	NA	Y	Y
Arsenic	8.24	0.68	8.24	13	Y	Y
Beryllium	1.1	16	1.1	7.2	Y	N
Cadmium	2.3	7.1	2.3	2.5	Y	N
Copper	29.6	310	29.6	50	Y	N
Mercury	0.1	1.1	0.10	0.18	Y	N
Selenium	2	39	2.0	3.9	Y	N
Silver	0.763	39	0.763	2.0	Y	N
Thallium	0.67	0.078	0.67	NA	Y	Y
Zinc	108.9	2300	108.9	109	Y	N ⁽³⁾

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

(3) The potential cleanup levels are not different when rounded to two significant figures.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-67 and the PID/Warehousing Areas. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Discuss reducing frequency of periodic reviews with NYSDEC and EPA.
- Collect groundwater samples to determine if Class GA standards can be met in groundwater.

7.0 Protectiveness Statement

The remedy implemented for PID/Warehousing Areas is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

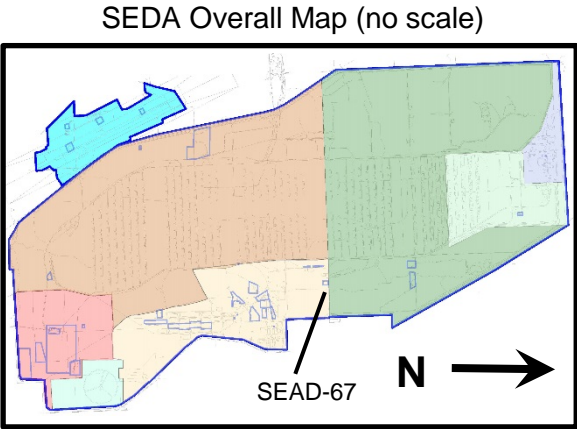
- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment O-1
Five-Year Review- Site Visit Photo Log
SEAD-67 Dump Site East of Sewage Treatment Plant No. 4

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000



Approximate
Site Boundary

Photo Viewing
Direction

SEAD-67 is located within the
PID/Warehouse Area Parcel.

Bing.com (Microsoft) Birds Eye Aerial of SEAD-67; actual date of aerial photo is unknown but based on observable features at SEDA it may be from Spring 2007:



Status as of: 7/22/2020
Description: SEAD-67

Photo ID: IMG_3874.jpg



LOCATION: SEAD-67, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 2



Status as of: 7/22/2020
Description: SEAD-67

Photo ID: IMG_3877.jpg

2020 Site Visit Photo 3



Status as of: 7/22/2020
Description: SEAD-67

Photo ID: IMG_3879.jpg

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name		Title	Date
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name		Title	Date
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX P

SEAD-43: BUILDING 606 OLD MISSILE PROPELLANT
TEST LABORATORY, SEAD-56: BUILDING 606
HERBICIDE AND PESTICIDE STORAGE,
AND
SEAD-69: BUILDING 606 DISPOSAL AREA

APPENDIX P: SEAD-43 BUILDING 606 OLD MISSILE PROPELLANT TEST LABORATORY, SEAD-56 BUILDING 606 HERBICIDE AND PESTICIDE STORAGE AND SEAD- 69 BUILDING 606 DISPOSAL AREA

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEADs 43, 56, and 69 are located in the southeastern corner of the Depot on property that currently is associated with the New York State Department of Correctional Services' Five Points Correctional Facility. These areas are discussed as one AOC because SEAD-43 and SEAD-56 both represent historic uses of Building 606; SEAD-69 is a disposal area situated close to Building 606, which was previously suspected of receiving wastes from the two other SWMUs.

In the 1960s, Building 606 was used as a missile propellant test laboratory; this use is designated as SEAD-43, the Old Missile Propellant Test Laboratory, which was used for quality assurance (QA) surveillance testing of military ordnance items. After 1976, Building 606 was used as a pesticide and herbicide storage and mixing facility; this historic use is designated as SEAD-56, Herbicide/Pesticide Storage. In 1989, the pesticide/herbicide storage area was upgraded when a new rinsewater building was constructed to the east of Building 606, and the historic underground rinsewater storage tank was replaced with a new vaulted tank that complied with the then-prevailing environmental regulations. SEAD-69 is a disposal area in an open field that is located southeast of Building 606 (Parsons, 2007a).

1.2 Initial Response

Field investigations were conducted at SEADs 43, 56, and 69 in February of 1994 as part of the "ESI for Eight Moderately Low Priority AOCs" (Parsons, 1995), and complete analytical results for the soil, sediment, surface water, and groundwater samples collected can be found in that document and summarized in the ROD. Test pits revealed the presence of buried bricks, concrete blocks, construction debris, and piping. No impacted soil or obvious contamination was observed in the three test pits investigated.

1.3 Basis for Taking Action

Because UU/UE was not evaluated there is a potential for risk to hypothetical future site users and an action was required at SEADs 43/56/69 to ensure land use remains protective of site users.

1.3.1 CONTAMINANTS OF CONCERN

Operations performed in SEAD-43 included the operation or functional testing of explosive devices. Inhibited Red-Fuming Nitric Acid (IRFNA) was used in, and stored at and near Building 606 prior to its disposal at SEAD-13. As SEAD-56, Herbicide/Pesticide Storage, storage of pesticides and herbicides occurred at a now-demolished building formerly located west of Building 606. A historic concrete underground tank was also used for the intermittent storage of wastewater generated during the rinsing of the portable truck-mounted tank that was used for mobile spraying operations at the Depot. It is suspected that waste from the IRFNA storage and pesticide/herbicide mixing was disposed at SEAD-69. SEAD-69 measures approximately 100 ft. by 100 ft. in size, and contained various types of construction debris, including bricks and concrete blocks, visible at the surface.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

A mini risk assessment was completed that evaluated risk to receptors under the Prison land use scenario (i.e., prison worker, prison inmate, construction worker, worker at on-site day care, and child at on-site day care center). The risk assessment concluded that at SEADs 43, 56, and 69 there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0. The risk assessment evaluated risk to receptors under the Prison land use

scenario. It should be noted that the described property is being used and maintained for a correctional facility in perpetuity. Table 7-6 of the ROD (Parsons, 2007a) summarizes the calculated cancer and non-cancer risks for all receptors and exposure routes considered in the risk assessment presented in “Decision Document – Mini Risk Assessment” (Parsons, 2002a).

An ecological risk assessment was completed and no COCs were identified.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Record of Decision for 17 No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B and 122E)” requires the establishment of ICs. The LUC performance objectives for SEAD 43/56/69 include:

- Comply with the use limitations documented and imposed in the Deed used to transfer property containing SEADs 43/56/69, 44A, 44B, 52, 62 and 64C from the U.S. Government to the people of the State of New York for the construction of a correctional facility (See Seneca County Liber 612 Page 014 through 031).

The Army had previously documented and imposed LUCs within a portion of the former Depot: in the southeastern corner of the Depot where the Five Points Correctional Facility (“Prison Area”) currently is located. SEADs 43/56/69 are located within land covered by the existing LUCs imposed on land within the Prison Area parcel. Within the ROD (Parsons, 2007a), the Army formalized and documented its intention to impose the existing LUCs on the AOCs located within the Prison Area parcel under CERCLA.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) (USACE, 2006) implemented land use controls for the SEAD PID/Warehouse Area. Addendum 2 (USACE, 2008a) expanded the LUC RD from the PID/Warehouse Area to include sites that are in the area formerly known as the “Prison Area”.

SEADs 43/56/69 are located within the “Prison Area” property that the Army transferred to the State of New York for use as a correction facility. This property was transferred prior to the issuance of the ROD signed on July 3, 2007 and there was no requirement for an Environmental Easement. A summary of the institutional controls currently implemented at SEADs-43/56/69 is presented in **Table P.2.1** based on the data and risk presented in the ROD and the LUC RD.

The “Prison Area” has an existing deed with a reversionary clause. The area consists of eight AOCs that were transferred in September 2000 under a public benefit conveyance that conveyed the land in the southeastern part of the former Depot to the people of the State of New York for the construction of the Five Points Correctional Facility. The existing deed provisions ensure the property is used in a manner consistent with the above LUC Objectives and require the State of New York to use the property for the purpose of adult incarceration. Pursuant to the terms of the deed, the prison use restriction remains in effect for these AOCs in perpetuity, or the property legally reverts to the United States (Parsons, 2007a).

Hazardous substances may be present at one or more of the listed historic AOCs at concentrations that do not allow for unrestricted use and unlimited exposure. However, based on the results of previous investigations, risk assessments, and/or removal actions, these AOCs do not pose or represent a risk or threat to human health and

the environment, given consideration of the area's continuing restricted use as a state maximum security correctional facility.

Table P.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	N/A ⁽¹⁾	Yes ⁽²⁾	"Prison Area"	Restrict site use.	Deed and Reversionary Clause.

Note:

(1) No Risks identified for current and anticipated future land use.

(2) SEADs-43/56/69 are located within the Prison Area where an area-wide IC is present. This IC restricts use of the property as a state maximum security correctional facility. This site is physically located within the boundary of the Prison area, and therefore, the IC is applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table P.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table P.3.2**).

Table P.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEADs 43/56/69	Protective	The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table P.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEADs 43/56/69	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. Interviews confirmed that no prohibited facilities were present or had been constructed at the site and the use of the property remains as a correctional facility.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main Five-Year Review report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

An interview of the correctional facility/grounds manager was conducted on July 23, 2020 to determine whether required LUCs imposed by the approved ROD at SEADs 43/56/69 are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No violations of the institutional or land use controls were observed.
- There is continued restricted use of the property as a state maximum security correctional facility.

4.4 Interviews

Based on an interview with a representative from Five Points Correctional Facility during the FYR process, SEADs 43/56/69 continues to be used as a state maximum security correctional facility.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for SEADs 43/56/69 in the Prison Area have been completed and documented. No continuing active remediation is required for the Prison Area. Based on a review of the LUC RD Addendum 2, transfer deed, and the FYR site visit conducted July 23, 2020, the remedy is functioning as intended by the decision documents.

The remedy implemented at the SEADs 43/56/69 is currently protective of human health and the environment because existing deed provisions require the State of New York to use the property containing SEADs 43/56/69, as a correction facility for the purpose of adult incarceration. If the State chooses to stop that activity, the property reverts back to the United States of America. Should the property revert to the Federal Government, the LUC will terminate, and a remedy substitution will be agreed to.

The selected remedy is still protective of public health and the environment. However, there is potential to reduce the frequency of periodic reviews without reducing the protectiveness of the remedy. No early indicators of potential issues have been identified for SEAD-43/56/69.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are **still valid**.
- There have been **no changes** in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the Prison Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables P.5.1** and **P.5.2** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid**. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health**.

Table P.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
2-Methylnaphthalene	36.4	24	36.4	NA	Y	Y
4-Methylphenol	0.9	630	0.9	NA	Y	N
Acenaphthylene	50	NA	50	100	Y	N
Anthracene	50	1800	50	100	Y	N
Benzo(a)anthracene	0.224	1.1	0.224	1	Y	N
Benzo(a)pyrene	0.061	0.11	0.061	1	Y	N
Benzo(b)fluoranthene	1.1	1.1	1.1	1	Y	Y
Benzo(g,h,i)perylene	50	NA	50	100	Y	N
Benzo(k)fluoranthene	1.1	11	1.1	1	Y	Y
Carbazole	50	NA	50	NA	N	N
Chrysene	0.4	110	0.4	1	Y	N
Di-n-butylphthalate	8.1	630	8.1	NA	Y	N
Dibenz(a,h)anthracene	0.014	0.11	0.014	0	Y	N
Dibenzofuran	6.2	7.8	6.2	7	Y	N
Fluoranthene	50	240	50	100	Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1	3.2	1	Y	Y
Naphthalene	13	2	13	12	Y	Y
Phenanthrene	50	NA	50	100	Y	N
Pyrene	50	180	50	100	Y	N
bis(2-ethylhexyl)phthalate	50	39	50	NA	Y	Y
VOCs						
Acetone	0.2	6100	0.2	0	Y	Y
Chloroform	0.3	0.22	0.3	0	Y	Y
Methylene Chloride	0.1	35	0.1	0	Y	Y

Table P.5.1 Comparison of Toxicity Data and Cleanup Levels (continued)

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
Toluene	1.5	490	1.5	1	Y	Y
Total Xylenes	1.2	5	1.2	0	Y	Y
Pesticides						
Endosulfan I	0.9	47	0.9	2	Y	N
alpha-chlordane	0.54	1.7	0.54	0	Y	Y
Metals						
Cadmium	2.3	7.1	2.3	3	Y	N
Copper	33	310	33	50	Y	N
Lead	24.8	400	24.8	63	Y	N
Magnesium	21500	NA	21500	NA	N	N
Potassium	2380	NA	2380	NA	N	N
Selenium	2	39	2	4	Y	N
Zinc	110	2300	110	109	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table P.5.2 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Groundwater Cleanup Objectives (Class GA) ⁽²⁾		
Metals						
Magnesium	46800	NA	ROD did no establish cleanup levels		N	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal screening levels are from EPA Regional Screening Levels (RSL) for Tap Water based on a target HQ = 0.1; updated May 2020.

State groundwater cleanup goals are from 6 CRR-NY 703.5 Class GA; Verified 9/21/2020.

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEADs 43/56/69. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.

7.0 Protectiveness Statement

The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

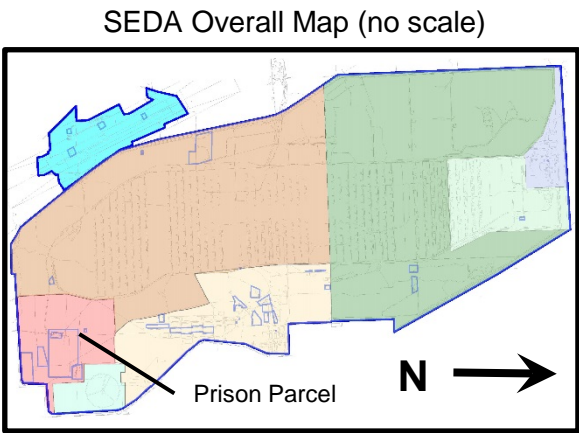
P-1
Five-Year Review- Site Visit Photo Log
Prison Area Parcel

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: Prison Parcel, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers



- Prison Parcel contains the following:
- SEAD-43 Building 606 Old Missile Propellant Test Laboratory
 - SEAD-44A Quality Assurance Test Laboratory
 - SEAD-44B Quality Assurance Test laboratory
 - SEAD-52 Building 608 and 612 Ammunition Breakdown Area
 - SEAD-56 Building 606 Herbicide and Pesticide Storage
 - SEAD-62 Nicotine Sulfate Disposal Area near Building 606 and 612
 - SEAD-64C Garbage Disposal Area
 - SEAD-69 Building 606 Disposal Area



Site Visit Photo 1



Photo ID: IMG_4088.JPG
Description: Entrance to Correctional Facility. Photos within the Correctional Facility are prohibited.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX Q

SEAD-44A: QUALITY ASSURANCE TEST LABORATORY

APPENDIX Q: SEAD-44A QUALITY ASSURANCE TEST LABORATORY

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-44A (Quality Assurance Test Laboratory) is located in the southeastern portion of the Depot, approximately 1,000 ft. east of Brady Road and 1,500 ft. north of South Patrol Road on property that is currently associated with the New York State Department of Correctional Services' Five Points Correctional Facility. Building 416 was located at the AOC and a number of earthen berms that ran parallel to an unnamed dirt road at the AOC were present. The earthen berms were historically used for QA testing of ordnance items, including various pyrotechnics, firing devices, and 40-millimeter practice and chemical smoke grenades. The above-ground testing of landmines also reportedly occurred in SEAD-44A in a separate bermed area.

1.2 Initial Response

Site investigations at SEAD-44A included a LSP in 1993 and 1994, followed by a TCRA in 2000 and 2002. The LSP include soil, sediment, surface water, and groundwater sampling. Complete analytical results for the samples collected can be found in the *"Expanded Site Investigation – Eight moderately Low Priority AOCs - SEADs 5,9,12 (A and B), (43, 56, 69), 44 (A and B), 50, 58, and 59"* (Parsons, 1995). During the TCRA, a UXO and OE clearance and removal and soil remediation was performed at SEAD-44A. Documentation of the work performed can be found in the document *"UXO and Soil Remediation Area 44-A Final Report"* (Weston, 2003).

1.3 Basis for Taking Action

Because UU/UE was not evaluated there is a potential for risk to hypothetical future site users an action was required at SEAD 44A to ensure land use remains protective of site users.

1.3.1 CONTAMINANTS OF CONCERN

During the period of its use, it is suspected that the area of SEAD-44A contained high levels of metals, cyanide, and other contaminants associated with ordnance testing. A drainage swale runs east to west along the middle of the AOC; this feature drains surface water runoff to the west towards Silver Creek. Complete analytical results for the samples collected during the LSP can be found in the *"Expanded Site Investigation – Eight moderately Low Priority AOCs - SEADs 5,9,12 (A and B), (43, 56, 69), 44 (A and B), 50, 58, and 59"* (Parsons, 1995).

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-44A there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all Prison land use scenario receptors are less than 1.0. The risk assessment evaluated risk to receptors under the Prison land use scenario (i.e., prison worker, prison inmate, construction worker, worker at on-site day care, and child at on-site day care center). It should be noted that the described property is being used and maintained for a correctional facility in perpetuity. The results of total cancer risk and total non-cancer HI are summarized in Table 7-7 of the ROD (Parsons, 2007a) and in the *"Decision Document – Mini Risk Assessment"* (Parsons, 2002a).

An ecological risk assessment was completed and no COCs were identified.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Record of Decision for 17 No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B and 122E)” requires the establishment of ICs. The LUC performance objectives for SEAD-44A include:

- Comply with the use limitations documented and imposed in the Deed used to transfer property containing SEADs 43/56/69, 44A, 44B, 52, 62 and 64C from the U.S. Government to the people of the State of New York for the construction of a correctional facility (See Seneca County Liber 612 Page 014 through 031).

The Army had previously documented and imposed LUCs within a portion of the former Depot: in the southeastern corner of the Depot where the Five Points Correctional Facility (“Prison Area”) currently is located. SEAD-44A is located within land covered by the existing LUCs imposed on land within the Prison Area parcel. Within the ROD (Parsons, 2007a), the Army formalized and documented its intention to impose the existing LUCs on the AOCs located within the Prison Area parcel under CERCLA.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) (USACE, 2006) implemented land use controls for the SEAD PID/Warehouse Area. Addendum 2 (USACE, 2008a) expanded the LUC RD from the PID/Warehouse Area to include sites that are in the area formerly known as the “Prison Area”.

SEAD 44A is located within the “Prison Area” property that the Army transferred to the State of New York for use as a correction facility. This property was transferred prior to the issuance of the ROD signed on July 3, 2007 and there was no requirement for an Environmental Easement. A summary of the institutional controls currently implemented at SEAD-44A is presented in **Table Q.2.1** based on the data and risk presented in the ROD and the LUC RD.

The “Prison Area” has an existing deed with a reversionary clause. The area consists of eight AOCs that were transferred in September 2000 under a public benefit conveyance that conveyed the land in the southeastern part of the former Depot to the people of the State of New York for the construction of the Five Points Correctional Facility. The existing deed provisions ensure the property is used in a manner consistent with the above LUC Objectives and require the State of New York to use the property for the purpose of adult incarceration. Pursuant to the terms of the deed, the prison use restriction remains in effect for these AOCs in perpetuity, or the property legally reverts to the United States (Parsons, 2007a).

Hazardous substances may be present at one or more of the listed historic AOCs at concentrations that do not allow for unrestricted use and unlimited exposure. However, based on the results of previous investigations, risk assessments, and/or removal actions, these AOCs do not pose or represent a risk or threat to human health and the environment, given consideration of the area’s continuing restricted use as a state maximum security correctional facility.

Table Q.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	N/A ⁽¹⁾	Yes ⁽²⁾	"Prison Area"	Restrict site use.	Deed and Reversionary Clause.

Note:

(1) No Risks identified for current and anticipated future land use.

(2) SEAD-44A is located within the Prison Area where an area-wide IC is present. This IC restricts use of the property as a state maximum security correctional facility. This site is physically located within the boundary of the Prison area, and therefore, the IC is applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (Table Q.3.1) as well as the recommendations from the last five-year review and the current status of those recommendations (Table Q.3.2).

Table Q.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-44A	Protective	The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table Q.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-44A	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. Interviews confirmed that no prohibited facilities were present or had been constructed at the site and the use of the property remains as a correctional facility.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

An interview of the correctional facility/grounds manager was conducted on July 23, 2020 to determine whether required LUCs imposed by the approved ROD at SEAD-44A are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No violations of the institutional or land use controls were observed.
- There is continued restricted use of the property as a state maximum security correctional facility.

4.4 Interviews

Based on an interview with a representative from Five Points Correctional Facility during the FYR process, SEAD-64C continues to be used as a state maximum security correctional facility

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for SEAD-44A in the Prison Area have been completed and documented. No continuing active remediation is required for the Prison Area. Based on a review of the LUC RD Addendum 2, transfer deed, and the FYR site visit conducted July 23, 2020, the remedy, the remedy is functioning as intended by the decision documents.

The remedy implemented at the SEAD-44A is currently protective of human health and the environment because existing deed provisions require the State of New York to use the property containing SEAD-44A, as a correction facility for the purpose of adult incarceration. If the State chooses to stop that activity, the property reverts back to the United States of America. Should the property revert to the Federal Government, the LUC will terminate, and a remedy substitution will be agreed to.

The selected remedy is still protective of public health and the environment. However, there is potential to reduce the frequency of period reviews without reducing the protectiveness of the remedy. No early indicators of potential issues have been identified for SEAD-44A.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the Prison Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables Q.5.1 and Q.5.2** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid**. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health**.

Table Q.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
2-Methylnaphthalene	36.4	24	36.4	NA	Y	Y
4-Methylphenol	0.9	630	0.9	NA	Y	N
Acenaphthene	50	360	50	20	Y	Y
Acenaphthylene	41	NA	41	100	Y	N
Anthracene	50	1800	50	100	Y	N
Benzo(a)anthracene	0.224	1.1	0.224	1	Y	N
Benzo(a)pyrene	0.061	0.11	0.061	1	Y	N
Benzo(b)fluoranthene	1.1	1.1	1.1	1	Y	Y
Benzo(g,h,i)perylene	50	NA	50	100	Y	N
Benzo(k)fluoranthene	1.1	11	1.1	1	Y	Y
Carbazole	NA	NA	NA	NA	N	N
Chrysene	0.4	110	0.4	1	Y	N
Di-n-butylphthalate	8.1	630	8.1	NA	Y	N
Dibenz(a,h)anthracene	0.014	0.11	0.014	0	Y	N
Dibenzofuran	6.2	7.8	6.2	7	Y	N
Fluoranthene	50	240	50	100	Y	N
Fluorene	50	240	50	30	Y	Y
Hexachlorobenzene	0.41	0.21	0.41	NA	Y	Y
Indeno(1,2,3-cd)pyrene	3.2	1.1	3.2	1	Y	Y
Naphthalene	13	2	13	12	Y	Y
Phenanthrene	50	NA	50	100	Y	N
Pyrene	50	180	50	100	Y	N
bis(2-ethylhexyl)phthalate	50	39	50	NA	Y	Y
2-Methylnaphthalene	36.4	24	36.4	NA	Y	Y

Table Q.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil (continued)

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Former Screening Value in ROD (Residential Use) ⁽¹⁾		
VOCs						
1,1,2,2-Tetrachloroethane	0.6	5	0.6	NA	Y	N
2-Butanone	0.3	2700	0.3	NA	Y	N
2-Hexanone	NA	20	NA	NA	Y	Y
4-Methyl-2-Pentanone	1	3300	1	NA	Y	N
Acetone	0.2	6100	0.2	0	Y	Y
Toluene	1.5	490	1.5	1	Y	Y
Pesticides						
4,4'-DDE	2.1	2	2.1	0	Y	Y
4,4'-DDT	2.1	1.9	2.1	0	Y	Y
Dieldrin	0.044	0.034	0.044	0	Y	Y
Endosulfan I	0.9	47	0.9	2	Y	N
Endosulfan II	0.9	47	0.9	2	Y	N
Endrin	0.1	1.9	0.1	0	Y	Y
Endrin aldehyde	NA	NA	NA	NA	N	N
Endrin Ketone	NA	NA	NA	NA	N	N
Heptachlor epoxide	0.02	0.07	0.02	NA	Y	N
Nitroaromatics						
2,4,6-Trinitrotoluene	NA	3.6	NA	NA	Y	Y
Metals						
Cadmium	2.3	7.1	2.3	3	Y	N
Copper	33	310	33	50	Y	N
Lead	24.8	400	24.8	63	Y	N
Potassium	2380	NA	2380	NA	N	N
Selenium	2	39	2	4	Y	N

Table Q.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil (continued)

	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾		Former Screening Value in ROD (Residential Use) ⁽¹⁾		
COPCs Listed in ROD						
Zinc	110	2300	110	109	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table Q.5.2 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Groundwater Cleanup Objectives (Class GA) ⁽²⁾		
VOCs						
1,1,2,2-Tetrachloroethane	5	0.076	ROD did not establish cleanup levels		Y	Y
Acetone	50	1400			Y	N
Metals						
Magnesium	46800	NA	ROD did not establish cleanup levels		N	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal screening levels are from EPA Regional Screening Levels (RSL) for Tap Water based on a target HQ = 0.1; updated May 2020. State groundwater cleanup goals are from 6 CRR-NY 703.5 Class GA; Verified 9/21/2020.

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEAD-44A comprising the area known as the Prison Area. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.

7.0 Protectiveness Statement

The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

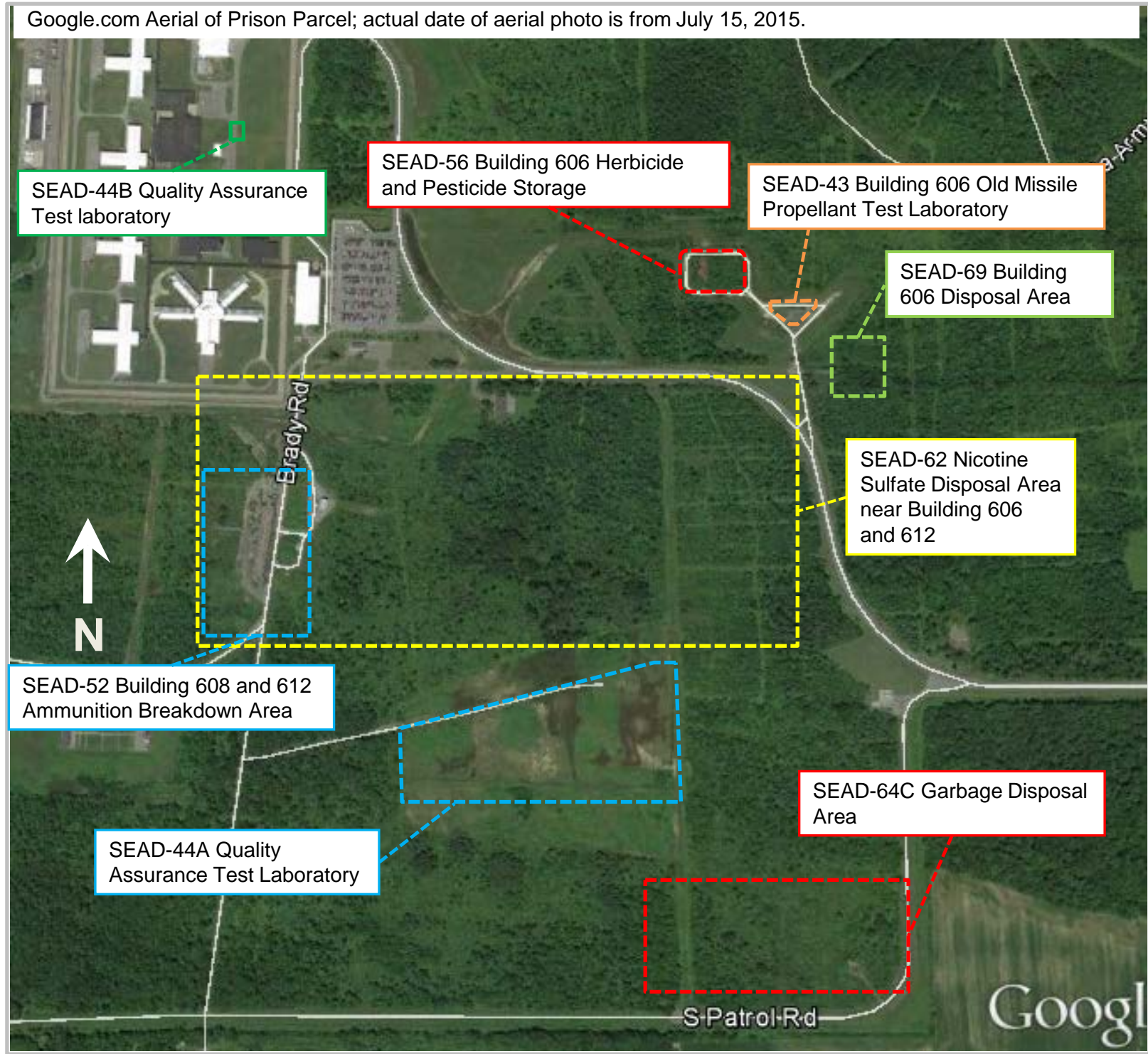
ATTACHMENT 1

PHOTO LOG

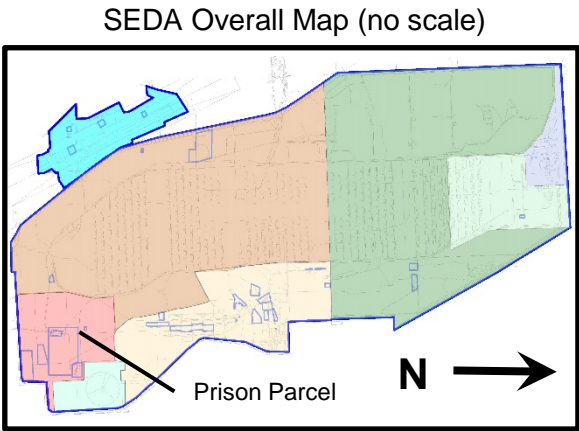
Q-1
Five-Year Review- Site Visit Photo Log
Prison Area Parcel

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: Prison Parcel, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers



- Prison Parcel contains the following:
- SEAD-43 Building 606 Old Missile Propellant Test Laboratory
 - SEAD-44A Quality Assurance Test Laboratory
 - SEAD-44B Quality Assurance Test laboratory
 - SEAD-52 Building 608 and 612 Ammunition Breakdown Area
 - SEAD-56 Building 606 Herbicide and Pesticide Storage
 - SEAD-62 Nicotine Sulfate Disposal Area near Building 606 and 612
 - SEAD-64C Garbage Disposal Area
 - SEAD-69 Building 606 Disposal Area



Site Visit Photo 1



Photo ID: IMG_4088.JPG
Description: Entrance to Correctional Facility. Photos within the Correctional Facility are prohibited.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX R

SEAD-44B: QUALITY ASSURANCE TEST LABORATORY

APPENDIX R: SEAD-44B QUALITY ASSURANCE TEST LABORATORY

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- Attachment 1 Photo Log
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1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-44B (Quality Assurance Test Laboratory) runs along the west side of Brady Road and occupies an area that is approximately 350 ft. by 200 ft. on property that is currently associated with the New York State Department of Correctional Services' Five Points Correctional Facility. Two buildings were originally associated with SEAD-44B. The buildings were part of a QA test area for pyrotechnics, chemical smoke grenades, and other fire devices.

1.2 Initial Response

The investigative work at SEAD-44B included an ESI in 1993 and 1994. A summary of the surface soil, groundwater, surface water, and sediment data from the ESI are presented in Tables 6-17 to 6-20 of the ROD (Parsons, 2007a), respectively. Complete soil and groundwater analytical results for the samples collected can be found in "Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B," Final (Parsons, 2002a).

1.3 Basis for Taking Action

Because UU/UE was not evaluated there is a potential for risk to hypothetical future site users and an action was required at SEADs 43/56/69 to ensure land use remains protective of site users.

1.3.1 CONTAMINANTS OF CONCERN

When SEAD-44B was designated as a AOC in the Federal Facilities Agreement, the Army indicated that the site might contain high levels of metals and possible UXO debris. Subsequent inspections of the AOC by the Army as part of the DoDs BRAC Ordnance and Explosives Archive Search Report indicate that ordnance was not found at SEAD-44B or in the vicinity of the two berms that were observed near the buildings (Parsons, 2007a). All of the samples were analyzed for TCL VOCs, SVOCs, pesticide/PCBs, TAL metals, and cyanide according to NYSDEC CLP SOW, and explosives by USEPA Method 353.2.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-44B there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all Prison land use scenario receptors are less than 1.0. The risk assessment evaluated risk to receptors under the Prison land use scenario (i.e., prison worker, prison inmate, construction worker, worker at on-site day care, and child at on-site day care center). It should be noted that the described property is being used and maintained for a correctional facility in perpetuity. The results of total cancer risk and total non-cancer HI are summarized in Table 7-8 of the ROD (Parsons, 2007a) and in the "Decision Document – Mini Risk Assessment" (Parsons, 2002a). An ecological risk assessment was conducted as part of the Mini-Risk Assessment (Parsons, 2002a), and no significant ecological risk was found at this site.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Record of Decision for 17 No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B and 122E)” requires the establishment of ICs. The LUC performance objectives for SEAD-44B include:

- Comply with the use limitations documented and imposed in the Deed used to transfer property containing SEADs 43/56/69, 44A, 44B, 52, 62 and 64C from the U.S. Government to the people of the State of New York for the construction of a correctional facility (See Seneca County Liber 612 Page 014 through 031).

The Army had previously documented and imposed LUCs within a portion of the former Depot: in the southeastern corner of the Depot where the Five Points Correctional Facility (“Prison Area”) currently is located. SEAD-44B is located within land covered by the existing LUCs imposed on land within the Prison Area parcel. Within the ROD (Parsons, 2007a), the Army formalized and documented its intention to impose the existing LUCs on the AOCs located within the Prison Area parcel under CERCLA.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) (USACE, 2006) implemented land use controls for the SEAD PID/Warehouse Area. Addendum 2 (USACE, 2008a) expanded the LUC RD from the PID/Warehouse Area to include sites that are in the area formerly known as the “Prison Area”.

SEAD 44B is located within the “Prison Area” property that the Army transferred to the State of New York for use as a correction facility. This property was transferred prior to the issuance of the ROD signed on July 3, 2007 and there was no requirement for an Environmental Easement. A summary of the institutional controls currently implemented at SEAD-44B is presented in **Table R.2.1** based on the data and risk presented in the ROD and the LUC RD.

The “Prison Area” has an existing deed with a reversionary clause. The area consists of eight AOCs that were transferred in September 2000 under a public benefit conveyance that conveyed the land in the southeastern part of the former Depot to the people of the State of New York for the construction of the Five Points Correctional Facility. The existing deed provisions ensure the property is used in a manner consistent with the above LUC Objectives and require the State of New York to use the property for the purpose of adult incarceration. Pursuant to the terms of the deed, the prison use restriction remains in effect for these AOCs in perpetuity, or the property legally reverts to the United States (Parsons, 2007a).

Hazardous substances may be present at one or more of the listed historic AOCs at concentrations that do not allow for unrestricted use and unlimited exposure. However, based on the results of previous investigations, risk assessments, and/or removal actions, these AOCs do not pose or represent a risk or threat to human health and the environment, given consideration of the area’s continuing restricted use as a state maximum security correctional facility.

Table R.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	N/A ⁽¹⁾	Yes ⁽²⁾	"Prison Area"	Restrict site use.	Deed and Reversionary Clause.

Note:

(1) No Risks identified for current and anticipated future land use.

(2) SEAD-44B is located within the Prison Area where an area-wide IC is present. This IC restricts use of the property as a state maximum security correctional facility. This site is physically located within the boundary of the Prison area, and therefore, the IC is applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (Table R.3.1) as well as the recommendations from the last five-year review and the current status of those recommendations (Table R.3.2).

Table R.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-44B	Protective	The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table R.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-44B	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. Interviews confirmed that no prohibited facilities were present or had been constructed at the site and the use of the property remains as a correctional facility.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

An interview of the correctional facility/grounds manager was conducted on July 23, 2020 to determine whether required LUCs imposed by the approved ROD at SEAD44B are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No violations of the institutional or land use controls were observed.
- There is continued restricted use of the property as a state maximum security correctional facility.

4.4 Interviews

Based on an interview with a representative from Five Points Correctional Facility during the FYR process, SEAD-44B continues to be used as a state maximum security correctional facility.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for SEAD-44B in the Prison Area have been completed and documented. No continuing active remediation is required for the Prison Area. Based on a review of the LUC RD Addendum 2, transfer deed, and the FYR site visit conducted July 23, 2020, the remedy is functioning as intended by the decision documents.

The remedy implemented at the SEAD-44B is currently protective of human health and the environment because existing deed provisions require the State of New York to use the property containing SEAD-44B, as a correction facility for the purpose of adult incarceration. If the State chooses to stop that activity, the property reverts back to the United States of America. Should the property revert to the Federal Government, the LUC will terminate, and a remedy substitution will be agreed to.

The selected remedy is still protective of public health and the environment. However, there is potential to reduce the frequency of period reviews without reducing the protectiveness of the remedy. No early indicators of potential issues have been identified for SEAD-44B.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the Prison Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables R.5.1 and R.5.2** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid**. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health**.

Table R.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Anthracene	50	1800	50	100	Y	N
Benzo(a)anthracene	0.224	1.1	0.224	1	Y	N
Benzo(a)pyrene	0.061	0.11	0.061	1	Y	N
Benzo(b)fluoranthene	1.1	1.1	1.1	1	Y	Y
Benzo(g,h,i)perylene	50	NA	50	100	Y	N
Benzo(k)fluoranthene	1.1	11	1.1	0.8	Y	Y
Chrysene	0.4	110	0.4	1	Y	N
Dibenz(a,h)anthracene	0.014	0.11	0.014	0.33	Y	N
Fluoranthene	50	240	50	100	Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1	3.2	1	Y	Y
Phenanthrene	50	NA	50	100	Y	N
Pyrene	50	180	50	100	Y	N
bis(2-ethylhexyl)phthalate	50	39	50	NA	Y	Y
VOCs						
Acetone	0.2	6100	0.2	0.05	Y	Y
2-Butanone	0.3	2700	0.3	NA	Y	N
Pesticides						
4,4'-DDD	2.9	0.19	2.9	0.0033	Y	Y
4,4'-DDE	2.1	2	2.1	0.0033	Y	Y
4,4'-DDT	2.1	1.9	2.1	0.0033	Y	Y
Dieldrin	0.044	0.034	0.044	0.005	Y	Y
Endosulfan I	0.9	47	0.9	2.4	Y	N
Metals						
Cadmium	2.3	7.1	2.3	2.5	Y	N

Table R.5.1 Comparison of Toxicity Data and Cleanup Levels (continued)

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
Copper	33	310	33	50	Y	N
Lead	24.8	400	24.8	63	Y	N
Potassium	2380	NA	2380	NA	N	N
Selenium	2	39	2	4	Y	N
Zinc	110	2300	110	109	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table R.5.2 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Groundwater Cleanup Objectives (Class GA) ⁽²⁾		
Metals						
Magnesium	46800	NA	ROD did no establish cleanup levels		N	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal groundwater and surface water screening values are EPA Regional Screening Levels (RSL) for tapwater based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEAD-44B comprising the area known as the Prison Area. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-44B.
- If UU/UE can be met in soil, collect groundwater samples to determine if Class GA standards can be met in groundwater at SEAD-44B.

7.0 Protectiveness Statement

The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

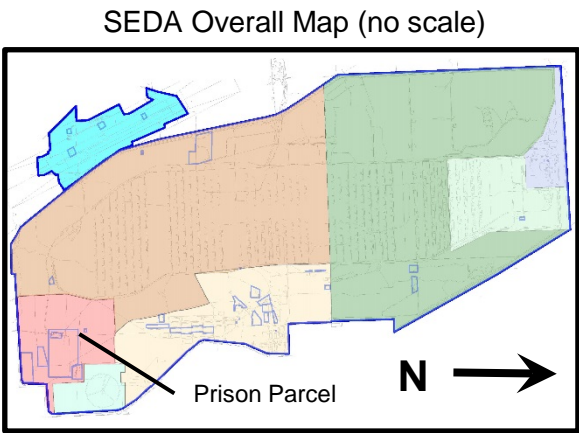
R-1
Five-Year Review- Site Visit Photo Log
Prison Area Parcel

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: Prison Parcel, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers



- Prison Parcel contains the following:
- SEAD-43 Building 606 Old Missile Propellant Test Laboratory
 - SEAD-44A Quality Assurance Test Laboratory
 - SEAD-44B Quality Assurance Test laboratory
 - SEAD-52 Building 608 and 612 Ammunition Breakdown Area
 - SEAD-56 Building 606 Herbicide and Pesticide Storage
 - SEAD-62 Nicotine Sulfate Disposal Area near Building 606 and 612
 - SEAD-64C Garbage Disposal Area
 - SEAD-69 Building 606 Disposal Area



Site Visit Photo 1



Photo ID: IMG_4088.JPG
Description: Entrance to Correctional Facility. Photos within the Correctional Facility are prohibited.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX S

SEAD-52: BUILDING 608 AND 612 AMMUNITION BREAKDOWN AREA

APPENDIX S: SEAD-52 BUILDING 608 AND 612 AMMUNITION BREAKDOWN AREA

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5.1	Question A: Is the remedy functioning as intended by the decision documents?.....	S-4
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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-52 (Building 608 and 612 Ammunition Breakdown Area) is located in the southeastern portion of SEDA on land currently occupied by the Five Points Correctional Facility. SEAD-52 was active from the mid-1950s to the late 1990s. The area consists of four buildings: Buildings 608, 610, 611, and 612. Building 608 was previously used for the storage of ammunition magazines; Building 610 was used for ammunition powder collection; Building 611 was used for storage of equipment, paints, and solvents; and Building 612 was used for the breakdown and maintenance of ammunition. None of these buildings currently are active or used for storage of materials.

1.2 Initial Response

The field investigation at SEAD-52 included a Limited Sampling Plan (LSP) that focused on soil sampling that was performed in 1993. Complete soil and groundwater analytical results from the LSP investigations are presented in “Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B,” Final (Parsons, 2002a).

1.3 Basis for Taking Action

Because UU/UE was not evaluated there is a potential for risk to hypothetical future site users and an action was required at SEADs 43/56/69 to ensure land use remains protective of site users.

1.3.1 CONTAMINANTS OF CONCERN

The LSP was performed in 1993 to evaluate the presence of explosives in the soil at SEAD-52 (Parsons, 2007a). The results of the investigation indicated that three explosive compounds were detected in one or more of the collected soil samples.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-52 there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all Prison land use scenario receptors are less than 1.0. The risk assessment evaluated risk to receptors under the Prison land use scenario (i.e., prison worker, prison inmate, construction worker, worker at on-site day care, and child at on-site day care center). It should be noted that the described property is being used and maintained for a correctional facility in perpetuity. The results of total cancer risk and total non-cancer HI are summarized in Table 7-9 of the ROD (Parsons, 2007a) and in the “Decision Document – Mini Risk Assessment” (Parsons, 2002a).

An ecological risk assessment was completed and no COCs were identified.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Record of Decision for 17 No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B and 122E)” requires the establishment of ICs. The LUC performance objectives for SEAD-52 include:

- Comply with the use limitations documented and imposed in the Deed used to transfer property containing SEADs 43/56/69, 44A, 44B, 52, 62 and 64C from the U.S. Government to the people of the State of New York for the construction of a correctional facility (See Seneca County Liber 612 Page 014 through 031).

The Army had previously documented and imposed LUCs within a portion of the former Depot: in the southeastern corner of the Depot where the Five Points Correctional Facility (“Prison Area”) currently is located. SEAD-52 is located within land covered by the existing LUCs imposed on land within the Prison Area parcel. Within the ROD (Parsons, 2007a), the Army formalized and documented its intention to impose the existing LUCs on the AOCs located within the Prison Area parcel under CERCLA.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) (USACE, 2006) implemented land use controls for the SEAD PID/Warehouse Area. Addendum 2 (USACE, 2008a) expanded the LUC RD from the PID/Warehouse Area to include sites that are in the area formerly known as the “Prison Area”.

SEAD 52 is located within the “Prison Area” property that the Army transferred to the State of New York for use as a correction facility. This property was transferred prior to the issuance of the ROD signed on July 3, 2007 and there was no requirement for an Environmental Easement.

The “Prison Area” has an existing deed with a reversionary clause. The area consists of eight AOCs that were transferred in September 2000 under a public benefit conveyance that conveyed the land in the southeastern part of the former Depot to the people of the State of New York for the construction of the Five Points Correctional Facility. The existing deed provisions ensure the property is used in a manner consistent with the above LUC Objectives and require the State of New York to use the property for the purpose of adult incarceration. Pursuant to the terms of the deed, the prison use restriction remains in effect for these AOCs in perpetuity, or the property legally reverts to the United States (Parsons, 2007a). A summary of the institutional controls currently implemented at SEAD-52 is presented in **Table S.2.1** based on the data and risk presented in the ROD and the LUC RD.

Hazardous substances may be present at one or more of the listed historic AOCs at concentrations that do not allow for unrestricted use and unlimited exposure. However, based on the results of previous investigations, risk assessments, and/or removal actions, these AOCs do not pose or represent a risk or threat to human health and the environment, given consideration of the area’s continuing restricted use as a state maximum security correctional facility.

Table S.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	N/A ⁽¹⁾	Yes ⁽²⁾	“Prison Area”	Restrict site use.	Deed and Reversionary Clause.

Note:

(1) No Risks identified for current and anticipated future land use.

(2) SEAD-52 is located within the Prison Area where an area-wide IC is present. This IC restricts use of the property as a state maximum security correctional facility. This site is physically located within the boundary of the Prison area, and therefore, the IC is applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (Table S.3.1) as well as the recommendations from the last five-year review and the current status of those recommendations (Table S.3.2).

Table S.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-52	Protective	The remedy implemented for the Prison Area is protective of the environment and protects human health. The remedy continues to minimize explosive safety hazards. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table S.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-52	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. Interviews confirmed that no prohibited facilities were present or had been constructed at the site and the use of the property remains as a correctional facility.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

An interview of the correctional facility/grounds manager was conducted on July 23, 2020 to determine whether required LUCs imposed by the approved ROD at SEAD-52 are being maintained. FYR-site visit photo logs are contained in Attachment 1 and completed FYR site inspection checklists are contained in Attachment 2.

The following observations were made during the site inspection:

- No violations of the institutional or land use controls were observed.
- There is continued restricted use of the property as a state maximum security correctional facility.

4.4 Interviews

Based on an interview with a representative from Five Points Correctional Facility during the FYR process, SEAD-44B continues to be used as a state maximum security correctional facility.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for SEAD-52 in the Prison Area have been completed and documented. No continuing active remediation is required for the Prison Area. Based on a review of the LUC RD Addendum 2, transfer deed, and the FYR site visit conducted July 23, 2020, the remedy, the remedy is functioning as intended by the decision documents.

The remedy implemented at the SEAD-52 is currently protective of human health and the environment because existing deed provisions require the State of New York to use the property containing SEAD-52, as a correction facility for the purpose of adult incarceration. If the State chooses to stop that activity, the property reverts back to the United States of America. Should the property revert to the Federal Government, the LUC will terminate, and a remedy substitution will be agreed to.

The selected remedy is still protective of public health and the environment. However, there is potential to reduce the frequency of period reviews without reducing the protectiveness of the remedy. No early indicators of potential issues have been identified for SEAD-52.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the Prison Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of increasing the values of the cleanup levels for these compounds, therefore the cleanup goals are less restrictive. **Table S.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid**. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health**.

Table S.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
Nitroaromatics						
2,4,6-Trinitrotoluene	NA	3.6	ROD did not establish cleanup levels		Y	Y
2,4-Dinitrotoluene	NA	1.7			Y	Y
Tetryl	NA	16			Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEAD-52 comprising the area known as the Prison Area. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations;

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-52.
- If UU/UE can be met in soil, collect groundwater samples to determine if Class GA standards can be met in groundwater at SEAD-52.

7.0 Protectiveness Statement

The remedy implemented for the Prison Area is protective of the environment and protects human health. The remedy continues to minimize explosive safety hazards. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

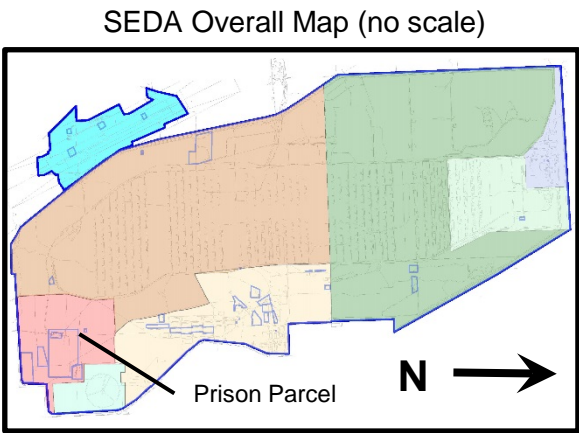
S-1
Five-Year Review- Site Visit Photo Log
Prison Area Parcel

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: Prison Parcel, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers



- Prison Parcel contains the following:
- SEAD-43 Building 606 Old Missile Propellant Test Laboratory
 - SEAD-44A Quality Assurance Test Laboratory
 - SEAD-44B Quality Assurance Test laboratory
 - SEAD-52 Building 608 and 612 Ammunition Breakdown Area
 - SEAD-56 Building 606 Herbicide and Pesticide Storage
 - SEAD-62 Nicotine Sulfate Disposal Area near Building 606 and 612
 - SEAD-64C Garbage Disposal Area
 - SEAD-69 Building 606 Disposal Area



Site Visit Photo 1



Photo ID: IMG_4088.JPG
Description: Entrance to Correctional Facility. Photos within the Correctional Facility are prohibited.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX T

SEAD-62: NICOTINE SULFATE DISPOSAL AREA NEAR BUILDING 606 AND 612

APPENDIX T: SEAD-62 NICOTINE SULFATE DISPOSAL AREA NEAR BUILDING 606 AND 612

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The Nicotine Sulfate Disposal Area (SEAD-62) is located in the southeastern portion of SEDA. It measures approximately one-half mile by one-quarter mile in size and is characterized by mostly undeveloped land with the exception of bunkers and buildings along the western perimeter.

1.2 Initial Response

The field investigation at SEAD-62 included an ESI that was performed in 1994. Three soil samples and three groundwater samples were collected from SEAD-62 and submitted for chemical analysis. All the samples were analyzed for the following: TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, and cyanide according to the NYSDEC CLP SOW, and herbicides by USEPA Method 8150. Complete soil and groundwater analytical results from the ESI are presented in "Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B," Final (Parsons, 2002a).

1.3 Basis for Taking Action

Because UU/UE was not evaluated there is a potential for risk to hypothetical future site users and an action was required at SEAD 62 to ensure land use remains protective of site users.

1.3.1 CONTAMINANTS OF CONCERN

Colloquial evidence suggests that two drums containing nicotine sulfate were disposed of in the area surrounding Buildings 606 and 612 (Parsons, 2002a). Summaries of the soil and groundwater results are presented in Table 6-22 and 6-23 of the ROD (Parsons, 2007a), respectively.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-62 there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all Prison land use scenario receptors are less than 1.0. The risk assessment evaluated risk to receptors under the Prison land use scenario (i.e., prison worker, prison inmate, construction worker, worker at on-site day care, and child at on-site day care center). It should be noted that the described property is being used and maintained for a correctional facility in perpetuity. The results of total cancer risk and total non-cancer HI are summarized in Table 7-10 of the ROD (Parsons, 2007a) and in the "Decision Document – Mini Risk Assessment" (Parsons, 2002a).

An ecological risk assessment was completed and no COCs were identified.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "Record of Decision for 17 No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B and 122E)" requires the establishment of ICs. The LUC performance objectives for SEAD-62 include:

- Comply with the use limitations documented and imposed in the Deed used to transfer property containing SEADs 43/56/69, 44A, 44B, 52, 62 and 64C from the U.S. Government to the people

of the State of New York for the construction of a correctional facility (See Seneca County Liber 612 Page 014 through 031).

The Army had previously documented and imposed LUCs within a portion of the former Depot: in the southeastern corner of the Depot where the Five Points Correctional Facility (“Prison Area”) currently is located. SEAD-62 is located within land covered by the existing LUCs imposed on land within the Prison Area parcel. Within the ROD (Parsons, 2007a), the Army formalized and documented its intention to impose the existing LUCs on the AOCs located within the Prison Area parcel under CERCLA.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) (USACE, 2006) implemented land use controls for the SEAD PID/Warehouse Area. Addendum 2 (USACE, 2008a) expanded the LUC RD from the PID/Warehouse Area to include sites that are in the area formerly known as the “Prison Area”.

SEAD-62 is located within the “Prison Area” property that the Army transferred to the State of New York for use as a correction facility. This property was transferred prior to the issuance of the ROD signed on July 3, 2007 and there was no requirement for an Environmental Easement. A summary of the institutional controls currently implemented at SEAD-62 is presented in **Table T.2.1** based on the data and risk presented in the ROD and the LUC RD.

The “Prison Area” has an existing deed with a reversionary clause. The area consists of eight AOCs that were transferred in September 2000 under a public benefit conveyance that conveyed the land in the southeastern part of the former Depot to the people of the State of New York for the construction of the Five Points Correctional Facility. The existing deed provisions ensure the property is used in a manner consistent with the above LUC Objectives and require the State of New York to use the property for the purpose of adult incarceration. Pursuant to the terms of the deed, the prison use restriction remains in effect for these AOCs in perpetuity, or the property legally reverts to the United States (Parsons, 2007a).

Hazardous substances may be present at one or more of the listed historic AOCs at concentrations that do not allow for unrestricted use and unlimited exposure. However, based on the results of previous investigations, risk assessments, and/or removal actions, these AOCs do not pose or represent a risk or threat to human health and the environment, given consideration of the area’s continuing restricted use as a state maximum security correctional facility.

Table T.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	N/A ⁽¹⁾	Yes ⁽²⁾	“Prison Area”	Restrict site use.	Deed and Reversionary Clause.

Note:

(1) No Risks identified for current and anticipated future land use.

(2) SEAD-62 is located within the Prison Area where an area-wide IC is present. This IC restricts use of the property as a state maximum security correctional facility. This site is physically located within the boundary of the Prison area, and therefore, the IC is applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table T.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table T.3.2**).

Table T.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-62	Protective	The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table T.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Description	Status	Completion Date (if applicable)
SEAD-62	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. Interviews confirmed that no prohibited facilities were present or had been constructed at the site and the use of the property remains as a correctional facility.		N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

An interview of the correctional facility/grounds manager was conducted on July 23, 2020 to determine whether required LUCs imposed by the approved ROD at SEAD-62 are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No violations of the institutional or land use controls were observed.
- There is continued restricted use of the property as a state maximum security correctional facility.

4.4 Interviews

Based on an interview with a representative from Five Points Correctional Facility during the FYR process, SEAD-62 continues to be used as a state maximum security correctional facility

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for SEAD-62 in the Prison Area have been completed and documented. No continuing active remediation is required for the Prison Area. Based on a review of the LUC RD Addendum 2, transfer deed, and the FYR site visit conducted July 23, 2020, the remedy, the remedy is functioning as intended by the decision documents.

The remedy implemented at the SEAD-62 is currently protective of human health and the environment because existing deed provisions require the State of New York to use the property containing SEAD-62, as a correction facility for the purpose of adult incarceration. If the State chooses to stop that activity, the property reverts back to the United States of America. Should the property revert to the Federal Government, the LUC will terminate, and a remedy substitution will be agreed to.

The selected remedy is still protective of public health and the environment. However, there is potential to reduce the frequency of periodic reviews without reducing the protectiveness of the remedy. No early indicators of potential issues have been identified for SEAD-62.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the Prison Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were

found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables T.5.1 and T.5.2** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table T.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Fluoranthene	50	240	50	100	Y	N
Pyrene	50	180	50	100	Y	N
Herbicides						
2,4,5-Trichlorophenol	1.9	630	1.9	NA	Y	N
Dicamba	NA	190	NA	NA	Y	Y
Metals						
Cadmium	2.3	7.1	2.3	3	Y	N
Copper	33	310	33	50	Y	N
Potassium	2380	NA	2380	NA	N	N
Selenium	2	39	2	4	Y	N
Zinc	110	2300	110	109	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table T.5.2 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Groundwater Cleanup Objectives (Class GA) ⁽²⁾		
VOCs						
Benzene	1	0.46	ROD did no establish cleanup levels		Y	Y
Metals						
Magnesium	NA	NA	ROD did no establish cleanup levels		N	N
Herbicides						
2,4,5-Trichlorophenol	35	120	ROD did no establish cleanup levels		Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal groundwater and surface water screening values are EPA Regional Screening Levels (RSL) for tap water based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for the eight sites (SEADs 43/56/69, 44A, 44B, 52, 62, and 64C) comprising the area known as the Prison Area. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.

7.0 Protectiveness Statement

The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

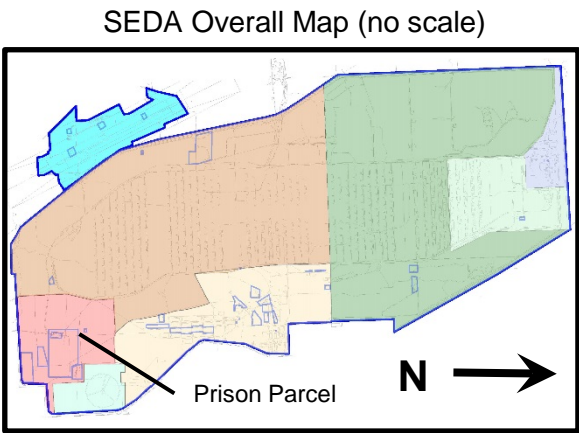
T-1
Five-Year Review- Site Visit Photo Log
Prison Area Parcel

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: Prison Parcel, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers



- Prison Parcel contains the following:
- SEAD-43 Building 606 Old Missile Propellant Test Laboratory
 - SEAD-44A Quality Assurance Test Laboratory
 - SEAD-44B Quality Assurance Test laboratory
 - SEAD-52 Building 608 and 612 Ammunition Breakdown Area
 - SEAD-56 Building 606 Herbicide and Pesticide Storage
 - SEAD-62 Nicotine Sulfate Disposal Area near Building 606 and 612
 - SEAD-64C Garbage Disposal Area
 - SEAD-69 Building 606 Disposal Area



Site Visit Photo 1



Photo ID: IMG_4088.JPG
Description: Entrance to Correctional Facility. Photos within the Correctional Facility are prohibited.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name		Title	Date
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name		Title	Date
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX U

SEAD-64C: GARBAGE DISPOSAL AREA

APPENDIX U: SEAD-64C GARBAGE DISPOSAL AREA

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The location of the rumored Garbage Disposal Area at SEAD-64C is near the intersection of East Patrol Road and South Patrol Road in the southeastern corner of SEDA. This former AOC is located within the bounds of the New York State Department of Correctional Service's Five Points Correctional Facility.

1.2 Initial Response

The field investigation at SEAD-64C included an ESI that was performed in 1994. Complete analytical results from the ESI are presented in "Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B," Final (Parsons, 2002a). Surface soil samples, subsurface soil samples, and groundwater samples were collected at SEAD-64C and submitted for chemical analysis. All of the samples were analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, and cyanide according to the NYSDEC CLP SOW.

1.3 Basis for Taking Action

Because UU/UE was not evaluated there is a potential for risk to hypothetical future site users and an action was required at SEAD-64C to ensure land use remains protective of site users.

1.3.1 CONTAMINANTS OF CONCERN

SEAD-64C is the location of a proposed SEAD landfill. An Army Pollution Abatement report concluded that the proposed site could be used for a sanitary landfill; however, no available information indicates that a formal landfill was established on-site. Information presented in the SMWU classification report suggests limited dumping may have occurred at the site and that transmission power lines may be buried throughout the site; however, the Army notified the NYSDEC that the area designated at SEAD-64C was misidentified as a historic landfill site and no waste was ever identified during the Army's investigations (Parsons, 2002a; 2007a). Summaries of the soil and groundwater results obtained during the ESI are presented in Table 6-28 and 6-29 of the ROD (Parsons, 2007a), respectively.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-64C there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors is less than 1.0. The risk assessment evaluated risk to receptors under the Prison land use scenario. It should be noted that the described property is being used and maintained for a correctional facility in perpetuity. A summary of the risk assessment results is presented in Table 7-12 of the ROD (Parsons, 2007a), and a full discussion is included in the "Decision Document – Mini Risk Assessment" (Parsons, 2002a).

An ecological risk assessment was completed and no COCs were identified.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Record of Decision for 17 No Action/No Further Action SWMUs Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B and 122E)” requires the establishment of ICs. The LUC performance objectives for SEAD-64C include:

- Comply with the use limitations documented and imposed in the Deed used to transfer property containing SEADs 43/56/69, 44A, 44B, 52, 62 and 64C from the U.S. Government to the people of the State of New York for the construction of a correctional facility (See Seneca County Liber 612 Page 014 through 031).

The Army had previously documented and imposed LUCs within a portion of the former Depot: in the southeastern corner of the Depot where the Five Points Correctional Facility (“Prison Area”) currently is located. SEAD-64C is located within land covered by the existing LUCs imposed on land within the Prison Area parcel. Within the ROD (Parsons, 2007a), the Army formalized and documented its intention to impose the existing LUCs on the AOCs located within the Prison Area parcel under CERCLA.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) (USACE, 2006) implemented land use controls for the SEAD PID/Warehouse Area. Addendum 2 (USACE, 2008a) expanded the LUC RD from the PID/Warehouse Area to include sites that are in the area formerly known as the “Prison Area”.

SEAD-64C is located within the “Prison Area” property that the Army transferred to the State of New York for use as a correction facility. This property was transferred prior to the issuance of the ROD signed on July 3, 2007 and there was no requirement for an Environmental Easement. A summary of the institutional controls currently implemented at SEAD-64C is presented in **Table U.2.1** based on the data and risk presented in the ROD and the LUC RD.

The “Prison Area” has an existing deed with a reversionary clause. The area consists of eight AOCs that were transferred in September 2000 under a public benefit conveyance that conveyed the land in the southeastern part of the former Depot to the people of the State of New York for the construction of the Five Points Correctional Facility. The existing deed provisions ensure the property is used in a manner consistent with the above LUC Objectives and require the State of New York to use the property for the purpose of adult incarceration. Pursuant to the terms of the deed, the prison use restriction remains in effect for these AOCs in perpetuity, or the property legally reverts to the United States (Parsons, 2007a).

Hazardous substances may be present at one or more of the listed historic AOCs at concentrations that do not allow for unrestricted use and unlimited exposure. However, based on the results of previous investigations, risk assessments, and/or removal actions, these AOCs do not pose or represent a risk or threat to human health and the environment, given consideration of the area’s continuing restricted use as a state maximum security correctional facility.

Table U.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	N/A ⁽¹⁾	Yes ⁽²⁾	"Prison Area"	Restrict site use.	Deed and Reversionary Clause.

Note:

(1) No Risks identified for current and anticipated future land use.

(2) SEAD-64C is located within the Prison Area where an area-wide IC is present. This IC restricts use of the property as a state maximum security correctional facility. This site is physically located within the boundary of the Prison area, and therefore, the IC is applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table U.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table U.3.2**).

Table U.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-64C	Protective	The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table U.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Description	Status	Completion Date (if applicable)
SEAD-64C	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. Interviews confirmed that no prohibited facilities were present or had been constructed at the site and the use of the property remains as a correctional facility.		N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

An interview of the correctional facility/grounds manager was conducted on July 23, 2020 to determine whether required LUCs imposed by the approved ROD at SEAD-64C are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No violations of the institutional or land use controls were observed.
- There is continued restricted use of the property as a state maximum security correctional facility.

4.4 Interviews

Based on an interview with a representative from Five Points Correctional Facility during the FYR process, SEAD-64C continues to be used as a state maximum security correctional facility

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for SEAD-64C in the Prison Area have been completed and documented. No continuing active remediation is required for the Prison Area. Based on a review of the LUC RD Addendum 2, transfer deed, and the FYR site visit conducted July 23, 2020, the remedy, the remedy is functioning as intended by the decision documents.

The remedy implemented at the SEAD-64C is currently protective of human health and the environment because existing deed provisions require the State of New York to use the property containing SEAD-64C, as a correction facility for the purpose of adult incarceration. If the State chooses to stop that activity, the property reverts back to the United States of America. Should the property revert to the Federal Government, the LUC will terminate, and a remedy substitution will be agreed to.

The selected remedy is still protective of public health and the environment. However, there is potential to reduce the frequency of period reviews without reducing the protectiveness of the remedy. No early indicators of potential issues have been identified for SEAD-64C.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the Prison Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a). **Tables U.5.1 and U.5.2** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table U.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
SVOCs						
bis(2-ethylhexyl)phthalate	50	39	50	NA	Y	Y
Di-n-butylphthalate	8.1	630	8.1	NA	Y	N
Pesticides/PCBs						
Dieldrin	0.044	0.034	0.044	0.0050	Y	Y
Heptachlor	0.1	0.13	0.1	0.042	Y	Y
Metals						
Selenium	2	39	2	3.9	Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table U.5.2 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Groundwater Cleanup Objectives (Class GA) ⁽²⁾		
SVOCs						
Diethyl Phthalate	NA	5100	ROD did not establish cleanup levels		Y	Y
Phenol	1	580			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal groundwater and surface water screening values are EPA Regional Screening Levels (RSL) for tap water based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for the eight sites (SEADs 43/56/69, 44A, 44B, 52, 62, and 64C) comprising the area known as the Prison Area. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.

7.0 Protectiveness Statement

The remedy implemented for the Prison Area is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

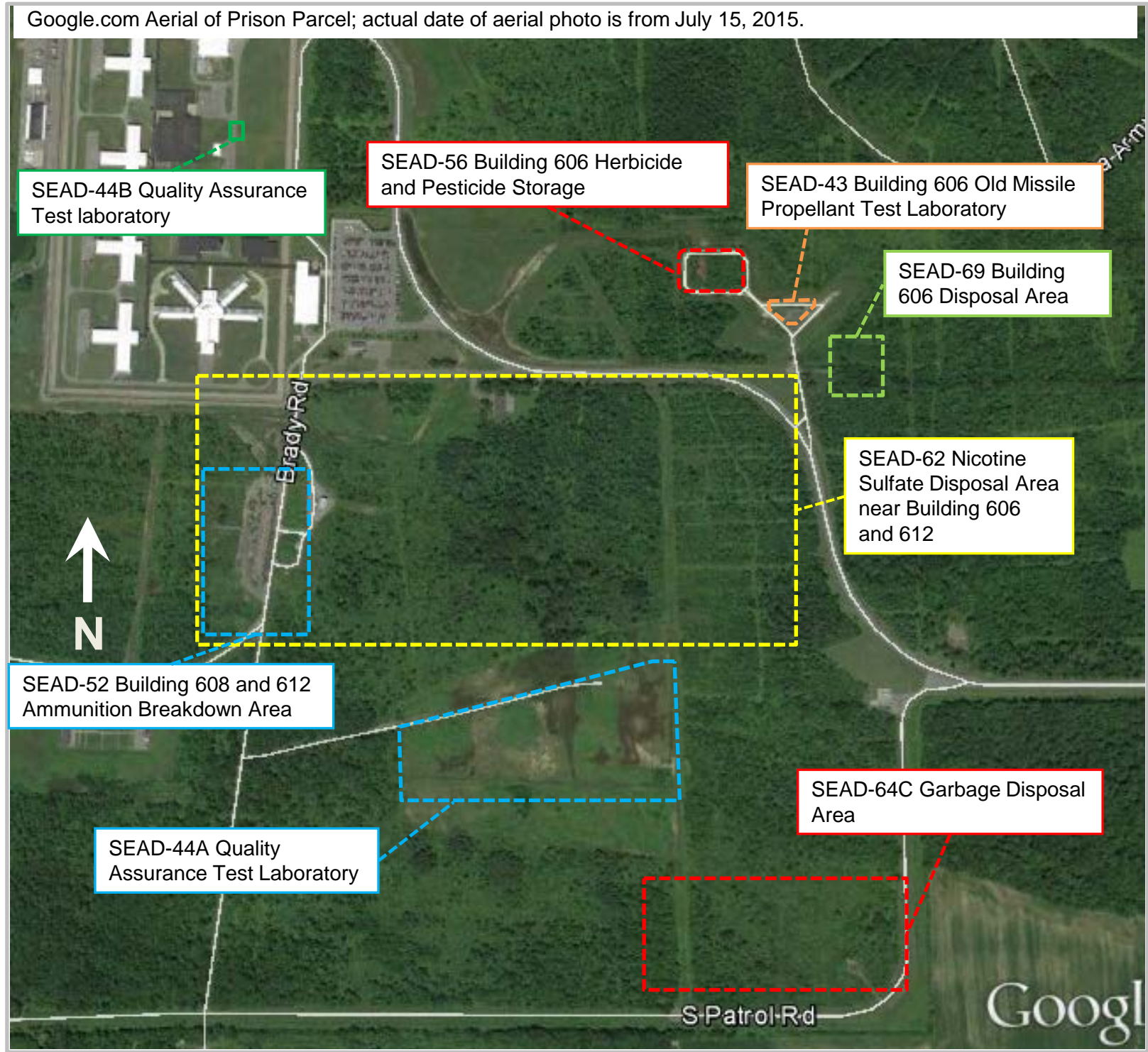
ATTACHMENT 1

PHOTO LOG

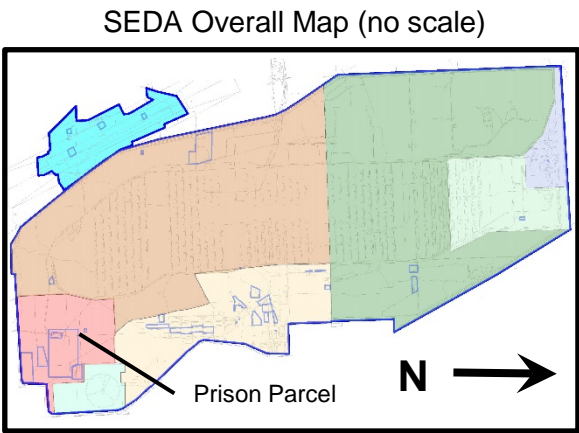
U-1
Five-Year Review- Site Visit Photo Log
Prison Area Parcel

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: Prison Parcel, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers



- Prison Parcel contains the following:
- SEAD-43 Building 606 Old Missile Propellant Test Laboratory
 - SEAD-44A Quality Assurance Test Laboratory
 - SEAD-44B Quality Assurance Test laboratory
 - SEAD-52 Building 608 and 612 Ammunition Breakdown Area
 - SEAD-56 Building 606 Herbicide and Pesticide Storage
 - SEAD-62 Nicotine Sulfate Disposal Area near Building 606 and 612
 - SEAD-64C Garbage Disposal Area
 - SEAD-69 Building 606 Disposal Area



Site Visit Photo 1



Photo ID: IMG_4088.JPG
Description: Entrance to Correctional Facility. Photos within the Correctional Facility are prohibited.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name		Title	Date
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name		Title	Date
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
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As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
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2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX V

SEAD-13: INHIBITED RED FUMING NITRIC ACID (IRFNA)

APPENDIX V - SEAD-13 INHIBITED RED FUMING NITRIC ACID (IRFNA) DISPOSAL SITE

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-13 is located in the northeast portion of the former Depot and includes two historic disposal areas, SEAD-13-East and SEAD-13-West, which are located on the eastern and western sides of the Duck Pond's southern end, respectively. Historically, SEAD-13 was used during the early 1960s to dispose of quantities of unserviceable Inhibited Red-Fuming Nitric Acid (IRFNA), an oxidizer used in missile liquid propellant systems. SEAD-13 East contains disposal pits at the surface while the SEAD-13-West area exhibited no visible evidence of disposal pits. During the operation of the IRFNA Disposal Site, five pits were excavated out of the till overburden and were utilized as a neutralization area for IRFNA. The pits were approximately 30 ft long, 8 ft wide, and 4 ft deep and were filled approximately 2.5 ft deep with limestone chips. The sides of the pits were also lined with limestone. Barrels of unserviceable IRFNA were brought to the site from other locations within the Depot, and were temporarily staged on pallets near the disposal pits. Each barrel of unserviceable IRFNA was emptied and mixed with water in an ejector. The mixture was then discharged to the disposal pit through a long polyethylene hose that discharged beneath the surface of the water in the pit being used. The disposed IRFNA/water solution mixed with the limestone in the pit to facilitate the neutralization of the acid. Ten barrels were typically discharged into each pit during one day of operation.

1.2 Initial Response

Site investigations performed at SEAD-13 included an ESI in 1993 and 1994, followed by a SI performed in 2001. The ESI work included geophysical investigations, surface and subsurface soil sampling, monitoring well installations, groundwater sampling, surface water/sediment sampling, and chemical analyses. The SI included additional soil borings (with surface and subsurface soil sampling), monitoring well installations, groundwater sampling, and chemical analysis.

1.3 Basis for Taking Action

Due to human health risk in groundwater an action was required at SEAD-13 to ensure land use remains protective of site users.

1.3.1 CONTAMINANTS OF CONCERN

Complete analytical results from both investigations are presented in "Decision Document Mini Risk Assessment SEAD-13, Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Area," Final (Parsons, 2004d).

The presence of nitrate is likely related to past activities conducted in the area. The extent of the nitrate plume is defined and restricted to the area located between the historic disposal pits observed in SEAD-13-East and the Duck Pond to the west. Groundwater data from monitoring wells in the SEAD-13-West side of this AOC does not show evidence of a nitrate plume in this area of the AOC which is hydraulically downgradient of SEAD-13-East and the Duck Pond. Chemical analyses of surface water in the Duck Pond indicate that the nitrate/nitrite-nitrogen concentrations are below the levels established for drinking water sources nationally and within the State of New York.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-13 the human health cancer risks were below the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} if exposure to groundwater were to be limited. The calculated non-cancer HI for the construction worker is less than 1.0, but the greater than 1.0 for the Park worker (HI=7) and

the recreational visitor (HI=3). The human health risk assessment was conducted using the 95% UCL of the mean as the EPC.

The elevated HI for both receptors was due to ingestion of groundwater, with nitrate/nitrite-nitrogen, aluminum, and manganese in groundwater was the largest contributors to risk for both receptors. When the groundwater pathway was eliminated, the total HIs for these receptors were less than 1. The cancer risk for the park worker, recreational visitor, and the construction worker were at acceptable limits.

Risks to a future resident were also calculated, which serves to evaluate receptors under the Resort/Residential land use scenario. The cancer risk for the resident (adult), 2×10^{-4} was greater than the USEPA acceptable limit of 1×10^{-4} ; and the cancer risk for resident (child), 1×10^{-4} , was at the acceptable limit. The cancer risk was due to ingestion of groundwater. If the groundwater pathway were eliminated, the cancer risk value for future residents would be within acceptable limits.

The maximum detected concentration was used as the EPC for the ecological risk assessment. An ecological risk assessment was completed and no COCs were identified (Parsons, 2004d).

2.0 Remedial Actions

2.1 Remedy Selection

No action was performed at SEAD-13. A groundwater use/access restriction was selected in the ROD (Parsons, 2007a) for SEAD-13 and is intended to eliminate human contact with groundwater, thereby reducing risk to within acceptable levels for potential human receptors. There is risk associated with the use of the groundwater at SEAD-13, driven by the concentrations of nitrate, aluminum, and manganese identified. The risk from the presence of metals is associated with the suspended solids contained in the collected groundwater samples and not from the groundwater itself.

The ROD titled "Seventeen SWMU Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E)" signed on July 3, 2007 requires the establishment of ICs: The elements that composed the remedy included:

- Establishing, maintaining, monitoring, and reporting on a LUC that prohibits access to and use of groundwater at the AOCs until its quality allows for unrestricted use and unlimited exposures; and
- Establishing, maintaining, monitoring, and reporting on a LUC that maintains the integrity of any current or future remedial or monitoring system.

2.2 Remedy Implementation

A LUC was implemented over the geographic area of SEAD-13 which prohibits access to or use of the groundwater. This restriction will remain in effect until the concentrations of hazardous substances in groundwater beneath the AOC have been reduced to levels that allow for UU/UE. Once groundwater cleanup standards are achieved, the groundwater use/access restriction may be eliminated, with USEPA approval (Parsons, 2007a).

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") dated December 2006 implements LUCs for the SEAD "PID/Warehouse Area". Addendum 2 expanded the LUC RD from the PID area to include sites that are in the area formerly known as the Conservation Area and the Airfield parcels. SEAD-13 is located on the property known as the Conservation Area Parcel and are still under the control of the Army. Addendum 2 applied the SEAD LUC

RD enforcement, modification, and termination provisions to SEAD-13. The designated reuse of land within the Depot was revised in 2005 by SCIDA, and the new future land use for SEAD-13 is Residential/Resort. A summary of the institutional controls currently implemented at SEAD-13 is presented in **Table V.2.1** based on the data and risk presented in the ROD and the LUC RD.

Table V.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater	Yes	Yes	SEAD 13	Prevent access or use of the groundwater until New York States GA ground water Standards are achieved.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (Table V.3.1) as well as the recommendations from the last five-year review and the current status of those recommendations (Table V.3.2).

Table V.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-13	Protective	The remedy implemented for SEAD-13 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table V.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-13	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new access to, or use of, groundwater was observed.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See References 12.0 in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-13 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No facilities were present or had been constructed at the site and no access to, or use of, groundwater was evident.

4.4 Interviews

Since SEAD-13 is uninhabited and unoccupied, no interviews were conducted during the Five-Year Review process for SEAD-13.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the ROD for SEAD-13 have been completed and documented. No continuing active remediation is required for SEAD-13. Based on a review of the LUC RD Addendum 2 and the FYR site visit conducted on July 22, 2020, the remedy is functioning as intended by the decision documents.

The remedy implemented at the SEAD-13 currently is protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the identified AOCs has been implemented and currently is being maintained, monitored and reported upon periodically.

The selected remedy is still protective of human health and the environment. No early indicators of potential issues have been identified for SEAD-13. Recommendations for optimization of the LTM program are discussed further in Section 6.0.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the Prison Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables V.5.1 through V.5.4** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid**. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health**.

Table V.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (4)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
PAHs						
2,4,6-Trichlorophenol	--	6.3	ROD did not establish cleanup levels		Y	N
2,4-Dinitrotoluene	--	1.7			Y	N
2-Methylnaphthalene	36.4	24			Y	Y
4-Methylphenol	0.9	630			Y	N
Acenaphthene	50	360			Y	N
Acenaphthylene	41	NA			N	N
Anthracene	50	1800			Y	N
Benzo(a)anthracene	0.224	1.1			Y	N
Benzo(a)pyrene	0.061	0.11			Y	N
Benzo(b)fluoranthene	1.1	1.1			N	N
Benzo(g,h,i)perylene	50	NA			N	N
Benzo(k)fluoranthene	1.1	11			Y	N
bis(2-ethylhexyl)phthalate	50	39			Y	Y
Carbazole	--	NA			N	N
Chrysene	0.4	110			Y	N
Di-n-butylphthalate	8.1	630			Y	N
Di-n-octylphthalate	50	63			Y	N
Dibenz(a,h)anthracene	0.014	0.11			Y	N
Dibenzofuran	6.2	7.8			Y	N
Fluoranthene	50	240			Y	N
Fluorene	50	240			Y	N
Hexachlorobenzene	0.41	0.21			Y	Y
Indeno(1,2,3-cd)pyrene	3.2	1.1			Y	Y
Naphthalene	13	2			Y	Y

Table V.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil (continued)

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
Phenanthrene	50	NA	ROD did not establish cleanup levels		N	N
Phenol	0.03	1900			Y	N
Pyrene	50	180			Y	N
VOCs						
Acetone	0.2	6100	ROD did not establish cleanup levels		Y	N
Carbon Disulfide	2.7	77			Y	N
Methylene Chloride	0.1	35			Y	N
Methyl Ethyl Ketone	0.3	2700			Y	N
Toluene	1.5	490			Y	N
Pesticides/PCBs						
4,4'-DDE	2.1	2	ROD did not establish cleanup levels		Y	Y
Other Analyses						
Nitrate/Nitrite Nitrogen	--	NA	ROD did not establish cleanup levels		N	N
Fluoride	--	310			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table V.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
PAHs						
2-Methylnaphthalene	36.4	24	ROD did not establish cleanup levels		Y	Y
4-Methylphenol	0.9	630			Y	N
Acenaphthylene	41	NA			N	N
Anthracene	50	1800			Y	N
Benzo(a)anthracene	0.224	1.1			Y	N
Benzo(a)pyrene	0.061	0.11			Y	N
Benzo(b)fluoranthene	1.1	1.1			N	N
Benzo(g,h,i)perylene	50	NA			N	N
Benzo(k)fluoranthene	1.1	11			Y	N
Chrysene	0.4	110			Y	N
Di-n-butylphthalate	8.1	630			Y	N
Di-n-octylphthalate	50	63			Y	N
Dibenz(a,h)anthracene	0.014	0.11			Y	N
Dibenzofuran	6.2	7.8			Y	N
Fluoranthene	50	240			Y	N
Fluorene	50	240			Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1			Y	Y
Naphthalene	13	2			Y	Y
Phenanthrene	50	NA			N	N
Pyrene	50	180			Y	N
VOCs						
Acetone	0.2	6100	ROD did not establish cleanup levels		Y	N
Methyl Ethyl Ketone	0.3	2700			Y	N
Nitroaromatics						
Tetryl	–	16	ROD did not establish cleanup levels		Y	N
Metals						
Aluminum	19300	7700	ROD did not establish cleanup levels		Y	Y
Antimony	5.9	3.1			Y	Y

Table V.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment (continued)

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
Arsenic	8.2	0.68	ROD did not establish cleanup levels		Y	Y
Barium	300	1500			N	
Beryllium	1.1	16			N	
Cadmium	2.3	7.1			N	
Chromium	29.6	12000			N	
Cobalt	30	2.3			Y	
Copper	33	310			N	
Iron	36500	5500			Y	
Lead	24.8	400			N	
Manganese	1060	180			Y	
Mercury	0.1	1.1			N	
Nickel	49	150			N	
Selenium	2	39			N	
Silver	0.75	39			N	
Thallium	0.7	0.078			Y	
Vanadium	150	39			Y	
Lead	27	400			N	
Other Analyses						
Nitrate/Nitrite Nitrogen	–	NA	ROD did not establish cleanup levels		N	N
Fluoride	–	310			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table V.5.3 Comparison of Toxicity Data and Cleanup Levels in Surface Water

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
PAHs						
4-Methylphenol	--	190.00	ROD did not establish cleanup levels		Y	N
Isophorone	--	78.00			Y	N
Phenol	5	580.00			Y	N
Metals						
Aluminum	100	2000.00	ROD did not establish cleanup levels		Y	N
Antimony	--	0.78			Y	N
Arsenic	150	0.05			Y	Y
Barium	--	380.00			Y	N
Chromium	139	2200.00			Y	N
Cobalt	5.000	0.60			Y	Y
Copper	17	80.00			Y	N
Iron	300	1400.00			Y	N
Lead	223	15.00			Y	Y
Manganese	--	43.00			Y	N
Mercury	1.4	0.57			Y	Y
Nickel	100	150.00			Y	N
Vanadium	14	8.60			Y	Y
Other Analyses						
Nitrate/Nitrite Nitrogen	--	NA	ROD did not establish cleanup levels		N	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State surface water cleanup goals, when available, are from 6 CRR-NY 703.5 Water quality standards for taste-, color- and odor-producing, toxic and other deleterious substances Class C standard; Verified 9/21/2020. Federal surface water screening values are EPA Regional Screening Levels (RSL) for tap water based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

Table V.5.4 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
bis(2-Ethylhexyl)phthalate	5	5.60	ROD did not establish cleanup levels		Y	N
Butylbenzylphthalate	--	16			Y	N
Diethyl phthalate	--	5100			Y	N
Metals						
Aluminum	50	2000	ROD did not establish cleanup levels		Y	N
Cyanide	--	0.15			Y	N
Manganese	300	43			Y	Y
Other Analyses						
Nitrate	10000	13000	ROD did not establish cleanup levels		Y	N
Nitrite	1000	780			Y	Y
Nitrate/Nitrite Nitrogen	--	NA			N	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State groundwater cleanup goals are from 6 CRR-NY 703.5 Water quality standards for taste-, color- and odor-producing, toxic and other deleterious substances Class GA standard; Verified 9/21/2020. Federal groundwater screening values are EPA Regional Screening Levels (RSL) for tap water based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEAD-13. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Collect new groundwater samples and perform a site-specific risk assessment to determine if Class GA standards can be met in groundwater at SEAD-13.

7.0 Protectiveness Statement

The remedy implemented for SEAD-13 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment V-1
Five-Year Review - Site Visit Photo Log
SEAD-13 Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Site

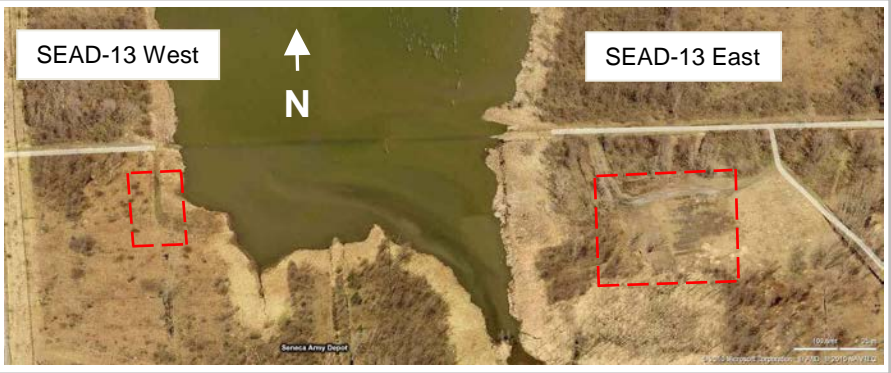
PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-13, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers



Bing.com (Microsoft) Aerial of SEAD-13 West; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2007.



2020 Site Visit Photo 1



2020 Site Visit Photo 2

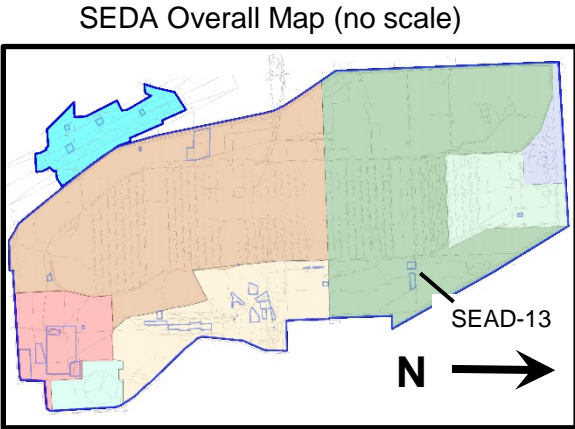
 Approximate Site Boundary
 Photo Viewing Direction



Status as of: 7/22/2020
Description: SEAD-13
Photo ID: IMG_3905.jpg



Status as of: 7/22/2020
Description: SEAD-13
Photo ID: IMG_3891.JPG



SEAD-13 is located within the Conservation Area Parcel.

Attachment V-1
Five-Year Review - Site Visit Photo Log
SEAD-13 Inhibited Red Fuming Nitric Acid (IRFNA) Disposal Site

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-13, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 4



Status as of: 7/22/2020 Photo ID: IMG_3887.jpg
Description: SEAD-13

2020 Site Visit Photo 5

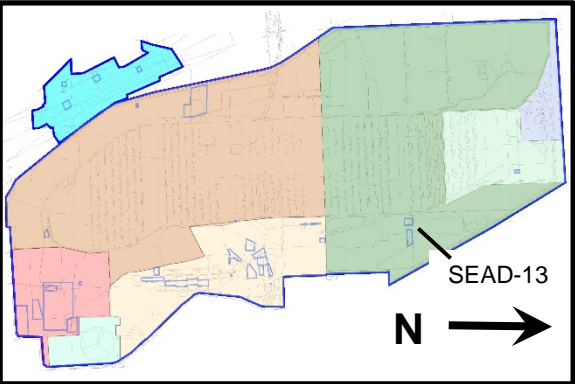


Status as of: 7/22/2020 Photo ID: IMG_3888.jpg
Description: SEAD-13

Bing.com (Microsoft) Birds Eye Aerial of SEAD-13 East; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2007.



SEDA Overall Map (no scale)



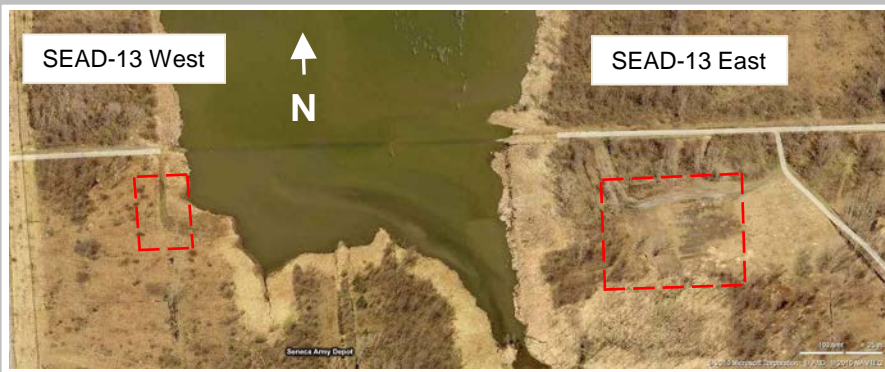
SEAD-13 is located within the Conservation Area Parcel.



Photo Viewing
Direction



Approximate Site Boundary



ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
<div style="display: flex; justify-content: space-between;"> <div> Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other </div> <div> Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls </div> </div>	
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX W

SEAD-41: BUILDING 718 BOILER BLOWDOWN LEACHING PIT

APPENDIX W: SEAD-41 BUILDING 718 BOILER BLOWDOWN LEACHING PIT

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1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-41 is the blowdown leaching area suspected to have existed in the drainage ditch located approximately 40 ft. west of Building 718, an abandoned boiler plant located in the northern end of the Depot, on property currently occupied by the Hillside Children's Center.

1.2 Initial Response

Work performed at SEAD-41 included a LSP conducted in 1993/1994, followed by a TCRA conducted in 2000. During the 1993/1994 sampling program, petroleum hydrocarbons were detected in all of the soil samples collected from SEAD-41. The surface samples collected nearest the point where the blowdown liquids were suspected of being discharged contained the greatest concentration of petroleum hydrocarbons. The sampling program delineated the extent of petroleum-impacted soil to an area approximately 40 ft. long by 3 ft. wide. The TCRA was conducted to remove the petroleum-contaminated soils identified during the LSP, and approximately 5 cy of petroleum contaminated soils were removed.

1.3 Basis for Taking Action

Due to potential human health risk in groundwater which was not fully evaluated, an action was required at SEAD-41 to ensure land use remains protective of site users.

1.3.1 CONTAMINANTS OF CONCERN

Prior to connecting the boiler blowdown points to the sewer in 1979-1980, blowdown was reportedly released three times a day, and the discharged liquid was allowed to flow onto the ground at the blowdown point where it either infiltrated into the ground or flowed into the nearby drainage ditch. Each boiler is reported to have discharged between 400 and 800 gallons of blowdown liquids per day. The boiler blowdown is suspected to have contained water, tannins, caustic soda (sodium hydroxide), and sodium phosphate (Parsons, 2007a).

SVOCs were found in the soil samples collected at SEAD-41, with concentrations of benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, and dibenzo(a,h)anthracene exceeding their NYSDEC TAGM #4046 cleanup objective level values. Table 6-8 in the ROD (Parsons, 2007a) summarizes the TCRA soil analytical results. The excavated soil was transported to another location within the Depot for use in a LTTD study at the SEDA.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-41 the human health cancer risks are within or below the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0. Maximum concentrations of analytes found at the AOC were used as the EPCs for the area evaluated under the risk approach. The risk assessment evaluated risk to receptors under the Institutional future land use scenario (i.e., construction worker, adult resident, child resident, and lifetime resident).

2.0 Remedial Actions

2.1 Remedy Selection

A ROD titled "Seventeen SWMU Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E)" signed on July 3, 2007 required the establishment of ICs at the site (SEAD-41). The elements that composed the remedy included:

- Notification of future land owners of contaminated groundwater and requirement to meet all applicable laws and regulations should the owner decide to access and use the groundwater.

The selected remedy was based on the results of historic groundwater sampling data that was collected during the investigation of SEAD-41, which indicated that total petroleum hydrocarbons (TPH, 690 ppb) were present in the upper aquifer of the groundwater. The LUC selected for SEAD-41 was already in place at the time the ROD was issued, and had been documented in the deed used to transfer the North End Barracks areas of the Depot. Part of the purpose of the ROD was to formalize and document the Army's intention to impose the existing LUC on the North End Barracks Area – SEAD-41 under CERCLA.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") dated December 2006 implemented land use controls for the SEAD PID/Warehousing Area. Addendum 2 expanded the LUC RD from the PID/Warehouse Area to include sites that are in the area formerly known as the North Barracks Area, and applied the SEAD LUC RD enforcement, modification, and termination provisions to SEAD-41.

SEAD-41 and the North Barracks Area was transferred to the SCIDA prior to the issuance of the ROD signed on July 3, 2007 and an Environmental Easement was not required. A deed was used to document the transfer of land to SCIDA, and the existing deed provisions ensure the property is used in a manner consistent with the above LUC Objectives.

In the deed, the Army notified SCIDA that groundwater contamination had been identified in the vicinity of the former Building 718. The reported level of TPH (690 ppb) exceeds the New York State Public Water System standards for unspecified organic contamination of 100 ppb. Under New York regulations, future owners or occupants of the area would need to confirm the quality and acceptability of the groundwater as a source of potable water before it could be used for such a purpose. A summary of the institutional controls currently implemented at SEAD-41 is presented in **Table W.2.1** based on the data and risk presented in the ROD and the LUC RD.

Table W.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater	Yes	Yes	North End Barracks Parcel	The Grantee, its successors and assigns, agree	Deed Notice.

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data was reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-41 was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No use of groundwater was evident.

4.4 Interviews

No interviews were conducted as part of this five-year review.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for SEAD-41 have been completed and documented. No continuing active remediation is required for SEAD-41. Based on a review of the LUC RD Addendum 2, transfer deed and the FYR site visit conducted on July 22, 2020, the remedy is functioning as intended by the decision documents.

The remedy implemented at the SEAD-41 currently is protective of human health and the environment because:

- A LUC that notifies future land owners of contaminated groundwater and requirement to meet all applicable laws and regulations should the owner decide to access and use the groundwater.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy **are** still **valid**.

- There have been **no changes** in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for SEAD-41.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Table W.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid**. Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health**.

Table W.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
VOCs						
p-Cymene	--	--	--	--	--	--
PAHs						
Benzo(a)anthracene	0.224	1.1	0.224	1	Y	N
Benzo(a)pyrene	0.0609	0.11	0.061	1	Y	N
Benzo(b)fluoranthene	1.1	1.1	1.1	1	Y	Y
Benzo(k)fluoranthene	1.1	11	NA	0.80	Y	Y
Benzo(g,h,i)perylene	50	NA	50	100	Y	N
Chrysene	0.4	110	0.4	1	Y	N
Dibenz(a,h)anthracene	0.014	0.11	0.014	0.33	Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1	3.2	0.50	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-41. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Discuss lowering frequency of periodic reviews with NYSDEC and EPA.
- Collect groundwater samples to allow a site-specific risk assessment to determine if Class GA standards can be met in groundwater.

7.0 Protectiveness Statement

The remedy implemented for SEAD-41 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment W-1
Five-Year Review - Site Visit Photo Log
SEAD-41 Building 718 Boiler Plant Blowdown Leaching Pit

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-41, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1





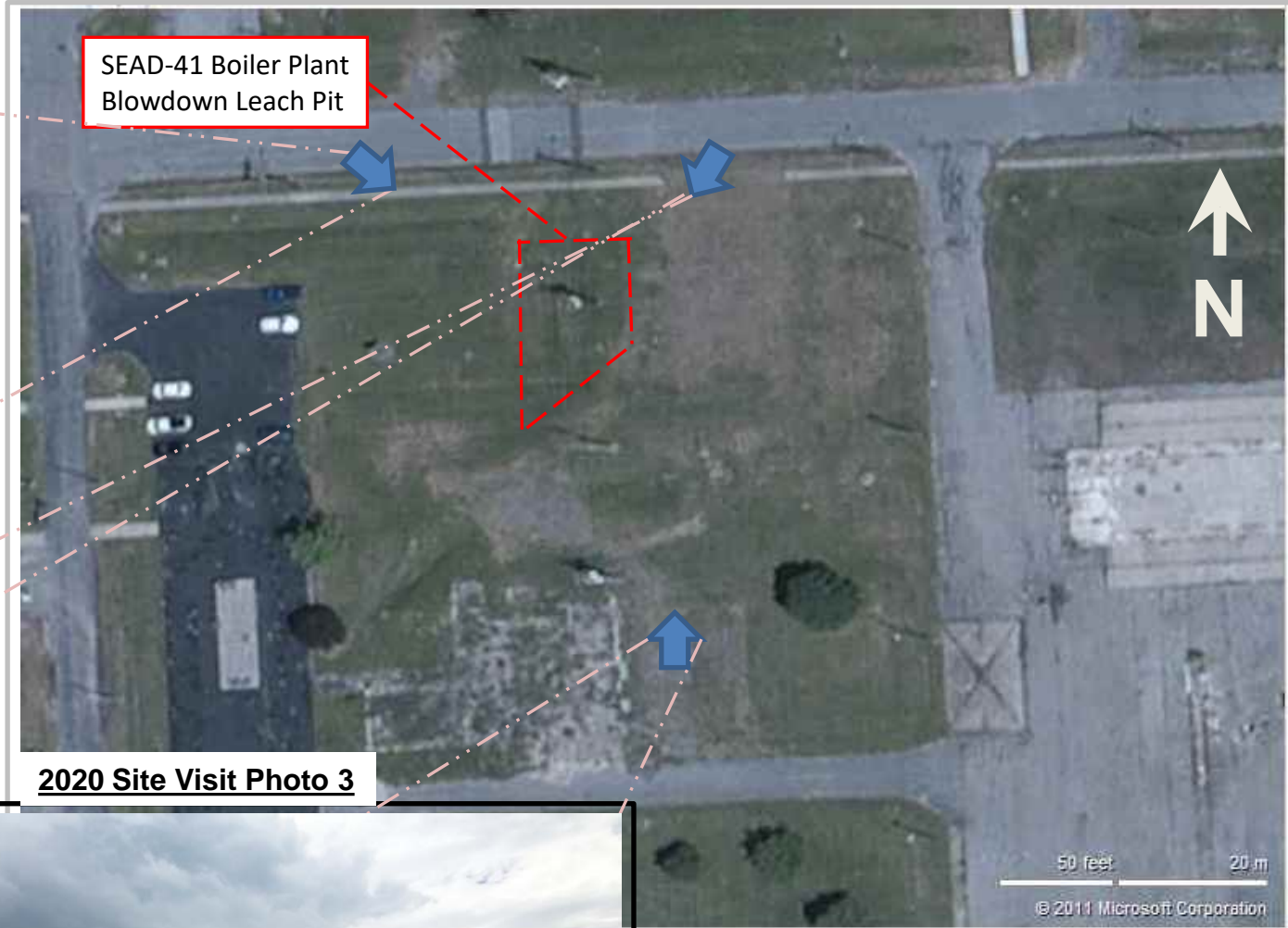
Status as of: 7/22/2020 Photo ID: IMG_3952.jpg
Description: SEAD-41

2020 Site Visit Photo 2



Status as of: 7/22/2020 Photo ID: IMG_3954.jpg
Description: SEAD-41

 Approximate Site Boundary
 Photo Viewing Direction
SEAD-41 is located within the Institutional Area Parcel.



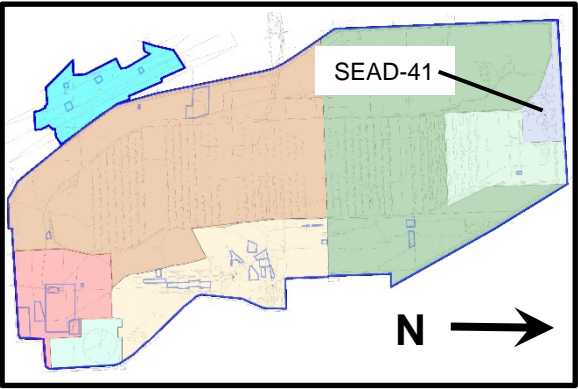
2020 Site Visit Photo 3



Status as of: 7/22/2020 Photo ID: IMG_3955.jpg
Description: SEAD-41

Bing.com (Microsoft) Aerial of SEAD-41; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2010.

SEDA Overall Map (no scale)



ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX X

SEAD-64B: GARBAGE DISPOSAL AREA

APPENDIX X - SEAD-64B GARBAGE DISPOSAL AREA

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6.0	ISSUES, RECOMMENDATIONS AND FOLLOW-UP ACTIONS.....	X-10
7.0	PROTECTIVENESS STATEMENT	X-10

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The Garbage Disposal Area at SEAD-64B is located immediately north of Ovid Road near Building 2086 in the southern end of SEDA. SEAD-64B was used for garbage disposal from 1974 to 1979, which corresponds to a period when the Depot's solid waste incinerator was not in operation. It appears that one or two truckloads of household waste were disposed at SEAD-64B based on the size of the fill area and amount of debris observed.

1.2 Initial Response

SEAD-64B is a historic landfill that is subject to regulation under the State of New York's Solid Waste Management Regulations (see 6 NYCRR Part 360). As a historic solid waste landfill, the site was subject to final closure in accordance with requirements of 6 NYCRR Part 360 in effect as of August 28, 1977. Once solid waste disposal ceased at SEAD-64B in the late 1970s, the Army applied a permanent soil cover over the disposed waste and allowed the area to revegetate naturally. The field investigation at SEAD-64B included an ESI performed in 1994. The former landfill continues to be covered and has an established vegetative covering. The Army requested formal closure of this historic landfill from the NYSDEC in letters dated May 24, 2005 and August 14, 2006. In a letter dated September 11, 2006, the NYSDEC agreed that SEAD-64B and SEAD-64D are closed under the New York Solid Waste Regulations.

No action subsequent to the installation of the landfill cap has been performed at SEAD-64B.

1.3 Basis for Taking Action

Due to potential human health risk in groundwater which was not fully evaluated an action was required at SEAD-64B to ensure land use remains protective of site users. The training area classification for SEAD-64B suggests that the area will be used in a manner consistent with light industrial areas.

1.3.1 CONTAMINANTS OF CONCERN

Complete analytical results from the ESI investigation are presented in "Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B," Final (Parsons, 2002a).

No COCs were identified for SEAD-64B.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-64B there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0. The cancer and non-cancer risks for all future potential receptors under the Conservation/Recreation land use scenario and exposure routes for SEAD-64B were evaluated during the risk assessment. A summary of the risk assessment results is presented in Table 7-11 of the ROD (Parsons, 2007a), and a full discussion is included in the "Decision Document – Mini Risk Assessment" (Parsons, 2002a).

An ecological risk assessments were completed and no COCs were identified.

2.0 Remedial Actions

2.1 Remedy Selection

A ROD titled “Seventeen SWMU Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E)” signed on July 3, 2007 requires the establishment of ICs. The elements that composed the remedy included:

- Establishing, maintaining, monitoring, and reporting on a LUC that prohibits unauthorized excavation within the bounds of the SMMU.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) dated December 2006 implements LUCs for the SEAD “PID/Warehouse Area”. Addendum 2 expanded the LUC RD from the PID area to include sites that are in the area formerly known as the Conservation Area and the Airfield parcels. SEAD-64B is located on the property formerly known as the Conservation Area Parcel.

An Environmental Easement for SEAD-64B was recorded prior to the transfer of SEAD-64B from the federal government and was recorded in the Seneca County Clerk’s office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-64B is presented in **Table X.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-64B as transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The Conservation Area parcel property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the Conservation Area parcel incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table X.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Solid Waste Management Unit (SWMU)	Yes	Yes	SEAD-64B	Prohibit unauthorized excavation at SEAD 64B	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant
	Yes	Yes	SEAD-64B SWMU	Maintain soil and vegetative cover above closed landfill	New York State’s Solid Waste Regulations (6 NYCRR Pars 360)

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table X.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table X.3.2**).

Table X.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-64B	Protective	The remedy implemented for SEAD-64B is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table X.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-64B	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No apparent excavations or digging was noted.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-64B was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No apparent excavations or digging were observed at SEAD-64B.

- The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEAD-64B is uninhabited and unoccupied, no interviews were conducted during the Five-Year Review process for SEAD-64B.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for SEAD-64B have been completed and documented. No continuing active remediation is required for SEAD-64B. Based on a review of the LUC RD Addendum 2, Environmental Easements, transfer deeds, and the FYR site visit conducted July 22, 2020, the remedy is functioning as intended by the decision documents.

The remedy implemented at SEAD-64B currently is protective of human health and the environment because:

- a LUC that prevents unauthorized excavation and preserves the maintenance of the existing soil cover.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the SEAD-64B.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables X.5.1**

through X.5.3 summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table X.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Benzo(a)anthracene	0.224	1.1	0.224	1	Y	N
Benzo(a)pyrene	0.061	0.11	0.061	1	Y	N
Benzo(b)fluoranthene	1.1	1.1	1.1	1	Y	Y
Benzo(g,h,i)perylene	50	NA	50	100	Y	N
Benzo(k)fluoranthene	11	11	11	1	Y	Y
bis(2-ethylhexyl)phthalate	50	39	50	NA	Y	Y
Chrysene	0.4	110	0.4	1	Y	N
Di-n-butylphthalate	8.1	630	8.1	NA	Y	N
Fluoranthene	50	240	50	100	Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1	3.2	1	Y	Y
Phenanthrene	50	NA	50	100	Y	N
Pyrene	50	180	50	100	Y	N
VOCs						
Acetone	0.2	6100	0.2	0	Y	Y
Carbon Disulfide	2.7	77	2.7	NA	Y	N
Methyl Ethyl Ketone	0.3	2700	0.3	0	Y	Y
Methylene Chloride	0.1	35	0.1	0	Y	Y
Pesticides/PCBs						
4,4'-DDE	2.1	2	2.1	0	Y	Y
4,4'-DDT	2.1	1.9	2.1	0	Y	Y
Aldrin	0.041	0.039	0.041	0	Y	Y
Heptachlor Epoxide	0.02	0.07	0.02	NA	Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table X.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
PAHs						
Benzo(a)pyrene	5.08E-02	0.11	ROD did not establish cleanup levels		Y	N
Benzo(b)fluoranthene	5.08E-02	1.1			Y	N
Benzo(k)fluoranthene	5.08E-02	11			Y	N
bis(2-ethylhexyl)phthalate	7.801	39			Y	N
Fluoranthene	39.887	240			Y	N
Phenanthrene	4.692	NA			N	N
Pyrene	37.58	180			Y	N
Benzo(a)pyrene	5.08E-02	0.11			Y	N
Benzo(b)fluoranthene	5.08E-02	1.1			Y	N
Benzo(k)fluoranthene	5.08E-02	11			Y	N
VOCs						
Methylene Chloride	--	35	ROD did not establish cleanup levels		Y	N
Pesticides/PCBs						
4,4'-DDE	3.90E-04	2	ROD did not establish cleanup levels		Y	N
Endosulfan I	1.17E-03	47			Y	N
Heptachlor	3.10E-05	0.13			Y	N
Metals						
Aluminum	--	7700	ROD did not establish cleanup levels		Y	N
Antimony	2	3.1			Y	N
Arsenic	6	0.68			Y	Y
Barium	--	1500			Y	N
Beryllium	--	16			Y	N

Table X.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment (continued)

	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
COPCs Listed in ROD						
Cadmium	0.6	7.1	ROD did not establish cleanup levels		Y	N
Calcium	--	NA			N	N
Chromium	26	12000			Y	N
Cobalt	--	2.3			Y	N
Copper	16	310			Y	N
Iron	20000	5500			Y	Y
Lead	31	400			Y	N
Magnesium	--	NA			N	N
Manganese	460	180			Y	Y
Mercury	0.15	1.1			Y	N
Nickel	16	150			Y	N
Potassium	--	NA			N	N
Sodium	20000	NA			N	N
Zinc	5000	600			Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table X.5.3 Comparison of Toxicity Data and Cleanup Levels in Surface Water

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
VOCs						
Carbon Disulfide	--	81			Y	N
Metals						
Aluminum	50	2000			Y	N
Barium	1000	380			Y	Y
Calcium	--	NA			N	N
Chromium	50	2200			Y	N
Copper	200	80			Y	Y
Iron	300	1400			Y	N
Magnesium	--	NA			N	N
Manganese	50	43			Y	Y
Nickel	100	150			Y	N
Potassium	--	NA			N	N
Sodium	20000	NA			N	N
Zinc	5000	600			Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State surface water cleanup goals, when available, are from 6 CRR-NY 703.5 Water quality standards for taste-, color- and odor-producing, toxic and other deleterious substances Class C standard; Verified 9/21/2020. Federal surface water screening values are EPA Regional Screening Levels (RSL) for tapwater based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEAD-64B. On-going remedial monitoring activities include periodic evaluations of the effectiveness of the remedy. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and the annual frequency of periodic reviews.

7.0 Protectiveness Statement

The remedy implemented for SEAD-64B is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment X-1
Five-Year Review - Site Visit Photo Log
SEAD-64B Garbage Disposal Area

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-64B, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1

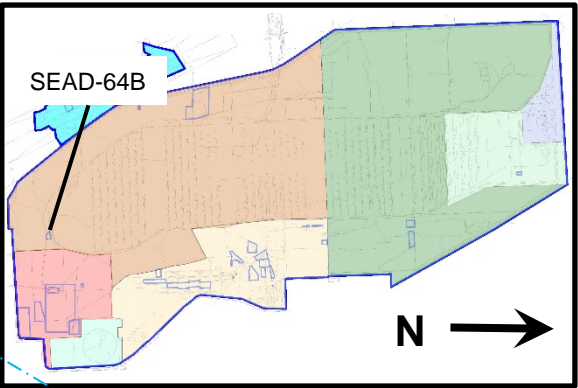


Status as of: 7/22/2020 Photo ID: IMG_3913.jpg
Description: SEAD-64B



2020 Site Visit Photo 2

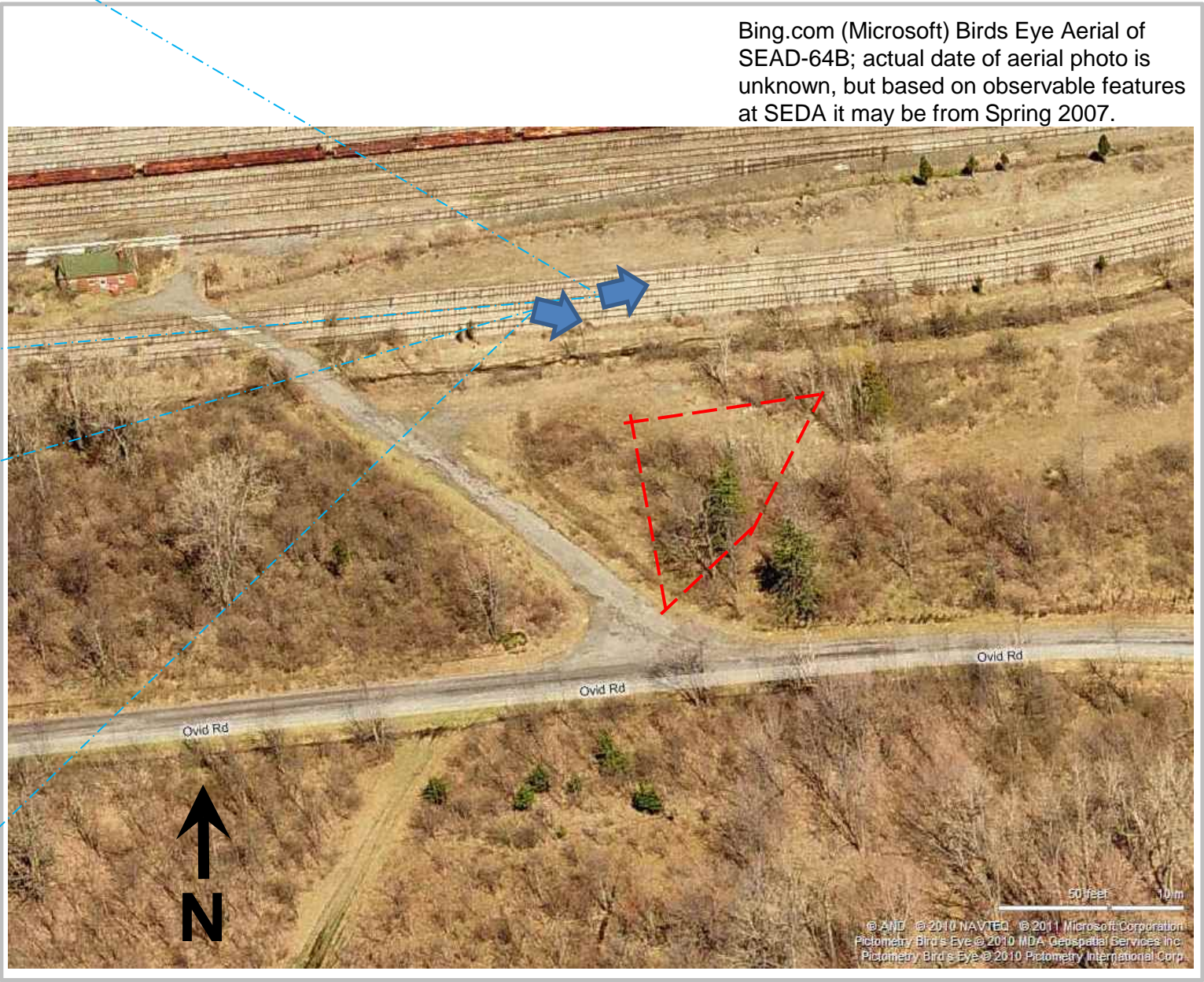


Status as of: 7/22/2020 Photo ID: IMG_3912.jpg
Description: SEAD-64B



SEAD-64B is located within the
Farming Parcel.
SEDA Overall Map
(no scale)

 Approximate Site Boundary
 Photo Viewing Direction



ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX Y

SEAD-64D: GARBAGE DISPOSAL AREA

APPENDIX Y: SEAD-64D

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
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1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-64D covers an area located between West Patrol Road and the railroad tracks located to the west along North-South Baseline Road in the southwestern portion of SEDA. Portions of SEAD-64D were used for garbage disposal from 1974 to 1979 when the SEDA solid waste incinerator was not in operation. The type of waste disposed at SEAD-64D was primarily household waste, although according to information contained in the "SWMU Classification Report, Final" (Parsons, 1994a) and conditions observed during test pitting, construction debris was also disposed of at SEAD-64D.

1.2 Initial Response

SEAD-64D is a historic solid waste management unit (historic landfill) that is subject to regulation under the State of New York's Solid Waste Management Regulations (see 6 NYCRR Part 360). The Army ceased use of this unit in the late 1970s. As a historic solid waste landfill, the site was subject to final closure in accordance with requirements of 6 NYCRR Part 360 in effect as of August 28, 1977.

Once solid waste disposal ceased at SEAD-64D in the late 1970s, the Army applied a permanent soil cover over the disposed waste and allowed the area to revegetate naturally. The former landfill continues to be covered and has an established vegetative covering. The Army requested formal closure of the historic landfill from the NYSDEC in letters dated May 24, 2005 and August 14, 2006. In a letter dated September 11, 2006, the NYSDEC agreed that SEAD-64B and SEAD-64D are closed under the New York Solid Waste Regulations.

1.3 Basis for Taking Action

Due to human health risk in groundwater an action was required at SEAD-64D to ensure land use remains protective of site users. The training area classification for SEAD-64D suggests that the area will be used in a manner consistent with light industrial areas.

1.3.1 CONTAMINANTS OF CONCERN

The field investigation at SEAD-64D included an ESI that was performed in 1994. During the ESI, soil, and groundwater samples were collected at SEAD-64D and submitted for chemical analysis. All samples were analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, and cyanide according to the NYSDEC CLP SOW. Complete analytical results from the ESI are presented in "Decision Document – Mini Risk Assessment SEAD 9, 27, 28, 32, 33, 34, 43, 44A, 44B, 52, 56, 58, 62, 64A, 64B, 64C, 64D, 66, 68, 69, 70, and 120B," Final (Parsons, 2002a). Summaries of the soil and groundwater results were presented in Table 6-30 and 6-31 of the ROD (Parsons, 2007a), respectively.

No COCs were identified for SEAD-64D.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-64D there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for the construction worker is less than 1.0. Table 7-13 in the ROD (Parsons, 2007a) summarizes the calculated cancer and non-cancer risks for all future potential receptors under the Conservation/Recreation land use scenario and exposure routes considered in the risk assessment conducted at SEAD-64D in 2001 and 2002. The HI is equal to or greater than 1 for the park worker (HI=3) and the recreational child visitor (HI=1). The elevated HI for both receptors was due solely to ingestion of groundwater, and the elevated concentrations of metals in the

groundwater samples associated with observed elevated turbidity levels. If the groundwater pathway was eliminated, the non-cancer risk would be reduced to within acceptable levels.

An ecological risk assessments was completed and no COCs were identified.

2.0 Remedial Actions

2.1 Remedy Selection

A ROD titled “Seventeen SWMU Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and122E)” signed on July 3, 2007 requires the establishment of ICs. The elements that composed the remedy included:

- Establishing, maintaining, monitoring, and reporting on a LUC that prohibits access to and use of groundwater at the AOCs until its quality allows for unrestricted use and unlimited exposures;
- Establishing, maintaining, monitoring, and reporting on a LUC that prohibits unauthorized excavation; and
- Maintain the integrity of any current or future remedial or monitoring system and maintain the existing soil cover.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) dated December 2006 implements LUCs for the SEAD “PID/Warehouse Area”. Addendum 2 expanded the LUC RD from the PID area to include sites that are in the area formerly known as the Conservation Area and the Airfield parcels, and applies the SEAD LUC RD enforcement, modification, and termination provisions to SEAD-64D. SEAD 64D is located on the property formerly known as the Conservation Area Parcel.

An Environmental Easement for SEAD-64D was recorded prior to the transfer of SEAD-64D from the federal government and was recorded in the Seneca County Clerk’s office on June 10, 2011. A summary of the institutional controls currently implemented at SEAD-64D is presented in **Table Y.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-64D was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The Conservation Area parcel property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the Conservation Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121© of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table Y.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Solid Waste Management Unit (SWMU)	Yes	Yes	SEAD-64D	Prohibit unauthorized excavation at SEAD 64D	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant
	Yes	Yes	SEAD-64D	Maintain soil and vegetative coverer above closed landfill	New York State's Solid Waste Regulations (6 NYCRR Pars 360)
Groundwater	Yes	Yes	SEAD-64D	Prevent access or use of the groundwater until New York States GA ground water Standards are achieved.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table Y.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table Y.3.2**).

Table V.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-64D	Protective	The remedy implemented for SEAD-64D is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table V.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-64D	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No evidence of excavation/digging or use of groundwater were observed. The vegetative cover is in place.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-64D was inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No access to, or use of, groundwater was evident.
- No unauthorized excavations or evidence of digging were observed.
- The vegetative cover was in place.
- The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEAD-64D is uninhabited and unoccupied, no interviews were conducted during the Five-Year Review process for SEAD-64D.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for SEAD-64D have been completed and documented. No continuing active remediation is required for SEAD-64D. Based on a review of the LUC RD Addendum 2 Environmental Easements, transfer deeds, and the FYR site visit conducted on July 22, 2020, the remedy is functioning as intended by the decision documents.

The remedy implemented at SEAD-64D currently is protective of human health and the environment because:

- a LUC that prevents access to, and use of, groundwater within the identified AOCs has been implemented and currently is being maintained, monitored and reported upon periodically; and
- a second LUC that prevents unauthorized excavation and preserves the maintenance of the existing soil cover.

The selected remedy is still protective of human health and the environment.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the SEAD-64B.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables Y.5.1 and Y.5.2** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table Y.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
2-Methylnaphthalene	36.4	24	36.4	NA	Y	Y
Benzo(a)anthracene	0.224	1.1	0.224	1.0	Y	N
Benzo(a)pyrene	0.061	0.11	0.061	1.0	Y	N
Benzo(b)fluoranthene	1.1	1.1	1.1	1.0	Y	Y
Benzo(g,h,i)perylene	50	NA	50	100	Y	N
Benzo(k)fluoranthene	11	11	11	0.80	Y	Y
bis(2-ethylhexyl)phthalate	50	39	50	NA	Y	Y
Chrysene	0.4	110	0.4	1.0	Y	N
Di-n-butylphthalate	8.1	630	8.1	NA	Y	N
Di-n-octylphthalate	50	63	50	NA	Y	N
Dibenz(a,h)anthracene	0.014	0.11	0.014	0.33	Y	N
Fluoranthene	50	240	50	100	Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1	3.2	0.50	Y	Y
Naphthalene	13	2	13	12	Y	Y
Phenanthrene	50	NA	50	100	Y	N
Phenol	0.03	1900	0.03	0.33	Y	N
Pyrene	50	180	50	100	Y	N
2-Methylnaphthalene	36.4	24	36.4	NA	Y	Y
VOCs						
Methyl Ethyl Ketone	0.3	2700	0.3	0.12	Y	Y
Methylene Chloride	0.1	35	0.1	0.050	Y	Y
Toluene	1.5	490	1.5	0.70	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable;

Units are in milligrams per kilogram (mg/kg)

Table Y.5.2 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
Metals						
Aluminum	50	2000	ROD did not establish cleanup levels		Y	N
Barium	1000	380			Y	Y
Beryllium	4	16			Y	N
Cadmium	5	7.1			Y	N
Calcium	NA	NA			N	N
Cobalt	NA	0.6			Y	Y
Copper	200	80			Y	Y
Iron	300	1400			Y	N
Lead	25	15			Y	Y
Manganese	5	43			Y	N
Nickel	100	150			Y	N
Zinc	5000	600			Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State surface water cleanup goals, when available, are from 6 CRR-NY 703.5 Water quality standards for taste-, color- and odor-producing, toxic and other deleterious substances Class C standard; Verified 9/21/2020. Federal groundwater screening values are EPA Regional Screening Levels (RSL) for tap water based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEAD-64D. On-going remedial monitoring activities include periodic evaluations of the effectiveness of the remedy. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-64D.
- Collect new groundwater samples and perform a site-specific risk assessment to determine if Class GA standards can be met in groundwater at SEAD-64D.

7.0 Protectiveness Statement

The remedy implemented for SEAD-64D is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

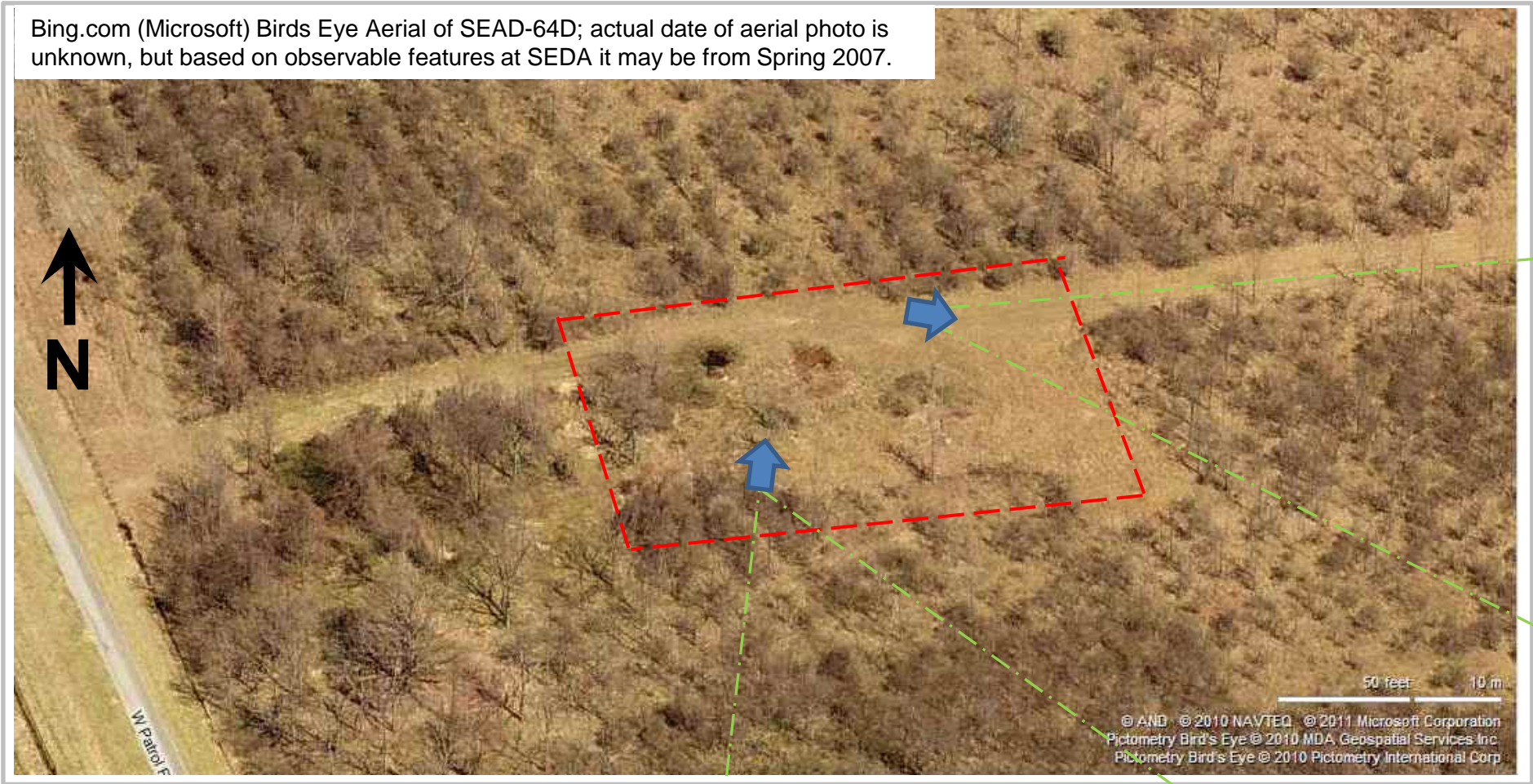
ATTACHMENT 1

PHOTO LOG

Attachment Y-1
Five-Year Review - Site Visit Photo Log
SEAD-64D Garbage Disposal Area

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-64D, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

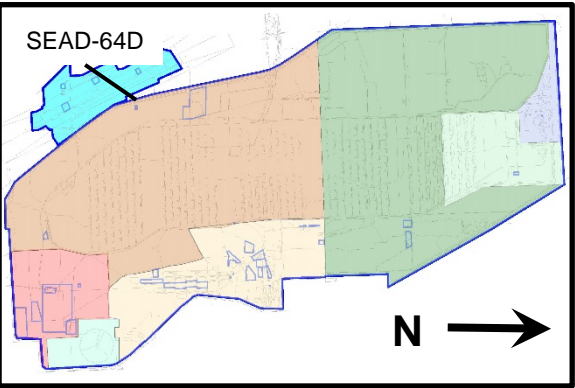


2020 Site Visit Photo 2



Status as of: 7/22/2020 Photo ID:IMG_3915.jpg
Description: SEAD-64D

SEDA Overall Map (no scale)





SEAD-64D is located within the
Farming Parcel.

2019 Site Visit Photo 1



Status as of: 7/22/2020 Photo ID: IMG_3917.jpg Description:
SEAD-64D

 Approximate Site Boundary
 Photo Viewing Direction

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX Z

ASH LANDFILL OPERABLE UNIT (SEAD 3, 6, 8, 14, AND 15)

APPENDIX Z – ASH LANDFILL OPERABLE UNIT (SEADS 3, 6, 8, 14, AND 15)

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The Ash Landfill site is located along the western boundary of SEDA. The site is bounded on the north by Cemetery Road, on the east by a SEDA railroad line, on the south by open grassland and brush, and on the west by the Depot's boundary. The Ash Landfill site was initially estimated to encompass an area of approximately 130 acres. This larger area was investigated to ensure that no previously unknown waste disposal areas were overlooked. Following the remedial investigation, the area of the Ash Landfill site was refocused to an area of approximately 23 acres. This area is comprised of five AOCs including: Incinerator Cooling Water Pond (SEAD-3), the Ash Landfill (SEAD-6), the Non-Combustible Fill Landfill (NCFL) (SEAD-8), the Refuse Burning Pits (SEAD-14), and the Abandoned Solid Waste Incinerator Building (SEAD-15). The Debris Piles are located near SEAD-14. The Ash Landfill (SEAD-6) also includes a groundwater plume that emanates from the northern western side of the landfill area (Parsons, 2005b).

From 1941 to 1974, household trash and depot refuse was burned in a series of Refuse Burning Pits near the Abandoned Incinerator Building (Building 2207). During approximately this same period (1941 until the late 1950s or early 1960s) the ash from the Refuse Burning Pits was buried in the Ash Landfill. The Incinerator Building was built in 1974. Between 1974 and 1979, materials intended for disposal were transported to the incinerator. The source for the refuse was domestic waste from Depot activities and family housing. Large items that could not be burned were disposed of at the NCFL. The NCFL is located southeast of the Incinerator Building (immediately south of the SEDA railroad line). The NCFL was used as a disposal site for non-combustible materials, including construction debris, from 1969 until 1977. Ash and other residues from the incinerator were temporarily disposed of in the Incinerator Cooling Water Pond immediately north of the Incinerator Building. Approximately every 18 months, when the pond filled, the fly ash and residues were removed, transported, and buried in the adjacent Ash Landfill, east of the Cooling Pond. A fire destroyed the incinerator in May 1979, and the landfill was subsequently closed. A vegetative cover, comprised of native soils and grasses, was observed over the Ash Landfill during the 1994 RI (Parsons ES, 1994b).

1.2 Initial Response

Prior to the listing of SEDA on the NPL, two removal actions were performed at the Ash Landfill. The first action was the removal of a former 1000-gallon underground storage tank (UST) that was used to store heating oil and was located on the east side of the abandoned Incinerator Building. The second, a Non-Time Critical Removal Action (NTCRA), was conducted by the Army in 1994/1995 and consisted of the excavation and thermal treatment of soil impacted with VOCs (Parsons ES, 1994c).

As part of a demonstration study, a 650-foot long permeable reactive iron wall (zero valent iron [ZVI]) was installed near the western property line of the Ash Landfill AOC (ETI, 2001). A pilot study was performed by Parsons and the Army from July 2005 to February 2006 to show that the use of mulch as the selected wall medium (i.e. biowalls) would effectively control migration of groundwater contaminants at the site. The components and findings of the mulch biowall pilot study, which serve as the basis of design for the biowalls is presented in the "Evaluation Report for the Mulch Biowalls at the Ash Landfill" submitted as an appendix of the "Draft Remedial Design Work Plan for the Ash Landfill Operable Unit" (Parsons, 2006b, c).

Since a wall material other than iron was selected, the Army conducted a review of the remedy's effectiveness one year after the walls are installed. Subsequent annual reviews were performed until the first FYR. The typical FYR schedule followed thereafter.

1.3 Basis for Taking Action

Action was required at the Ash Landfill sites to comply with ARARs for New York State Class GA groundwater quality standards and federal MCLs, to reduce and improve non-carcinogenic and cancer risk levels for current and intended future receptors, and to prevent exposure to off-site receptors through possible off-site migration of the VOC plume.

1.3.1 CONTAMINANTS OF CONCERN

The primary COCs at the Ash Landfill site are VOCs, including chlorinated and aromatic compounds, SVOCs (mainly PAHs), and, to a lesser degree, metals. The COCs are believed to have been released to the environment during former activities conducted at the Ash Landfill OU. The source of the VOCs was most likely the three alleged solvent dump areas located at the “Bend in the Road” area northwest of the Ash Landfill site. The source of the VOCs that were allegedly disposed in this area is unknown.

The primary media investigated at the Ash Landfill site included soil (from soil borings and test pits), groundwater, and surface water and sediment (from Kendaia Creek and on-site wetlands and drainage swales). Based on these investigations, soil and groundwater were found to be the media that were the most significantly impacted by a release of chemicals on-site.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at Ash Landfill there are no human health cancer risks above the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors are less than 1.0 under the current and expected receptor scenarios.

The carcinogenic risks for potential future residents using groundwater for drinking at SEDA is 1.4×10^{-3} , and the HI is 3.2. Although risks exist for potential future residents using groundwater for drinking at SEDA, the LRA does not intend to use this land for residential purposes. The future intended use for the site has been determined by the LRA as a conservation/recreation area.

An ecological risk assessment performed based on the site soils, surface water, and sediment suggested a slightly elevated ecological risk due to the presence of heavy metals. However, the criteria for these media are not considered ARARs since none of the criteria are promulgated standards. NYSDEC and federal AWQSS, which are promulgated standards for Kendaia Creek, are considered ARARs. No exceedances of the AWQSS were observed for downstream samples from Kendaia Creek, which is classified by NYSDEC as a Class C stream.

Metal exceedances were identified for ecological guidelines and reported literature values for on-site soil, sediment, and surface water. The actual ecological risk caused by these exceedances is not readily observable. Phase I and Phase II field evaluations for the RI included fish trapping and counting, benthic macroinvertebrate sampling and counting, and small mammal species sampling and counting. The results of the Phase I data collection did not indicate stressed biological or plant communities.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Record of Decision for the Ash Landfill Operable Unit” (Parsons, 2005b) requires the establishment of ICs. The elements that composed the remedy included:

- Excavation and off-site disposal of debris piles and establishment and maintenance of a vegetative soil cover for the Ash Landfill and the Non-Combustion Fill Landfill (NCFL) for source control;
- Installation of three in-situ permeable reactive barrier walls, and maintenance of the proposed walls and the existing wall for migration control of the groundwater plume;
- A Contingency Plan will be developed to include one of the following options: provision of an alternative water supply for potential downgradient receptors (farmhouse) or air sparging of the plume in the event that groundwater conditions downgradient of the recommended remedial action described above exceed trigger values;
- Land Use Controls (LUCs) to attain the remedial action objectives; and
- Completion of a review of the selected remedy every five-years (at minimum), in accordance with Section 121(c) of the CERCLA. If a wall material other than iron is selected, the Army will conduct a review of the remedy's effectiveness one year after the walls are installed. Subsequent annual reviews will be performed until the first five-year review. The typical five-year review schedule will be followed thereafter.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") dated December 2006 implements land use controls for the SEAD PID/Warehouse Area. Addendum 3 (USACE, 2008b) expanded the LUC RD from the PID/Warehousing area to include sites that are in the area known as the Ash Landfill (SEADs-3, 6, 8, 14, and 15). The Ash Landfill is located on the property formerly known as the Conservation Area Parcel.

The RA was completed in October and November 2006 in accordance with the ROD for the Ash Landfill OU (Parsons, 2005b), the Remedial Design Work Plan (Parsons, 2006b), and the Remedial Design Report (Parsons, 2006c). The RA involved the following:

- Installation of three dual biowall systems, A1/A2, B1/B2, and C1/C2, to address VOCs in groundwater that exceed NYSDEC's Class GA groundwater standards;
- Construction and establishment of a 12-inch vegetative cover over the Ash Landfill and the NCFL to prevent ecological receptors from coming into direct contact with the underlying soils that are contaminated with metals and PAHs;
- Excavation and disposal of Debris Piles A, B, and C; and
- Re-grading of the Incinerator Cooling Water Pond to promote positive drainage.

The LUC performance objectives for SEADs 3/6/8/14/15 are to:

- Prevent access to or use of the groundwater until cleanup levels are met;
- Maintain the integrity of any current or future remedial or monitoring system such as monitoring wells and impermeable reactive barriers;
- Prohibit excavation of the soil or construction of habitable structures (temporary or permanent) above the area of the existing groundwater plume; and
- Maintain the vegetative soil layer over the ash fill areas and the NCFL to limit ecological contact (Parsons, 2005b).

An Environmental Easement for the Ash Landfill was recorded in the Seneca County Clerk's office on June 10, 2011. A summary of the institutional controls currently implemented at SEADs 3/6/8/14/15 is presented in **Table Z.2.1** based on the data and risk presented in the ROD and the LUC RD.

The Ash Landfill along with the “PID Retained Parcels” was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The Ash Landfill was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the Ash Landfill parcel incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

As part of the RA at the Ash Landfill OU, post-closure operations include LTM. Groundwater monitoring is required as part of the remedial design, which was formulated to comply with the ROD. The groundwater LUCs are to continue until such time that the concentration of hazardous substances in the groundwater have been reduced to levels that allow for unlimited exposure and unrestricted use. Intrusive restrictions for those areas requiring a vegetative soil cover will continue indefinitely. These land use controls will be implemented over the area of the groundwater plume, NCFL, and the Ash Landfill, as shown on Figure 1-1 of the ROD (Parsons, 2005b).

Table Z.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	Ash Landfill Operable Unit	Restrict site use.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Groundwater	Yes	Yes	Ash Landfill Operable Unit	Restrict use of groundwater. Restrict excavation of soil or construction of inhabitable structures above groundwater plume.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant
Landfill	Yes	Yes	Ash Landfill Operable Unit	Maintain the vegetative soil layer over the ash fill areas and the non combustible fill area (“NCFL”) to limit ecological contact.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant
Monitoring Wells	Yes	Yes	Ash Landfill Operable Unit	Maintain the integrity of any current or future remedial or monitoring system such as monitoring wells and impermeable reactive barriers;	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

2.3 System Operations/Operation and Maintenance

A mulch biowall has the potential to stimulate reductive dechlorination of chlorinated ethenes for many years. If necessary, mulch biowalls can be recharged with liquid substrates (e.g., emulsified vegetable oil) to extend the life of the biowall. During August 2017, (68) 4-inch recirculation wells were installed within the A1/A2, B1, B2, C1, and C2 biowalls (Parsons, 2018a) for biowall recharge with liquid substrate. The injection fluid deployed consisted of a three-part emulsion containing groundwater from extraction wells, emulsified vegetable oil (EVO), and a pH buffer product. Once injected the soybean oil and soybean esters slowly ferment to hydrogen and volatile fatty acids which support anaerobic biodegradation by acting as electron donors. No additional enhancements were required during the five year review period.

3.0 Progress Since Last Five-Year Review

3.1 Recommendations

This section includes the protectiveness determinations and statements from the last five-year review (**Table Z.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table Z.3.2**).

Table Z.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-3/6/8/14/15	Protective	The remedy implemented for Ash Landfill is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table Z.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
Ash Landfill OU (SEAD-3/6/8/14/15)	N/A	Continue the semi-annual frequency of monitoring	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.	N/A
Ash Landfill OU (SEAD-3/6/8/14/15)		Biowall process monitoring wells (MWT-26, MWT-27, MWT-28, MWT-29, and MWT-23) will be monitored on a semi-annual basis.		Semi-annual monitoring continued as intended in the process monitoring wells (MWT-26, MWT-27, MWT-28, MWT-29, and MWT-23). In fall 2017 the December 2017 sampling event was shifted to January 2018 after the biowall recharge in Fall 2017.	2017
Ash Landfill OU (SEAD-3/6/8/14/15)		Each year a recharge evaluation will be completed. As stated in the RDR (Parsons, 2006c), if a recharge is conducted, MWT-26, MWT-27, and MWT-29 would be excluded from the LTM program, as detailed in Figure 12. MWT-28 and MWT-23 will continue to be monitored as part of the performance monitoring wells to supplement data that will be used to determine whether additional biowall recharge is required. The recharge evaluation(s) conducted each year after the first biowall recharge would review the chemical and geochemical data at MWT-28 and MWT-23, and determine if the contaminant increase is a result of poor biowall performance or due to other issues such as seasonal variations in groundwater levels, unusual precipitation events, or desorption and back diffusion;	Completed	A Biowall refresh evaluation was performed each year as part of the annual report. Recharge of the biowalls was performed in the fall of 2017.	2017
Ash Landfill OU (SEAD-3/6/8/14/15)		Performance monitoring wells (PT-17, PT-18A, PT-22, PT-24, MWT-7, MWT-22, MWT-24, and MWT-25) will continue to be monitored on a semi-annual basis in a manner consistent with the Year 3 LTM program. In the eight years of LTM events at the Ash Landfill OU, the concentrations of COCs in the wells	On-going	Semi-annual monitoring continued as intended in the performance monitoring wells. In fall 2017 the December 2017 sampling event was shifted to January 2018 after the biowall recharge in Fall 2017.	N/A

		downgradient of the source area (near PT-18A) have decreased			
Ash Landfill OU (SEAD-3/6/8/14/15)		The off-site performance monitoring well (MW-56) will continue to be monitored on a semi-annual basis	On-going	Semi-annual monitoring continued as intended in offsite well MW-56. In fall 2017 the December 2017 sampling event was shifted to January 2018 after the biowall recharge in Fall 2017.	N/A
Ash Landfill OU (SEAD-3/6/8/14/15)		The vegetative covers at the Ash Landfill and the NCFL will be inspected annually to ensure that they remain intact and protective of ecological receptors	On-going	The fill cover has been inspected annually and reported on in the annual Land Use Control Inspection Reports.	N/A
Ash Landfill OU (SEAD-3/6/8/14/15)		The frequency of monitoring and the need to recharge the biowalls will be reviewed in the annual report submitted after the completion of the tenth year of LTM	On-going	Annual reporting including evaluation of the frequency of the monitoring program and evaluation of the need to recharge the biowalls.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

There have been twenty-nine rounds of groundwater monitoring conducted at the Ash Landfill which have been documented in fourteen annual LTM reports.

The Annual Reports review the results of the LTM program as part of the ongoing evaluation of the remedy and provide conclusions and recommendations about the effectiveness of the remedial action, including the groundwater remedy and the vegetative landfill covers.

Based on the results of the long-term monitoring at the Ash Landfill since the installation of the full-scale biowalls, the Army has made the following conclusions:

- Trichloroethylene (TCE), cis-Dichloroethylene (cis-DCE), and Vinyl Chloride (VC) are present in the groundwater at concentrations above the Class GA groundwater standards.
- Contaminants of concern (COCs) do not exceed groundwater standards at the off-site sentinel well, MW-56.
- TCE within the biowalls remains below detection limits.
- TCE, cis-DCE, and VC are present in the groundwater at the site at concentrations above respective Class GA groundwater standards.
- Chemical results indicate that the concentrations of chlorinated ethenes are decreasing as they pass through the biowall systems.
- Geochemical parameters indicate that groundwater redox conditions are conducive for reductive dechlorination to occur within the biowalls.

4.3 Site Inspection

The five SEADs (SEADs 3, 6, 8, 14, and 15) comprise the Ash Landfill OU were inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**. Well inspections were also performed during groundwater sampling events.

The following observations were made based on the site inspections:

- No prohibited facilities were present or had been constructed at the site and no access to, or use of, groundwater was evident.
- The integrity of the current remedial and monitoring system, including permeable reactive barriers and monitoring wells, was found to be intact.
- Landfill covers/containment features were in place and operating as designed and no damage to the cover/containment was observed.
- Recent inspection of the vegetative covers at the Ash Landfill and the NCFL continue to indicate that the covers are in acceptable condition.
- No recent excavations were observed.

The site inspection confirmed that no prohibited excavation has occurred, no prohibited facilities have been constructed, and no access to or use of groundwater was evident. Maintenance of the vegetative soil layer over the ash fill areas and the NCFL appears to be adequate to limit ecological contact. The integrity of the impermeable reactive barriers appears to be adequate.

4.4 Interviews

Since the Ash Landfill is uninhabited and unoccupied, no interviews were conducted during the FYR process for the Ash Landfill.

4.5 Institutional Controls Verification

The LUCs, environmental easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed RODs for AOCs within the Ash Landfill OU have been completed and documented. Long Term Remedy Maintenance and Monitoring activities are being conducted as required in the Ash Landfill OU. Based on a review of the RDR (Parsons, 2006c), LTM Reports, LUCs RD, environmental easement, transfer deed, and the FYR site visit conducted on July 22, 2020, all remedies are functioning as intended by the decisions documents.

The remedy implemented at Ash Landfill AOCs (SEADs 3, 6, 8, 14, and 15) currently is protecting human health and the environment because:

- The remedy action required by the ROD has been conducted and completed, and the results of the implemented remedial action has been reported to, and accepted by the USEPA and the NYSDEC.
- The permeable reactive barrier walls installed to intercept and treat the contaminated groundwater plume identified within the OU have been shown to be operating properly and successfully and are promoting the reduction of the primary plume contaminant's (trichloroethene) concentrations in groundwater without allowing breakdown-product contaminants (vinyl chloride, dichloroethene, etc.) to spread beyond the bounds of the OU at levels that threaten groundwater supplies.
- The integrity of the existing monitoring wells and permeable reactive barrier walls is being monitored and maintained.
- Soil covers installed over the Ash Landfill and the NCFL have re-vegetated and have been observed to be in good repair.
- The former abandoned incinerator (Building 2207, SEAD-15) has been demolished and the associated demolition debris has been removed from the OU and disposed at an off-site landfill.
- New construction of temporary or permanent inhabitable buildings or structures has not occurred.

The selected remedy is still protective of human health and the environment and functioning as intended by the decision document.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy **are still valid**.
- There have been **no changes** in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy.

Summary of toxicity data and cleanup level changes:

Because the Ash Landfill AOCs (SEADs3, 6, 8, 14, and 15) is undergoing active LTM, the screening levels and cleanup levels are reviewed and updated in the Annual LTM report. In the latest report groundwater concentrations were compared against NYS Water Quality Standards, Class GA (6 CRR-NY 703.5) (Parsons, 2020c).

As a result, the cleanup levels and RAOs from earlier RODs are considered still valid. Since the standards are reviewed on an annual basis and updated as needed the cleanup standards remain protective of human health.

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-3/6/8/14/15. Chemical results indicate that the concentrations of chlorinated ethenes are decreasing as the groundwater plume passes through the biowall locations and that groundwater redox conditions are conducive for reductive dechlorination to occur within the biowalls. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. Based on this FYR and the fourteen years of long-term monitoring at the Ash Landfill OU, the Army has the following recommendations:

- Continue the implementation of LUCs and the annual frequency of period reviews.
- Continue the semi-annual frequency of monitoring, the annual periodic evaluations of the effectiveness of the biowalls, and the annual inspections of the landfill cover.

7.0 Protectiveness Statement

The remedy implemented for Ash Landfill is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

\\nabos07fs01\PI\Projects\Huntsville WERS\Seneca LTM, TO 2310 - Five Year Review\Draft FYR 2020\03 Attachment 1\Att Z-1 Ash_Landfill_Aerial_n_Ground_Photos.ppt

Attachment Z-1
Five-Year Review- Site Visit Photo Log
Ash Landfill Operable Unit including SEADs 3, 6, 8, 14, & 15

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.08100

LOCATION: Ash Landfill, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers



Approximate Site Boundary



Photo Viewing Direction

2020 Site Visit Photo 1



Status as of: 7/22/2020 Photo ID: IMG_3932.jpg
Description: View of a Biowall B Wall

2020 Site Visit Photo 2



Status as of: 7/22/2020 Photo ID: IMG_3937.jpg
Description: Area near Biowall A Wall.

2020 Site Visit Photo 3

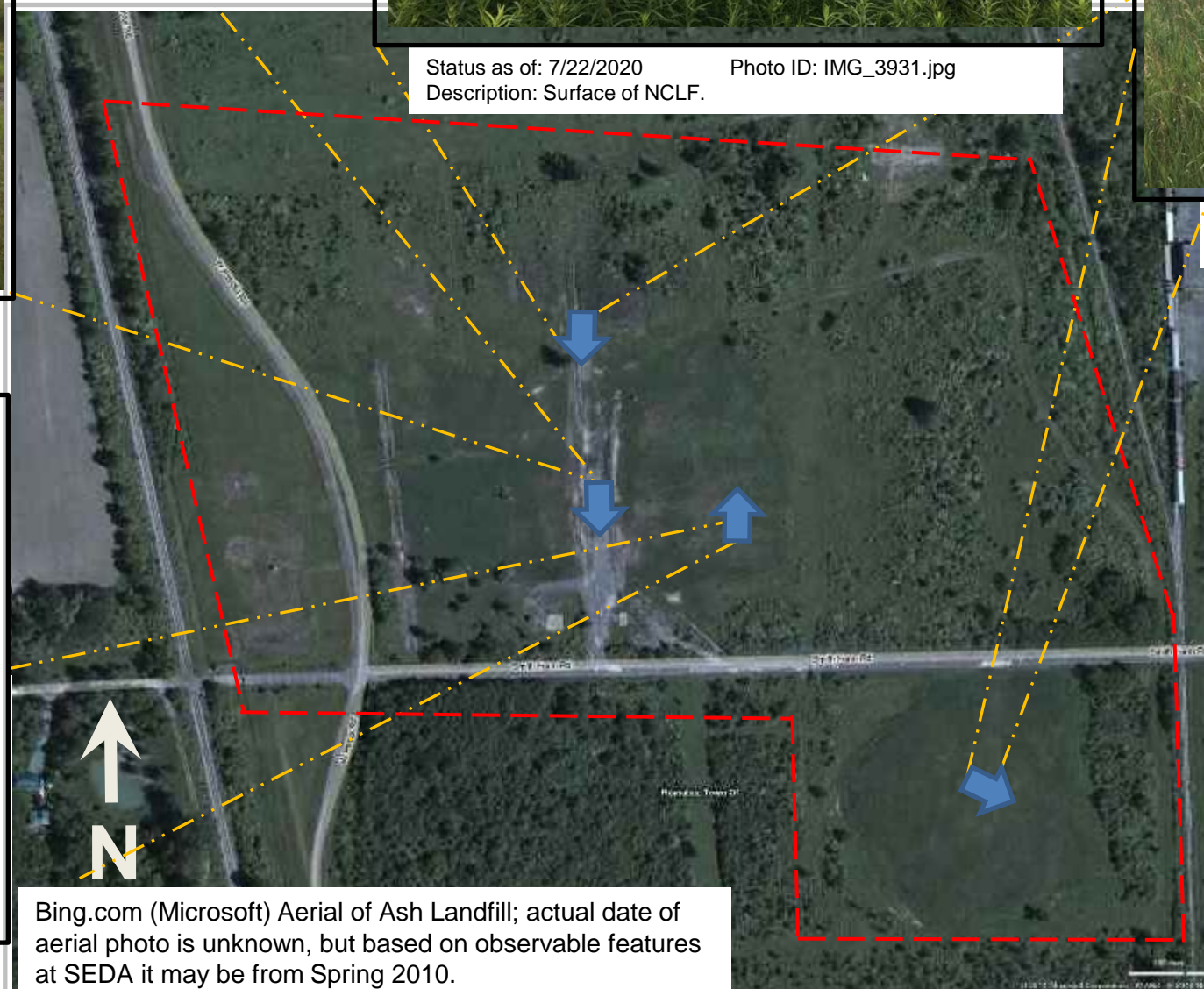


Status as of: 7/22/2020 Photo ID: IMG_3931.jpg
Description: Surface of NCLF.

2020 Site Visit Photo 4



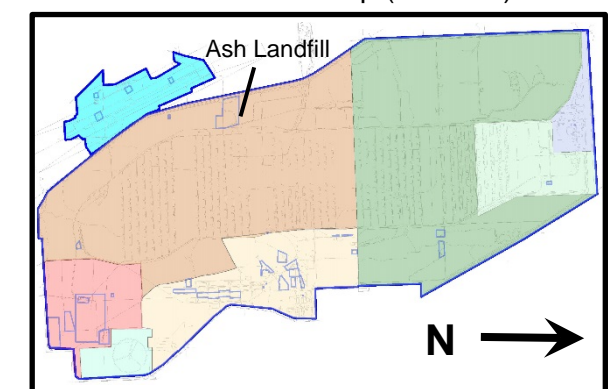
Status as of: 7/22/2020 Photo ID: IMG_3934.jpg
Description: Surface of NCLF.



Bing.com (Microsoft) Aerial of Ash Landfill; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2010.

- Ash Landfill Operable Unit consists of:
- SEAD-3 Incinerator Cooling Water Pond
 - SEAD-6 Abandoned Ash Landfill
 - SEAD-8 Non-Combustible Fill Area
 - SEAD-14 Refuse Burning Pits (2 units)
 - SEAD-15 Abandoned Solid Waste Incinerator Building

SEDA Overall Map (no scale)



Ash Landfill is located within the Farming Parcel.

\\mabos07fs01\PIT\Projects\Huntsville WERS\Seneca LTM, TO 23\10 - Five Year Review\Draft FYR 2020\03 Attachment 1\Att Z-1 Ash_Landfill_Aerial_n_Ground_Photos.ppt

Attachment Z-1
Five-Year Review- Site Visit Photo Log
Ash Landfill Operable Unit including SEADs 3, 6, 8, 14, & 15

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: Ash Landfill, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

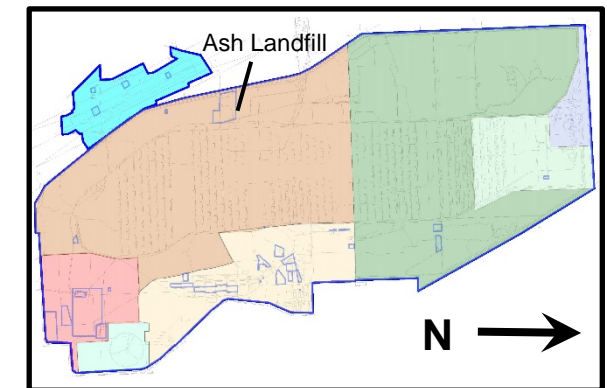
2019 Site Visit Photo 5



Approximate Site Boundary
Photo Viewing Direction

Ash Landfill Operable Unit consists of:
- SEAD-3 Incinerator Cooling Water Pond
- SEAD-6 Abandoned Ash Landfill
- SEAD-8 Non-Combustible Fill Area
- SEAD-14 Refuse Burning Pits (2 units)
- SEAD-15 Abandoned Solid Waste Incinerator Building

SEDA Overall Map (no scale)



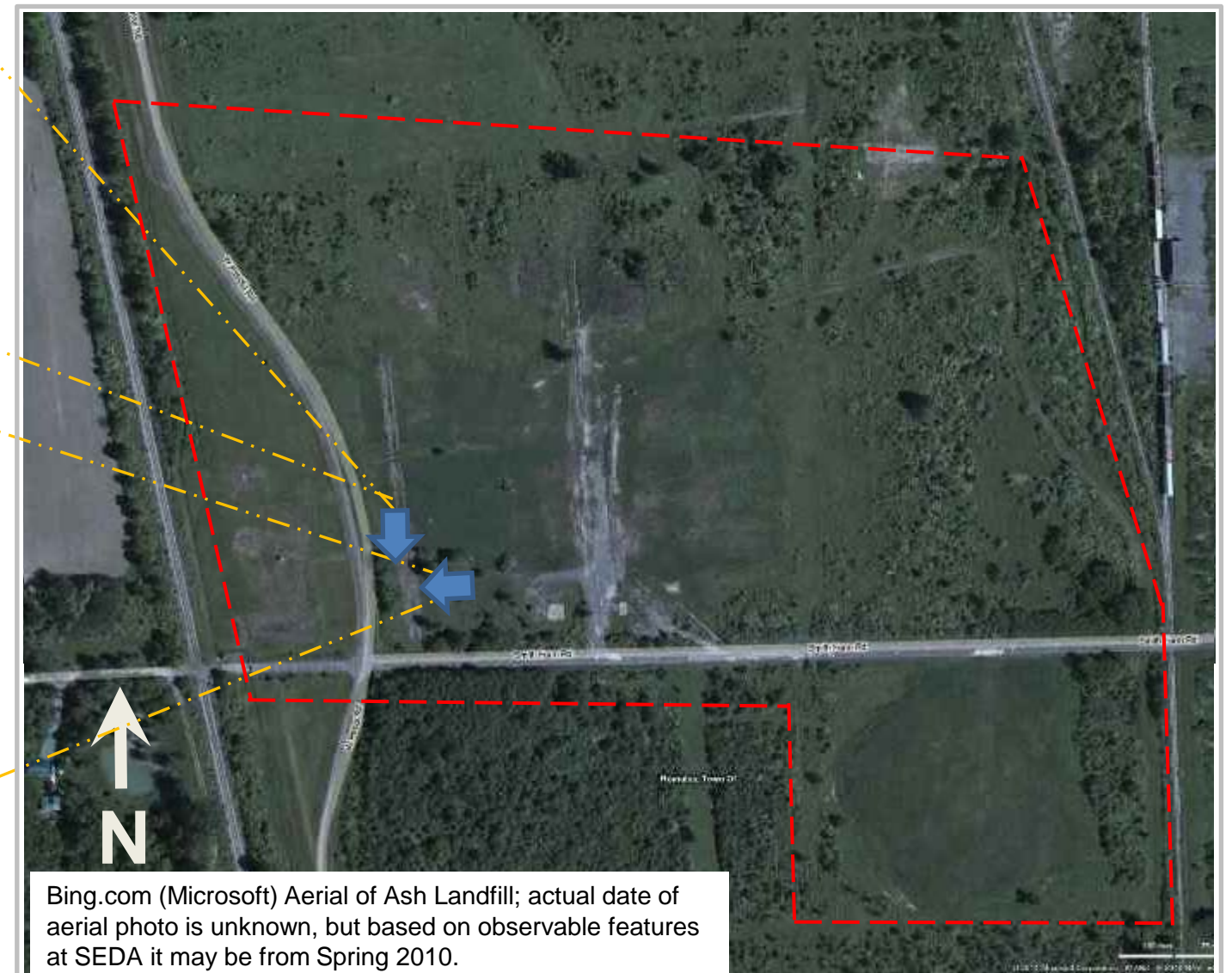
Ash Landfill is located within the Farming Parcel.

Status as of: 7/22/2020 Photo ID: IMG_3920.jpg
Description: Looking south across portion of biowall within the Ash Landfill.

2020 Site Visit Photo 6



Status as of: 7/22/2020 Photo ID: IMG_3924.jpg
Description: Looking north across the western portion of Ash Landfill.



Bing.com (Microsoft) Aerial of Ash Landfill; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2010.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
<div style="display: flex; justify-content: space-between;"> <div> Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other </div> <div> Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls </div> </div>	
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX AA
AIRFIELD PARCEL
SEAD-122B: AIRFIELD SMALL ARMS RANGE
AND
SEAD-122E: PLANE DEICING AREA)

APPENDIX AA: AIRFIELD PARCEL (SEAD-122B AND SEAD-122E)

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD-122B – Small Arms Range (SAR) located on the Airfield Parcel along Route 96A was previously used by the Air Force, Navy, and Army as a small arms qualification ground. The Airfield SAR is located in the southwest corner of SEDA adjacent to the SEDA Airfield. The SAR consists of two contiguous bermed small arms ranges: one previously used for small arms training, and the second previously used for machine gun targeting (Parsons, 2007a). The firing line areas were suspected to contain UXO, high lead concentrations, and possibly other high metal concentrations.

SEAD-122E is associated with the deicing of planes at three separate aircraft refueling areas at the former SEDA Airfield. The property was active from 1942 until it was officially closed in 2000, but is currently utilized by the New York State Police for training and special events. All three of the historic deicing/refueling pads that comprise SEAD-122E are located along the western side of the northwest-southeast runway. Two of the deicing/refueling pads are located near either end of the runway, while the third is located at the end of a short taxiway, west of the central portion of the runway.

1.2 Initial Response

The investigative work at SEAD-122B included an EBS in 1998, an initial site investigation in 2002, and a treatability study in 2004. As part of the 2004 treatability study, approximately 500 cubic yards of soil was excavated from locations where high concentrations of total lead were found during the 2002 investigation in the larger of the two SARs. Other metals detected at levels above their respective NYSDEC cleanup objective levels were collocated within the areas where high lead concentrations were found. The excavation area was delineated by elevated lead concentrations greater than 400 ppm and included the western face of the backstop berm and a drainage swale that carried surface water runoff away from the firing range area. The top three inches of soil on the surface of the firing range's floor were also excavated. The final results reported confirm that all excavated locations exhibited lead concentrations at levels less than 400 ppm.

The investigative work at SEAD-122E included an EBS that was performed in 1998 and 1999 (Parsons ES, 1999b).

1.3 Basis for Taking Action

Due to human health risk in soil an action was required at SEAD-122E to ensure land use remains protective of site users. A risk assessment was not performed for SEAD-122B. SEAD-122B and SEAD-122E are located in the Former Airfield County Fire Training & Factory area.

1.3.1 CONTAMINANTS OF CONCERN

At SEAD-122B, TAL metals analysis indicated lead concentrations well above the TAGM SCO. In addition, antimony, arsenic, copper, silver, sodium, thallium, and zinc were detected at concentrations slightly over the SCOs. One TCLP lead concentration was above the RCRA limit of 5,000 µg/L. The Synthetic Precipitation Leaching Procedure (SPLP) metals results indicated that there were levels of antimony, iron, and thallium above the NYSDEC Class GA groundwater standards. The maximum detected concentrations of iron and thallium were consistent with SEDA background levels. Groundwater was found to not be impacted by contact with or contaminant migration from the SAR soil (Parsons, 2004e).

For SEAD-122E, the Final EBS Report was issued to USEPA and NYSDEC in May 1999 (Parsons ES, 1999b). The constituents of concern are SVOCs and principal components of deicing fluids (alcohols/glycols, i.e., ethylene

glycol, propylene glycol, total unknown alkanes) in soil and groundwater. No deicing chemicals (e.g., glycols) were detected in any of the six soil samples characterized during this event. None of the compounds detected in the four groundwater samples exceeded groundwater standards.

In 2017, the Army launched a SI at three previously investigated sites (SEAD-25, SEAD-26, and SEAD-122E), which were formerly used as fire training sites, to determine whether the areas were contaminated with PFAS due to the use of AFFF. The ESI data showed that the concentrations of the two primary PFAS constituents, PFOA and PFOS, were measured below the EPA HA level in all 24 of the wells installed and sampled at SEAD-122E. As a result, no additional action beyond the PFAS SI was taken at SEAD-122E (Parsons, 2018).

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

A risk assessment was not performed for SEAD-122B, where the results of the treatability study indicated that the cleanup objectives established for the treatability study had been achieved and all lead concentrations remaining at the AOC were below the USEPA's guidance value for residential soils.

For SEAD-122E, the risk assessment concluded that at SEAD-122E the human health cancer risks were within the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} for the industrial worker and the construction worker. The cancer risk values for the day care center worker and day care center child, 2×10^{-4} and 1×10^{-4} , respectively, are above or at the acceptable level. The unacceptable cancer risk is due to dermal contact to soil and ingestion of soil. The contributing COCs are cPAHs in soils. A summary of the risk assessment results is presented in Table 7-15 of the ROD (Parsons, 2007a). The calculated non-cancer HI for all receptors are less than 1.0.

For comparison purposes, risk to residential receptors was evaluated. The non-cancer HIs were less than 1.0. Cancer risk values were above USEPA acceptable limits due to the presence of cPAHs in the soil.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "Seventeen SWMU Requiring Land Use Controls (SEADs 13, 39, 40, 41, 43/56/69, 44A, 44B, 52, 62, 64B, 64C, 64D, 67, 122B, and 122E) " signed on July 3, 2007 required the establishment of ICs at the two sites (SEADs 122B and 122E) comprising the area known as the Airfield Parcel required the establishment of an IC. The elements that composed the remedy included:

- Establishing, maintaining, monitoring, and reporting on a LUC that prohibits residential housing, elementary and secondary schools, childcare facilities and playgrounds until unrestricted use and unlimited exposure criteria are attained within the AOCs.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehouse Area. Addendum 2 expanded the LUC RD from the PID area to include sites that are in the area formerly known as the Conservation Area and the Airfield parcels, and applied the SEAD LUC RD enforcement provisions to SEADs 122B and 122E.

An Environmental Easement for the PID/Warehouse Area (expanded to include the Airfield parcel) was recorded in the Seneca County Clerk's office on July 9, 2009. A summary of the institutional controls currently

implemented at SEAD-122B and SEAD-122E is presented in **Table AA.2.1** based on the data and risk presented in the ROD and the LUC RD.

SEAD-122B and SEAD-122E were transferred to the SCIDA with a Quitclaim Deed executed on June 8, 2009. The PID/Warehouse Area property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed for the PID/Warehouse Area incorporated by reference the land use restrictions set forth in the Environmental Easement.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the Five-Year Review and on an annual basis.

Table AA.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Site Use	No ⁽¹⁾	Yes ⁽²⁾	SEAD PID/Warehousing Area (including the Airfield Parcel)	Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning

Note:

(1) For SEAD-122B, results of the treatability study indicated that the cleanup objectives established for the treatability study had been achieved and all lead concentrations remaining at the AOC were below the USEPA's guidance value for residential soils (Parsons, 2007a). For SEAD-122E, results of the Final EBS Report (Parsons ES, 1999b) and the 2017 ESI data show no COC exceedances in soil or groundwater.

(2) SEAD-122B and SEAD-122E are located within the airfield area where an area-wide IC is present. This IC prohibits use or access to groundwater and prohibits land use for residential housing, elementary and secondary schools, childcare facilities and playground activities. This site is physically located within the boundary of the airfield area, and therefore, the ICs are applied to this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table AA.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table AA.3.2**).

Table AA.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-122B and SEAD-122E	Protective	The remedy implemented for Airfield Parcel is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table AA.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-122B and SEAD-122E	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews;	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction or access to, or use, of groundwater were observed.	N/A
		Based on EPA request, the Army has agreed to sample for perfluoroalkyl substances [PFAS] at sites where Aqueous Film Forming Foams (AFFF) (e.g., firefighting foams) may have been used. As part of this program, future sampling for PFAS at SEAD-122E is expected. A sampling plan for SEAD-122E will be documented in a future report.	Completed	In 2017, the Army launched a site investigation (SI) at three previously investigated sites (SEAD-25, SEAD-26, and SEAD-122E). The ESI data showed that the concentrations of the two primary PFAS constituents, PFOA and PFOS, were measured below the EPA HA level in all 24 of the wells installed and sampled at SEAD-122E. As a result, no additional action beyond the PFAS SI was taken at SEAD-122E (Parsons, 2018).	2017

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data was reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-122B and SEAD-122E were inspected on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No prohibited facilities were present or had been constructed at the site and no access to, or use of, groundwater was evident.
- The selected remedy is still protective of human health and the environment.

4.4 Interviews

Since SEADs 122B and 122E are uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-122B and 122E.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the completed ROD for the Airfield Parcel have been completed and documented. Based on a review of the LUCs RD Addendum 2, Environmental Easement, transfer deed, and the FYR site visit conducted between June 1 and 3, 2015, the remedy is functioning as intended by the decision documents.

The selected remedy is still protective of human health and the environment because:

- The LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds ,and which also has been expanded to include land within the PID Area and Airfield parcel has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment. No opportunities for optimization or early indicators of potential issues have been identified for SEAD-122B and SEAD-122E.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the SEAD-122B and SEAD-122E.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards

(AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Table AA.5.1 through AA.5.3** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table AA.5.1 Comparison of Toxicity Data and Cleanup Levels for SEAD 122B

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
Metals						
Antimony	5.9	3.1	5.9	NA	Y	Y
Arsenic	8.2	0.7	8.2	13	Y	Y
Calcium	121000	NA	121000	NA	N	N
Copper	33	310.0	33	50	Y	N
Lead	400	400.0	400	63	Y	Y
Manganese	21500	180.0	21500	1600	Y	Y
Silver	0.75	39.0	0.75	2	Y	N
Sodium	172	NA	172	NA	N	N
Thallium	0.7	0.1	0.7	NA	Y	Y
Zinc	110	2300.0	110	109	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table AA.5.2 Comparison of Toxicity Data and Cleanup Levels in Surface Water for SEAD 122B

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Groundwater Cleanup Objectives (Class GA) ⁽²⁾		
Metals						
Antimony	3	0.780	ROD did no establish cleanup levels		Y	Y
Iron	300	1400			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) Federal screening levels are from EPA Regional Screening Levels (RSL) for Tap Water based on a target HQ = 0.1; updated May 2020. State groundwater cleanup goals are from 6 CRR-NY 703.5 Class GA; Verified 9/21/2020.

"--" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

Table AA.5.3 Comparison of Toxicity Data and Cleanup Levels for SEAD 122E

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
SVOCs						
Benzo(a)anthracene	0.224	1.1	0.224	1.0	Y	N
Benzo(a)pyrene	0.061	0.11	0.061	1.0	Y	N
Benzo(b)fluoranthene	1.1	1.1	1.1	1.0	Y	Y
Benzo(k)fluoranthene	1.1	11	1.1	0.80	Y	Y
Chrysene	0.4	110	0.4	1.0	Y	N
Dibenz(a,h)anthracene	0.014	0.11	0.014	0.33	Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1	3.2	0.50	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

In 2017, the Army launched a SI at three previously investigated sites (SEAD-25, SEAD-26, and SEAD-122E), which were formerly used as fire training sites, to determine whether the areas were contaminated with PFAS due to the use of AFFF. The ESI data showed that the concentrations of the two primary PFAS constituents, PFOA and PFOS, were measured below the EPA HA level in all 24 of the wells installed and sampled at SEAD-122E. As a result, no additional action beyond the PFAS SI was taken at SEAD-122E (Parsons, 2018). Based on these findings, there is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEADs 122B and 122E. On-going remedial monitoring activities include periodic evaluations of the effectiveness of the remedy. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

One issue was identified during this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and discuss lowering the frequency of periodic reviews with NYSDEC and EPA.
- Re-evaluate the risk due to changes in the toxicity values (particularly the PAH toxicity values) to determine if UU/UE conditions can be met in soil at SEAD-122E.

7.0 Protectiveness Statement

The remedy implemented for Airfield Parcel is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment AA-1
Five Year Review - Site Visit Photo Log
SEAD-122B Small Arms Range, Airfield Parcel

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-122B, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1

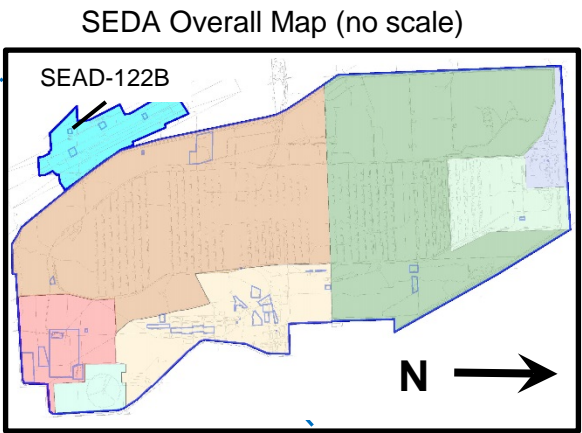


Status as of: 7/22/2020 Photo ID: IMG_3940.JPG
Description: SEAD-122B

2019 Site Visit Photo 2



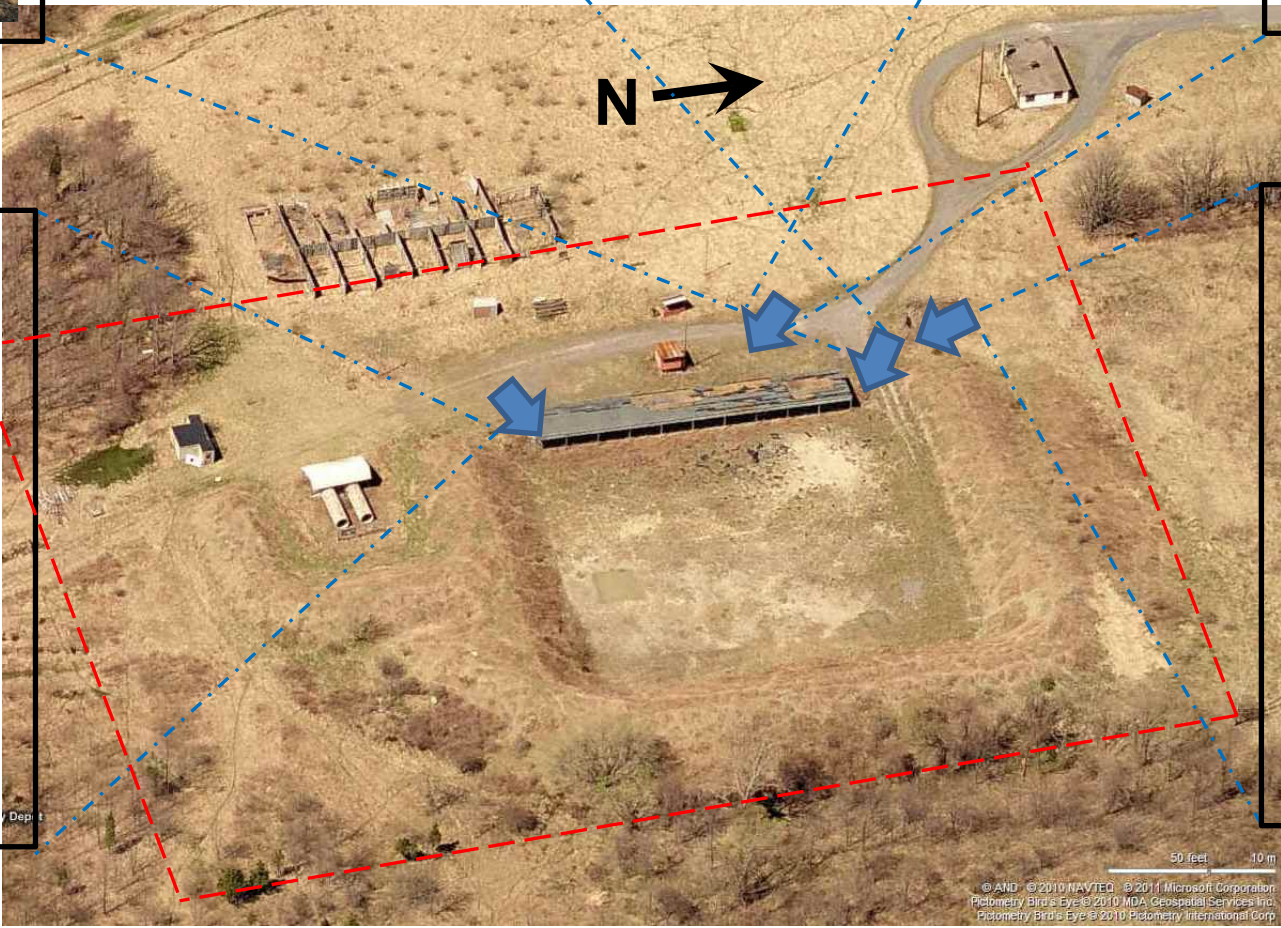
Status as of: 7/22/2020 Photo ID: IMG_3942.JPG
Description: SEAD-122B



SEAD-122B is located within the Airfield Parcel.

Approximate Site Boundary
Photo Viewing Direction

Bing.com (Microsoft) Birds Eye Aerial of SEAD-122B; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2007.



2020 Site Visit Photo 3



Status as of: 7/22/2020 Photo ID: IMG_3939.JPG
Description: SEAD-122B

2020 Site Visit Photo 4



Status as of: 7/22/2020 Photo ID: IMG_3944.JPG
Description: SEAD-122B

Attachment AA-2
Five Year Review- Site Visit Photo Log
SEAD-122E Plane Deicing Area

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-122E, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1 - 3



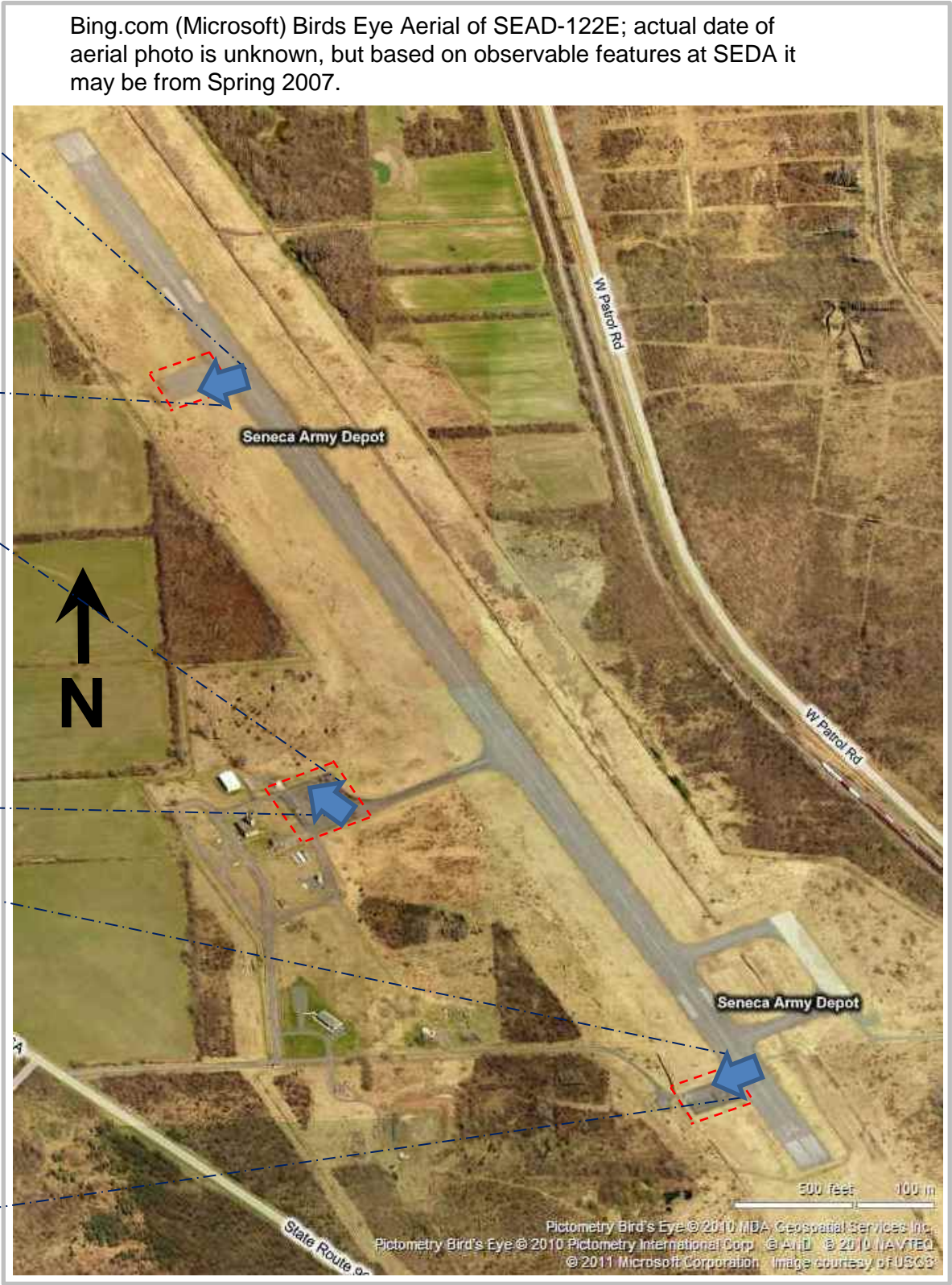
Status as of: 7/22/2020 Photo ID: IMG_3949.JPG
Description: SEAD-122E



Status as of: 7/22/2020 Photo ID: IMG_3948.JPG
Description: SEAD-122E



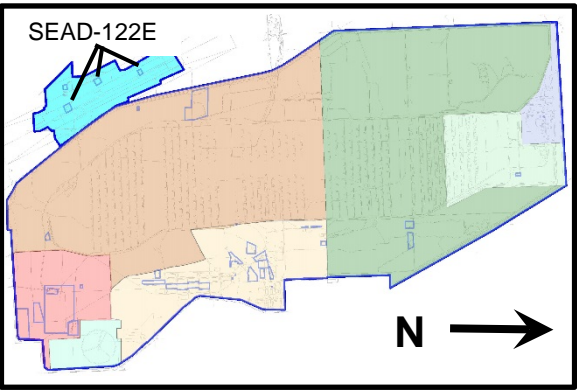
Status as of: 7/22/2020 Photo ID: IMG_3945.JPG
Description: SEAD-122E



SEAD-122E is located within the Airfield Parcel.

- Approximate Site Boundary
- Photo Viewing Direction

SEDA Overall Map (no scale)



ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:												
Remedy Includes: (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Landfill Cover/Containment</td> <td style="width: 50%;">Monitored Natural Attenuation</td> </tr> <tr> <td>Access Controls</td> <td>Groundwater Containment</td> </tr> <tr> <td>Institutional Controls</td> <td>Vertical Barrier Walls</td> </tr> <tr> <td>Groundwater Pump and Treatment</td> <td></td> </tr> <tr> <td>Surface Water Collection and Treatment</td> <td></td> </tr> <tr> <td>Other</td> <td></td> </tr> </table>		Landfill Cover/Containment	Monitored Natural Attenuation	Access Controls	Groundwater Containment	Institutional Controls	Vertical Barrier Walls	Groundwater Pump and Treatment		Surface Water Collection and Treatment		Other	
Landfill Cover/Containment	Monitored Natural Attenuation												
Access Controls	Groundwater Containment												
Institutional Controls	Vertical Barrier Walls												
Groundwater Pump and Treatment													
Surface Water Collection and Treatment													
Other													
Attachments: <div style="display: flex; justify-content: space-around; margin-top: 5px;"> Inspection Team Roster Attached Site Map Attached </div>													

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
4. Other Interviews (optional): <div style="text-align: right; margin-top: 5px;">Report Attached</div>				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX AB

SEAD-12: RADIOACTIVE WASTE BURIAL SITES

APPENDIX AB: SEAD-12 RADIOACTIVE WASTE BURIAL SITES

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The Radioactive Waste Burial Site (SEAD-12) is located in the north-central portion of the former Seneca Army Depot also known as the high security area and referred to as the “Q Area”. The SEAD-12 remedial investigation covered 624 acres of the Q Area including the burial areas noted above. After the ESI, Building 715 and the portion of Reeder Creek adjacent to SEAD-12 were also included in the RI at SEAD-12. Building 715 is a wastewater treatment plant that received wastewater from the buildings within the Q Area during the period of their Army use. This facility currently receives wastewater from the Hillside Children’s Center, which is now located in the AOCs former Troop Area to the north and west of SEAD-12. Reeder Creek receives the surface water runoff from SEAD-12, and other locations within the former Depot, as well as the wastewater discharge from Building 715.

The contaminant sources at SEAD-12 were the military-related items and other debris associated with the historic waste burial activity within the AOC. Prior test pitting operations conducted as part of the SEAD-12 ESI and the SEAD-12 RI indicated that buried material contained in the burial pits included an undefined quantity of military-related debris, other conventional forms of debris (e.g., construction and demolition [C&D] debris, miscellaneous debris, etc.), and fill material, all of which was covered by known thicknesses of native, overburden soil.

1.2 Initial Response

An ESI was conducted for SEAD-12A and SEAD-12B in 1994, and included the sampling and analyses of surface and subsurface soil, groundwater, surface water, and sediment. A RI was started at SEAD-12 in 1997 and the final RI Report was issued in 2002. The RI consisted of geophysical investigations; radiological investigations, including the building surveys mentioned above; a soil gas survey; test pitting; sampling and analysis of surface and subsurface soil, groundwater, surface water, and sediment; a baseline human health risk assessment (HHRA); an ecological investigation; and a SLERA.

Analytical data collected during the 1995 ESI and 2002 RI are presented, summarized, and discussed for each potential release area in the SEAD-12 RI Report. Based on the investigation data and available documentation of activity associated with the former AOC operations, three potential release areas (i.e., the Former Dry Waste Disposal Pit, Disposal Pit A/B, and Disposal Pit C) were considered impacted to the greatest extent by former activities performed in the AOC. At two of these areas military-related items were identified during test pitting operations during the ESI and RI. Analytical data for conventional chemical and radiological contaminants identified in soil from each of these three areas were combined with AOC-wide analytical results for conventional chemical and radiological contaminants in surface water, sediment, and groundwater and used as the basis of the risk assessments for SEAD-12. Based on the conclusions in the RI, a supplemental RI (SRI) was conducted in 2006 to further characterize the extent of TCE found in groundwater in the Buildings 813/814 area and the level of ^{210}Pb present in the area of EM-5.

The radiological building survey conducted as part of the RI concludes that all buildings in SEAD-12 are in compliance with the NYSDEC cleanup guideline (i.e., 10 mrem/yr) identified in the NYSDEC *Cleanup Guidelines for Soils Contaminated with Radioactive Materials* (DSHM-RAD-05-01). Results of the radiological building survey are presented in the *Final Radiological Survey Report* (Parsons, 2002d).

The Army performed a removal action during 2009 in the historic waste burial pits to excavate material contained within the pits and allow the Army to examine the contents so that military-related items could be identified, removed, and secured, pending any final demilitarization, dismantling, and disposal. Recovered

military-related items were not found to coexist with conventional chemical hazardous substances at concentrations of particular concern, but in many cases the recovered military-related items did exhibit levels of residual radiation at levels in excess of regional background. 5433 tons of soil and comingled debris were disposed of at an off-site licensed landfill, 122 ton of material were recycled and 13.25 tons of military-related items with radiological residuals in excess of background levels were secured and disposed of at an off-site licensed low-level radioactive waste disposal site.

1.3 Basis for Taking Action

Because the potential for vapor intrusion was not evaluated within Buildings 813/814, an action was required at SEAD-12 to ensure land use remains protective of site users. SEAD 12 is located within an area of the Seneca Army Depot where the proposed future use was designated by the Local Redevelopment Authority as future institutional /training/commercial activity.

1.3.1 CONTAMINANTS OF CONCERN

The contaminant sources at SEAD-12 were the military-related items and other debris associated with the historic waste burial activity within the AOC. The source of the TCE was remediated to the limit of the building foundation; however, no investigation was conducted under the building structure. The history of the previous TCE contamination is noted since the condition under the adjacent building is unknown. The areas of concern are where residual TCE-contaminated soil and where contaminated groundwater may exist. Table 6-1 of the ROD (Parsons, 2015g) presents a comparison of the ESI and RI soil analytical results to the NYSDEC Unrestricted Use SCOs and the USEPA RSLs for Chemical Contaminants at Superfund Sites for residential soil.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-12 for all future receptors under the institutional/training/commercial scenario the human health cancer risks were within the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} , and the calculated non-cancer HI for all receptors except for the industrial worker are less than 1.0. Table 7-1 in the ROD summarizes risks calculated for exposures to SEAD-12 impacted media (soil, groundwater, surface water, and sediment/ditch soil).

A potential risk is assumed to exist in the vicinity of the previously noted TCE contamination that was identified in the soil and groundwater in the immediate vicinity of Buildings 813/814 and former well MW12-37. Residual VOC contamination in soil does not pose a direct-contact hazard but has the potential to pose a future vapor intrusion exposure. With no future planned use of Buildings 813/814, a risk assessment was not performed to evaluate potential risks via the indoor air exposure pathway. To assure that SEAD-12 will not pose a future unacceptable risk if Building 813 or 814 were to be occupied, or if any building overlying the current buildings' footprints or on adjacent land were to be constructed, an investigation of vapor intrusion potential and indoor air quality would be needed to assess and estimate potential risks from VOC vapor intrusion.

As part of the RI, a SLERA was conducted. The results of the SLERA indicate that soil, surface water, or sediment at SEAD-12 does not significantly impact ecological receptors in the area (i.e., short-tailed shrew, meadow vole, red-tailed hawk, great blue heron, mourning dove, largemouth bass, amphibian, and invertebrates). No COCs were identified for SEAD-12 soil, sediment, or surface water, and SEAD-12 does not pose significant risks to ecological receptors.

Results of the CERCLA risk assessment for SEAD-12 indicate that soil in the three most impacted areas (Disposal Pit A/B; Disposal Pit C; and the Former Dry Waste Disposal Pit) and other environmental media (groundwater, sediment, surface water) do not pose unacceptable risks to human health or the ecological

receptors based on the unrestricted use scenario. Therefore, no further CERCLA action is warranted at any location within SEAD-12, exclusive of the area where Buildings 813/814 are located.

The Army and the USEPA have determined that no further CERCLA action is warranted at any locations in SEAD-12 and SEAD-72, exclusive of the area underlying and surrounding Buildings 813/814 where a future vapor intrusion risk analysis would be warranted prior to occupation.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “The Radioactive Waste Burial Sites (SEAD-12) and The Mixed Waste Storage Facility (SEAD-72)” (Parsons, 2015g) require the establishment of ICs. The elements that composed the remedy included:

- Implementation, monitoring, and maintenance of an environmental LUC restricting access to and use of the existing vacant Buildings 813/814 and the construction of inhabitable structures (temporary or permanent) above the area and within a fifty foot perimeter of Buildings 813/814 and fifty foot radius from MW12-37 where TCE-contaminated soil was previously identified, and where contaminated groundwater may exist;
- Implementation, monitoring, and maintenance of a LUC that prohibits access to and use of groundwater in the vicinity of Buildings 813/814; and
- Prohibit the development and use of the property for residential housing, elementary and secondary schools, childcare facilities and playgrounds until soil and groundwater standards for unrestricted use and unlimited exposure are achieved.

2.2 Remedy Implementation

The LUC RD for SEAD-12 implemented the LUCs. The LUC RD for SEAD 27, 66, and 64A (“SEAD LUC RD”) implemented land use controls for the entire SEAD PID/Warehouse Area. Addendum 5 to the SEAD LUC RD added SEAD 12 in accordance with the SEAD LUC RD Supplementation provision.

The Army will maintain and enforce the LUCs until the concentration of hazardous substances in soil and groundwater are at such levels to allow for unrestricted use and exposure or until the property is transferred. The LUC will be implemented through an Environmental Easement which documents and transfers the LUC objectives and responsibilities to the future owners. The Environmental Easement will be recorded and identified in the Deed when the property is transferred. A summary of the institutional controls currently implemented at SEAD-12 is presented in **Table AB.2.1** based on the data and risk presented in the ROD and the LUC RD.

The Environmental Easement, the implementing document granted upon property transfer out of federal ownership, will state that the future property owner will perform an investigation of vapor intrusion potential and indoor air quality with the results of the surveys reviewed and approved by the Army, USEPA, and NYSDEC before the buildings, or any newly constructed buildings in the designated area may be occupied. The groundwater access and use restriction, established by the Environmental Easement, will be maintained and in effect until a future property owner demonstrates with new analytical data provided to, and approved by the Army, USEPA, and NYSDEC to indicate that groundwater in the LUC-zone (e.g., vicinity of Building 813 and 814, and former well MW12-37) meets GA groundwater standards.

As the selected remedies do not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table AB.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil Vapor	Yes	Yes	Within a fifty-foot perimeter of Buildings 813/814 and fifty foot radius from monitoring well MW12-37 ("LUC-zone")	Prohibit the use of existing Buildings 813 and 814 and/or the construction of new inhabitable structures (temporary or permanent)	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.
Soil	Yes	Yes	SEAD-12	Restrict site use.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
Groundwater	Yes	Yes	LUC-zone	Prohibit access to and use of the groundwater in the LUC-zone	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table AB.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table AB.3.2**).

Table AB.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-12	Protective	The remedy implemented for SEAD-12 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table AB.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-12	N/A	Continue the implementation of LUCs and the annual frequency of periodic reviews.	Completed	LUCs were implemented as intended. Annual inspections were completed in 2017, 2018, 2019, and 2020. No new construction of inhabitable structures and no apparent groundwater use were observed.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data was reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-12 was inspected between on July 22, 2020 to assess whether required LUCs imposed by the approved RODs are being maintained. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- Buildings 813/814 were not occupied.
- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-12.
- No apparent access to or use of groundwater were observed at SEAD-12.

4.4 Interviews

Since SEAD-12 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-12.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed ROD for SEAD-12 have been completed and documented. No continuing active remediation is required at SEAD-12. Based on a review of Closure Reports, LUC RD, Environmental Easement, transfer deeds and FYR site visit conducted July 22, 2020 all remedies are functioning as intended by the decision documents.

The remedy implemented at the SEAD-12 is currently protective of human health and the environment because:

- A LUC that prevents access to, and use of, groundwater at the SEAD-12 LUC-zone has been implemented and is currently being maintained, monitored and reported upon periodically. The LUC-zone includes a small portion of SEAD-12 being the area equal to i) fifty feet from the perimeter of Building 813/814 and ii) fifty feet from monitoring well MW12-37 where contamination by VOCs, primarily TCE, is at levels exceeding federal and state groundwater drinking water standards and state SCO levels. VOCs remain at sufficient concentrations to pose a potential risk via vapor intrusion to future users or occupants of the buildings or land;
- A second LUC that prevents the use of existing Buildings 813 and 814 and/or the construction of new inhabitable structures (temporary or permanent) above the area where there is the potential for TCE contaminated groundwater and/or soil, until a vapor intrusion study is conducted in the building(s) or in the restricted area and shows that potential risks from VOC intrusion does not pose unacceptable risk or hazard levels to future users or occupants of the structures or the land; and
- A third LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds at SEAD-12 has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment. No opportunities for optimization or early indicators of potential issues have been identified for SEAD-12.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for SEAD-12.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM

#4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables AB.5.1 through AB.5.4** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table AB.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Benzo(a)anthracene	0.15	1.1	1.0	1.0	Y	N
Benzo(a)pyrene	0.015	0.11	1.0	1.0	Y	N
Benzo(b)fluoranthene	0.15	1.1	1.0	1.0	Y	N
Benzo(a)anthracene	0.15	1.1	1.0	1.0	Y	N
Pesticides/PCBs						
4,4'-DDD	2.0	0.19	0.0033	0.0033	Y	Y
4,4'-DDE	1.4	2.0	0.0033	0.0033	Y	N
4,4'-DDT	1.7	1.9	0.0033	0.0033	Y	N
Metals						
Aluminum	7700	7700	--	--	N	N
Arsenic	0.39	0.68	13	13	Y	N
Chromium	12000	12000	30	30	N	N
Cobalt	2.3	2.3	--	--	N	N
Copper	310	310	50	50	N	N
Iron	5500	5500	--	--	N	N
Manganese	180	180	1,600	1600	N	N
Nickel	150	150	30	30	N	N
Vanadium	0.55	39	--	--	Y	N
Zinc	2300	2300	109	109	N	N
Other Analyses						
Alpha-BHC	0.077	0.086	0.020	0.020	Y	N
Beta-BHC	0.27	0.30	0.036	0.036	Y	N
Delta-BHC	--	0.57	0.040	0.040	Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table AB.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Anthracene	5.8	1800	5.8	100	Y	N
Benzo(a)anthracene	0.648	1.1	0.648	1.0	Y	N
Benzo(a)pyrene	70.2	0.11	70.2	1.0	Y	Y
Benzo(b)fluoranthene	70.2	1.1	70.2	1.0	Y	Y
Benzo(k)fluoranthene	70.2	11	70.2	0.80	Y	Y
Chrysene	70.2	110	70.2	1.0	Y	Y
Fluorene	0.432	240	0.432	30	Y	N
Indeno(1,2,3-cd)pyrene	70.2	1.1	70.2	0.50	Y	Y
Naphthalene	1.6	2.0	1.6	12	Y	N
Pyrene	51.9	180	51.9	100	Y	N
VOCs						
Toluene	2.7	490	2.7	0.70	Y	Y
Pesticides/PCBs						
4,4'-DDD	0.54	0.19	0.54	0.003	Y	Y
4,4'-DDE	0.54	2.0	0.54	0.0033	Y	Y
4,4'-DDT	0.54	1.90	0.54	0.0033	Y	Y
Aroclor-1254	0.0432	0.12	0.0432	NA	Y	N
Aroclor-1260	0.0432	0.24	0.0432	NA	Y	N
Endosulfan I	1.62	47	1.62	2.4	Y	N
Heptachlor epoxide	0.0432	0.070	0.0432	NA	Y	N
Metals						
Antimony	2	3.1	2	NA	Y	N
Arsenic	6	0.68	6	13	Y	Y
Cadmium	0.6	7.1	0.6	2.5	Y	N
Chromium	26	12000	26	30	Y	N
Copper	16	310	16	50	Y	N
Iron	20000	5500	20000	NA	Y	Y
Lead	31	400	31	63	Y	N

Table AB.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment (continued)

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
Manganese	460	180	460	1600	Y	Y
Mercury	0.15	1.1	0.15	0.18	Y	N
Nickel	16	150	16	30	Y	N
Silver	1	39	1	2.0	Y	N
Zinc	120	2300	120	109	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table AB.5.3 Comparison of Toxicity Data and Cleanup Levels in Surface Water

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
bis(2-Ethylhexyl)phthalate	0.6	5.6	0.600	0.60	Y	N
Pesticides/PCBs						
4,4'-DDE	0.000007	0.046	0.000007	0.000007	Y	N
4,4'-DDT	0.00001	0.23	0.00001	0.00001	Y	N
Aldrin	0.001	0.00092	0.001	0.001	Y	Y
Heptachlor	0.0002	0.0014	0.0002	0.0002	Y	N
Heptachlor epoxide	0.0003	0.0014	0.0003	0.0003	Y	N
Hexachlorobenzene	0.00003	0.010	0.00003	0.00003	Y	N
Metals						
Aluminum	100	2000	100	100	Y	N
Cobalt	5	0.60	5.000	5.0	Y	Y
Copper	17.36	80	17.36	NA	Y	N
Iron	300	1400	300	NA	Y	N
Lead	8.7	15	8.7	NA	Y	N
Mercury	0.0007	0.57	0.0007	0.00	Y	N
Silver	0.1	9.4	0.1	0.10	Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State surface water cleanup goals, when available, are from 6 CRR-NY 703.5 Water quality standards for taste-, color- and odor-producing, toxic and other deleterious substances Class C standard; Verified 9/21/2020. Federal surface water screening values are EPA Regional Screening Levels (RSL) for tapwater based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

Table AB.5.4 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
PAHs						
bis(2-Ethylhexyl)phthalate	5	5.6	5.000	5.00	Y	N
Metals						
Antimony	3	0.78	3	3	Y	Y
Iron	300	1400	300	300	Y	N
Iron+Manganese	500	NA	500	500	N	N
Lead	15	15	25	25	N	N
Manganese	300	43	300	300	Y	Y
Sodium	20000	NA	20,000	NA	N	N
Thallium	2	0.020	NA	NA	Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State groundwater cleanup goals are from 6 CRR-NY 703.5 Water quality standards for taste-, color- and odor-producing, toxic and other deleterious substances Class GA standard; Verified 9/21/2020. Federal groundwater screening values are EPA Regional Screening Levels (RSL) for tapwater based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEAD-12. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and the annual frequency of periodic reviews.
- Perform vapor intrusion study to assess and estimate potential risks for VOC vapor intrusion exposure in the event that Building 813 or 814 were to be occupied, and possibly remove the associated LUCs.

7.0 Protectiveness Statement

The remedy implemented for SEAD-12 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Figure AB-1
Five-Year Review- Site Visit Photo Log
SEAD-12 Radiological Sites

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-12, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1



Status as of: 7/23/2020 Photo ID: IMG_3972.jpg
Description: SEAD-12

2020 Site Visit Photo 2



Status as of: 7/23/2020 Photo ID: IMG_3975.jpg
Description: SEAD-12



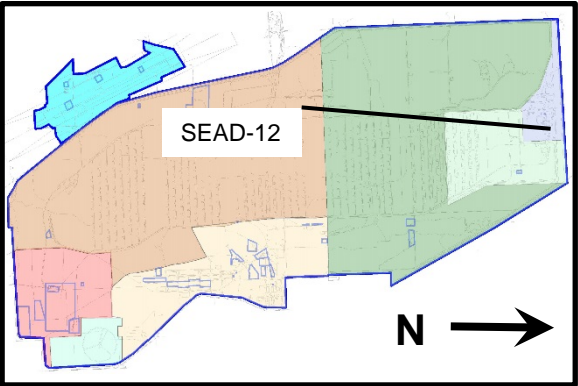
Status as of: 7/23/2020 Photo ID: 7/23/2020.jpg
Description: SEAD-12



2020 Site Visit Photo 3

Bing.com (Microsoft) Aerial of SEAD-12; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2010.

SEDA Overall Map (no scale)



SEAD-12 is located within the Data Storage/Telecommunications Parcel.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX AC

SEAD-46: SMALL ARMS FIRING RANGE (AKA 3.5-INCH ROCKET RANGE)

APPENDIX AC: SEAD-46 SMALL ARMS FIRING RANGE (FORMER 3.5-INCH ROCKET RANGE)

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LIST OF ATTACHMENTS

Attachment 1	Photo Log
Attachment 2	Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The Small Arms Range (SEAD-46), also known as the “3.5-inch Rocket Range”, is a trapezoidal-shaped parcel of land that encompasses approximately 68 acres. From the 1940s to the 1960s, SEAD-46 was used as a function test range for 3.5-inch rocket motors. The AOCs southern boundary is located approximately 6,000 feet north-northwest of the former Depot’s main gate off of State Highway 96. The predominant feature in the area is a man-made earthen berm that is situated near the northwest corner of the AOC; the berm served as a protective barrier during range operations.

The contaminant sources at SEAD-46 were the military-related items and other debris associated with munitions testing and disposal activities within the AOC. SEAD-46 was used as a 3.5-inch Rocket Range. Based on the findings of the Ordnance and Explosives (OE) Engineering Evaluation/Cost Analysis (EE/CA), the likely use of the AOC was as a rocket motor function testing range and as such was suspected to contain munitions related debris (Parsons, 2004c).

1.2 Initial Response

Geophysical surveys and intrusive investigations were first conducted by Parsons in 2004 over roughly 17.5 acres of SEAD-46 in 2000 and 1,155 anomalies were identified and investigated; 478 items were identified as munitions debris (MD) and 10 items were identified as material potentially presenting an explosive hazard (MPPEH).

A Geophysical Investigation was conducted in April 2005 at SEAD 46. Approximately 24 acres were digitally mapped. 98 anomalies were intrusively investigated and removed. The results of this investigation discovered 32 aluminum MD, six ferrous MD, and 60 cultural debris (CD). No MPPEH items were found.

Finally, in 2006 a Munitions Response investigation of SEAD-46 detected 2,054 geophysical anomalies. Of the anomalies found, 16 were identified as suspected MPPEH. No identifiable complete or partial 3.5-inch rockets or rocket motors were found during the 2006 investigation. All items that posed a potential explosive hazard were disposed by detonation as part of the final process to make the items inert. All MD and scrap metal was inspected and certified as material documented as safe (MDAS) prior to transport off-site as non-hazardous scrap metal. Based on the results of this investigation and past investigations, SEAD-46 is considered to be clear of MPPEH and no further geophysical or munitions response action is needed.

1.3 Basis for Taking Action

The contamination to be addressed at SEAD-46 is related to the potential for MEC hazards that may remain undetected at the AOC at locations that could not be identified using currently available geophysical and intrusive investigative and clearance technologies. Based on the outlined munitions response actions performed by the Army, the Munitions Response Completion Report concluded that SEAD-46 free of detected anomalies. Notwithstanding this determination, there is a possibility given the prior use SEAD-46 that MEC may be encountered on the property in the future.

The remedy proposed for the Seneca AD Munitions Response Sites is needed because there is the potential that MEC may remain undetected at the sites at locations that could not be identified using currently available geophysical and intrusive investigative and clearance technologies. Current characterizations of the environmental media in the four munitions response AOCs indicates that residual levels of hazardous substances and other chemical pollutants and contaminants are not sufficient to warrant any further mitigation or remediation efforts.

1.3.1 CONTAMINANTS OF CONCERN

No COCs were identified in soil samples collected from SEAD-46.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

Projected non-carcinogenic hazard indices (HIs) for the park worker and the recreational child visitor at SEAD-46 are below the CERCLA limit of 1; projected non-carcinogenic HIs for the construction worker, adult resident, and resident child are above 1. Non-carcinogenic HIs for the construction worker and the adult and child residential receptors are estimated to be above the CERCLA limit; however, for each receptor the elevated HI is attributed to SEAD-46 contaminant exposure point concentrations that are consistent with or below residential or unrestricted use guidance limits or standard levels and identified background concentrations. The elevated HI is due to exposure to metal contaminants: manganese, iron, arsenic, cobalt, aluminum and thallium. Projected carcinogenic risks for all receptors, with the exception of the lifetime resident, are within the CERCLA risk range (i.e., 1×10^{-4} to 1×10^{-6}). The carcinogenic risk estimated for the lifetime resident (1.2×10^{-4}) is estimated to be above the EPA's acceptable upper limit (1×10^{-4}), but results primarily (1.1×10^{-4} out of 1.2×10^{-4}) from the intake of arsenic in groundwater. However, the concentration of arsenic measured in groundwater at SEAD-46 is below the EPA MCL and the State of New York's GA groundwater standard for arsenic. As such, the cancer risk level for the SEAD-46 lifetime resident overestimates the actual risk that exists at the site. Therefore, environmental conditions at SEAD-46 do not pose an unacceptable level of risk to future receptors.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "Final Record of Decision, SEAD-46, SEAD 003-R-01 (SEAD-57), SEAD 002-R-01 and SEAD 007-R-01 (Seneca AD Munitions Response Sites) and SEAD-70, Seneca Army Depot Activity" (Parsons, 2017) requires the establishment of ICs. The elements that composed the remedy included:

- Prohibits the development or use of the property for residential housing, elementary and secondary schools, childcare facilities, or playgrounds through the use of LUCs; and
- Requires the Army (or Army contractor) to conduct an annual 3R Explosives Safety Education Program for property owners of the Seneca AD Munitions Response Sites.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehousing Area. Addendum 6 to the SEAD LUC RD added SEAD-46, SEAD 003-R-01 [SEAD-57]), SEAD 002-R-01, and SEAD 007-R-01 in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the SEAD-46 property was recorded in the Seneca County Clerk's office on June 10, 2011. SEAD-46 was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed incorporated by reference the land use restrictions set forth in the Environmental Easement. A summary of the institutional controls currently implemented at SEAD-46 is presented in **Table AC.2.1** based on the data and risk presented in the ROD and the LUC RD.

As the selected remedy does not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table AC.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	Yes	Yes	SEAD-46	Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
MEC	Yes	Yes	SEAD-46	Requires the Army (or Army contractor) to conduct an annual 3R Explosives Safety Education Program for property owners of the Seneca AD Munitions Response Sites.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year review

This is the first five-year review for this site.

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD-46 was inspected July 22, 2020 to assess whether required LUCs imposed by the approved ROD are being maintained. FYR site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD-46.

4.4 Interviews

Since SEAD-46 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-46.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed ROD for SEAD-46 have been completed and documented. No continuing active remediation is required. Based on a review of LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted July 22, 2020, all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD-46 is currently protective of human health and the environment because:

- A LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment. No early indicators of potential issues have been identified for SEAD-46. The 3R Explosives Safety Education Program for property owners of the Seneca Munitions Response Sites will begin when the new owners take control of the parcel from SCIDA.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.

- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for the PID/Warehouse Area of the former SEDA.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Table AC.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table AC.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
VOCs						
Acetone	61,000	61,000	0.05	0.05	N	N
PAHs						
Benzo(a)pyrene	0.015	0.11	1.0	1.0	Y	N
Pesticides/PCBs						
4,4'-DDD	2	1.9	0.0033	0.0033	Y	Y
4,4'-DDE	1.4	2.0	0.0033	0.0033	Y	N
Dieldrin	0.03	0.034	0.04	0.005	Y	Y
Metals						
Arsenic	0.39	0.68	13	13	Y	N
Lead	400	400	63	63	N	N
Nickel	1,500	1,500	30	30	N	N
Thallium	0.78	0.78	NA	NA	N	N
Zinc	23,000	23,000	109	109	N	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 1.0; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD-46. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and the annual frequency of periodic reviews.

7.0 Protectiveness Statement

The remedy implemented for SEAD-46 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

\\mabos07fs01\PI\Projects\Huntsville WERS\Seneca LTM, TO 2310 - Five Year Review\Draft FYR 2020\03 Attachment 1\Att AC-1 SEAD-46_Small_Arms_Firing_Range (Former 3.5-in Rocket Range).pptx

Attachment AC-1
Five-Year Review - Site Visit Photo Log
SEAD-46 - Small Arms Firing Range
(Former 3.5-inch Rocket Range)

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-46, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1

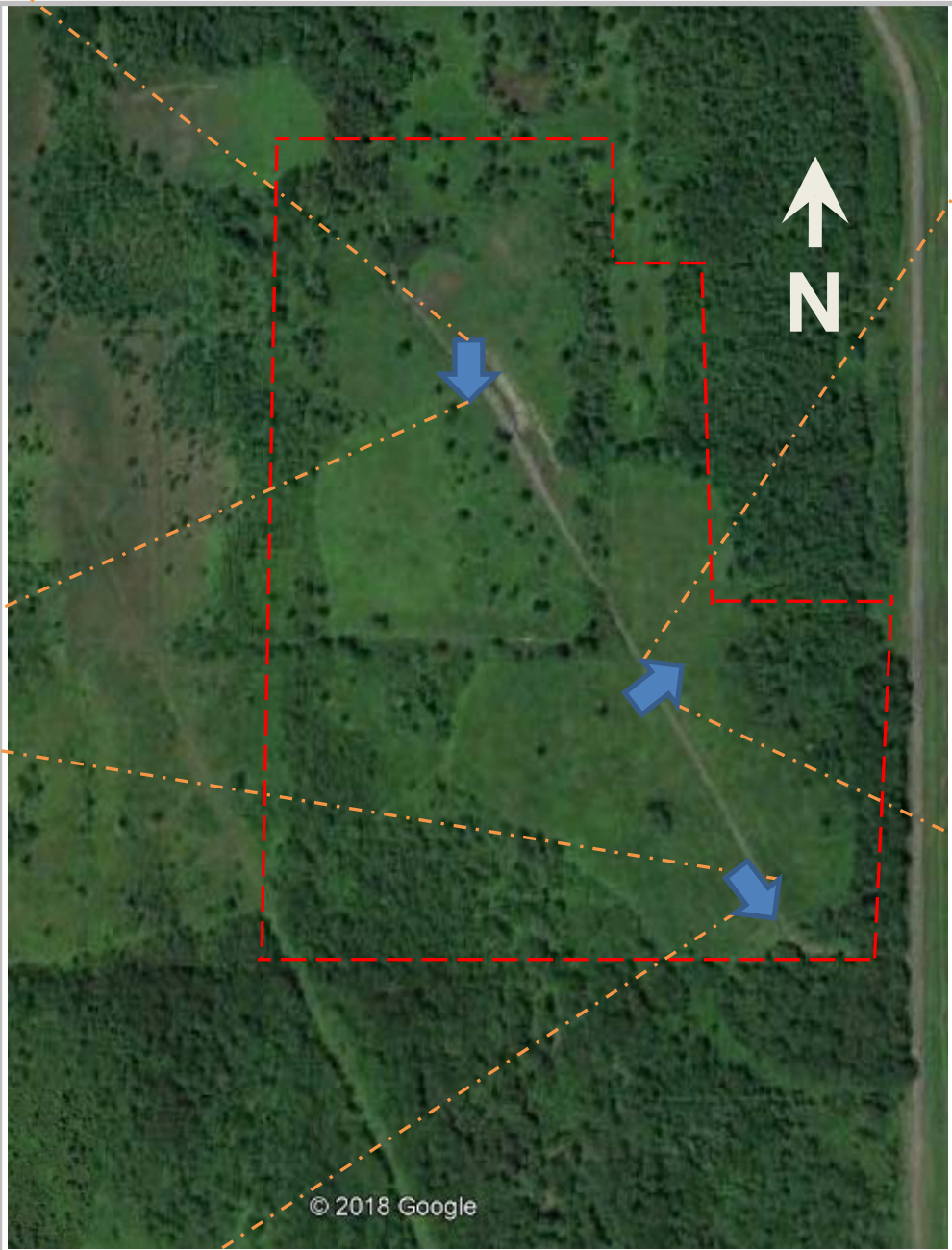


Status as of: 7/22/2020 Photo ID:IMG_3897.jpg
Description: SEAD-46



2020 Site Visit Photo 2



Status as of: 7/22/2020 Photo ID: IMG_3898.jpg
Description: SEAD-46



Google.com Aerial of SEAD-46; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2018.

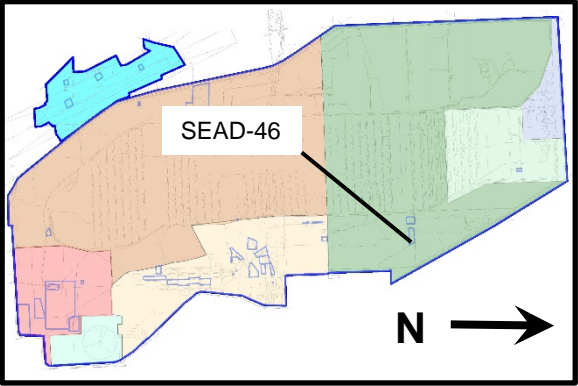
 Approximate Site Boundary
 Photo Viewing Direction

2020 Site Visit Photo 3



Status as of: 7/22/2020 Photo ID: IMG_3900.JPG
Description: SEAD-46

SEDA Overall Map (no scale)



SEAD-46 is located within the Conservation Parcel.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX AD

SEAD 003-R-01: EXPLOSIVE ORDNANCE DISPOSAL (EOD) AREA (#1) (SEAD-57)

APPENDIX AD: SEAD 003-R-01: EXPLOSIVE ORDNANCE DISPOSAL (EOD) RANGE 1

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD 003-R-01 (SEAD-57, the former Explosive Ordnance Disposal Area [formerly referred to as EOD-1]), is a rectangular parcel of land that encompasses approximately 72 acres in the west-northwest portion of the former Depot. SEAD 003-R-01 is adjacent to the southernmost portion of the Open Burning/Open Detonation (OB/OD) Grounds that occupy most of the land in the northwestern corner of the former Depot. For more than 20 years, the 143rd Ordnance Detachment, a Department of the Army tenant organization at the Depot, performed ordnance and explosives disposal and training at SEAD 003-R-01. The area was used by EOD personnel for the disposal of and training with conventional ammunition or explosives weighing less than 5 pounds.

The contaminant sources at SEAD 003-R-01 were the military-related items and other debris associated with the explosive disposal within the AOC.

1.2 Initial Response

As part of the OE EE/CA (Parsons, 2004c), geophysical surveys and intrusive investigations were conducted at SEAD 003-R-01. Twenty-three percent (23%) of the 60 acres were mapped, 1,700 anomalies were investigated and 950 recovered items were classified as MD. Three of these were determined to be MEC. The three items were one MK2 grenade and two 20mm projectiles. During the surface sweep for the EE/CA, a 37mm armor piercing high explosive (APHE) item was found near the abandoned ammunition disassembly area across the road from the AOC.

During the Geophysical Investigation of SEAD 003-R-01 in April 2005, approximately 22.5 acres of the AOC were digitally mapped. During the investigation, 75 anomalies were intrusively investigated. Four MPPEH items were found and reclassified as MD following venting.

SEAD 003-R-01 was also investigated intrusively during 2006 during which 47 items were classified as MPPEH. All but two were classified as MD following explosive venting. The two MEC items were suspected EOD training items. A soil analysis was conducted and determined that the soil at SEAD 003-R-01 has not been adversely impacted by historic operations and activities performed at this AOC. The Army believes that the analytical results developed from the soil samples collected demonstrates that the soil remaining at the AOC is consistent with the clean-up goals established prior to the beginning of the work at SEAD 003-R-01. Therefore, no further action is needed as approved by EPA and NYSDEC.

1.3 Basis for Taking Action

The contamination to be addressed at SEAD 003-R-01 is related to the potential for MEC hazards that may remain undetected at the AOC at locations that could not be identified using currently available geophysical and intrusive investigative and clearance technologies. Based on the outlined munitions response actions performed by the Army, the Munitions Response Completion Report concluded that SEAD 003-R-01 is free of detected anomalies. Notwithstanding this determination, there is a possibility given the prior use SEAD 003-R-01 that MEC may be encountered on the property in the future.

The remedy proposed for the Seneca AD Munitions Response Sites is needed because there is the potential that MEC may remain undetected at the sites at locations that could not be identified using currently available geophysical and intrusive investigative and clearance technologies. Current characterizations of the environmental media in the four munitions response AOCs indicates that residual levels of hazardous substances and other chemical pollutants and contaminants are not sufficient to warrant any further mitigation or remediation efforts.

1.3.1 CONTAMINANTS OF CONCERN

No COCs were identified in soil samples collected from SEAD 003-R-01.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

Estimated cancer risk levels for the park worker, the construction worker, and the recreational child visitor are all within the EPA acceptable range (i.e., 1×10^{-4} to 1×10^{-6}). Estimated non-carcinogenic hazard indices for the adult and child residential receptors at SEAD 003-R-01 are above the EPA acceptable limit of 1. The elevated HI is due to exposure to COPCs which include aluminum, manganese, arsenic, cadmium, cobalt, iron, thallium, vanadium, and antimony. Estimated cancer risk levels for the adult, child, and lifetime residential receptors at SEAD 003-R-01 are also within the EPA acceptable range (i.e., 1×10^{-4} to 1×10^{-6}) for carcinogenic risk. The risk assessment further analyzed the allocation of adult/child resident's non-carcinogenic HI to target organs/systems and looked at background concentrations and federal MCLs for groundwater. Based on risk assessments and risk management evaluations, performed in accordance with CERCLA guidance, residual concentrations of hazardous substances, pollutants, and contaminants are such that they are either consistent with, and undistinguishable from background; are present at levels that do not pose unacceptable risks or hazards to human health or the environment; or in the case of groundwater, levels are below state and federal MCLs.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "Final Record of Decision, SEAD-46, SEAD 003-R-01 (SEAD-57), SEAD 002-R-01 and SEAD 007-R-01 (Seneca AD Munitions Response Sites) and SEAD-70, Seneca Army Depot Activity" (Parsons, 2017) requires the establishment of ICs. The elements that composed the remedy included:

- Prohibits the development or use of the property for residential housing, elementary and secondary schools, childcare facilities, or playgrounds through the use of LUCs; and
- Requires the Army (or Army contractor) to conduct an annual 3R Explosives Safety Education Program for property owners of the Seneca AD Munitions Response Sites.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehousing Area. Addendum 6 to the SEAD LUC RD added SEAD-46, SEAD 003-R-01 [SEAD-57]), SEAD 002-R-01, and SEAD 007-R-01 in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the SEAD 003-R-01 property was recorded in the Seneca County Clerk's office on June 10, 2011. SEAD 003-R-01 was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed incorporated by reference the land use restrictions set forth in the Environmental Easement. A summary of the institutional controls currently implemented at SEAD 003-R-01 is presented in **Table AD.2.1** based on the data and risk presented in the ROD and the LUC RD.

As the selected remedy does not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table AD.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	Yes	Yes	SEAD 003-R-01	Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
MEC	Yes	Yes	SEAD 003-R-01	Requires the Army (or Army contractor) to conduct an annual 3R Explosives Safety Education Program for property owners of the Seneca AD Munitions Response Sites.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year review

This is the first five-year review for this site.

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD 003-R-01 was inspected July 22, 2020 to assess whether required LUCs imposed by the approved ROD are being maintained. FYR site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD 003-R-01.

4.4 Interviews

Since SEAD 003-R-01 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD 003-R-01.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed ROD for SEAD 003-R-01 have been completed and documented. No continuing active remediation is required. Based on a review of LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted July 22, 2020, all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD 003-R-01 is currently protective of human health and the environment because:

- A LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment. No early indicators of potential issues have been identified for SEAD 003-R-01. The 3R Explosives Safety Education Program for property owners of the Seneca Munitions Response Sites will begin when the new owners take control of the parcel from SCIDA.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for SEAD 003-R-01.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Table AD.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table AD.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
VOCs						
Acetone	61,000	61,000	0.05	0.05	N	N
PAHs						
Benzo(a)pyrene	0.015	0.11	1.0	1.0	Y	N
Dibenz(a,h)anthracene	0.015	0.11	0.33	0.33	Y	N
Pesticides/PCBs						
4,4'-DDD	2.000	1.9	0.0033	0.0033	Y	Y
4,4'-DDE	1.4	2.0	0.0033	0.0033	Y	N
4,4'-DDT	1.7	1.9	0.0033	0.0033	Y	N
Dieldrin	0.03	0.034	0.04	0.005	Y	Y
Metals						
Arsenic	0.39	0.68	13	13	Y	N
Cadmium	70	71	2.5	2.5	Y	N
Chromium	120,000	120,000	30	30	N	N
Cobalt	23	23	NA	NA	N	N
Copper	3,100	3,100	50	50	N	N
Lead	400	400	63	63	N	N
Manganese	1,800	1,800	1,600	1,600	N	N
Nickel	1,600	1,500	30	30	Y	Y
Thallium	0.78	0.78	NA	NA	N	N
Zinc	23,000	23,000	109	109	N	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 1.0; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD 003-R-01. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and the annual frequency of periodic reviews.

7.0 Protectiveness Statement

The remedy implemented for SEAD 003-R-01 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

\\mabos07fs01\PI\Projects\Huntsville WERS\Seneca LTM, TO 2310 - Five Year Review\Draft FYR 2020\03 Attachment 1\Att AD-1 SEAD-003-R-01_Explosive Ordnance Disposal (EOD) Range 1.pptx

Attachment B-29
Five Year Review - Site Visit Photo Log
SEAD 003-R-01 Explosive Ordnance Disposal (EOD) Range 1

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD 003-R-01, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1



Status as of: 7/22/2020 Photo ID: IMG_3957.jpg
Description: SEAD 003-R-01

2020 Site Visit Photo 2

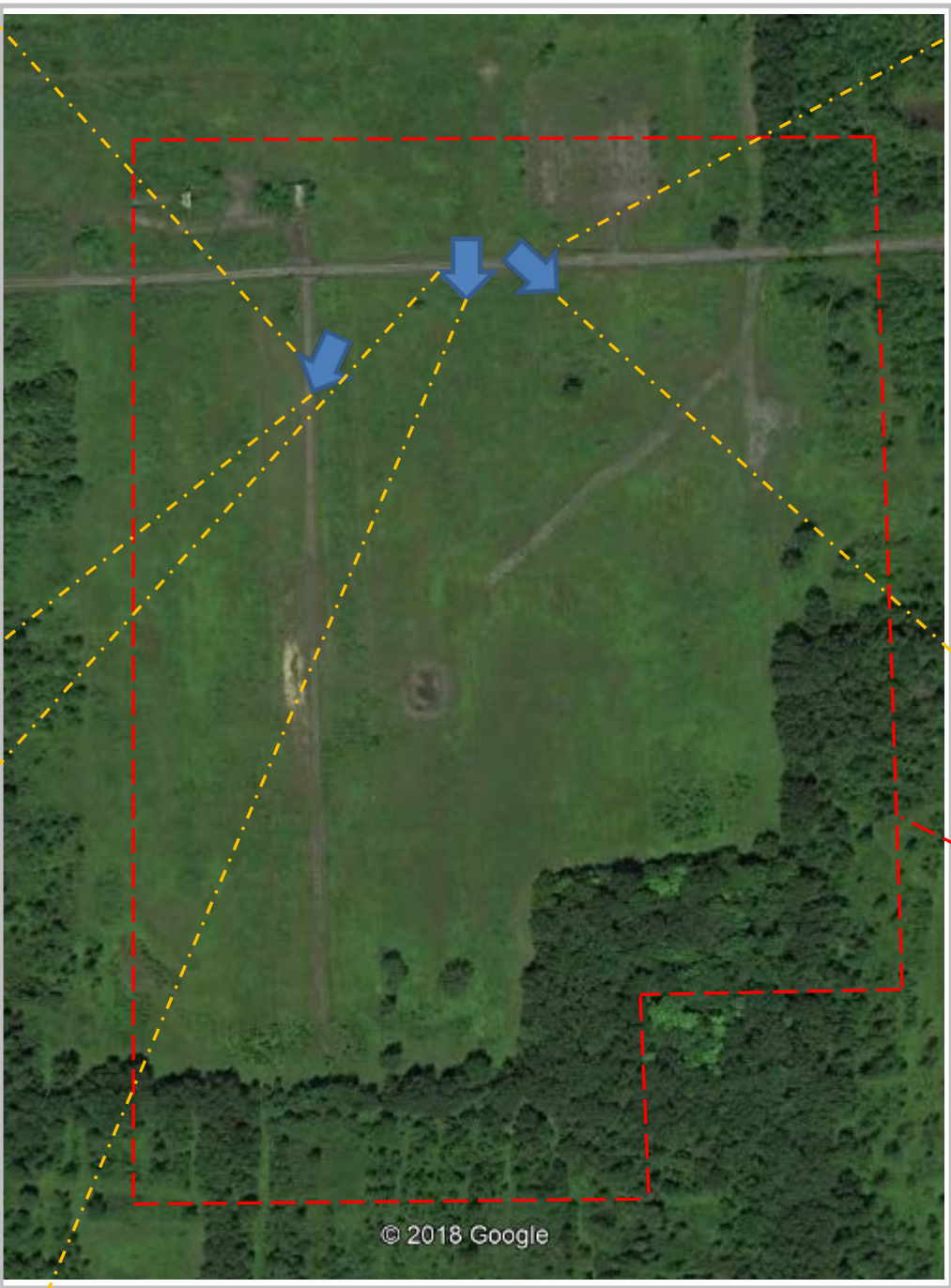


Status as of: 7/22/2020 Photo ID: IMG_3958.jpg
Description: SEAD 003-R-01

2020 Site Visit Photo 3



Status as of: 7/22/2019 Photo ID: IMG_3961.jpg
Description: SEAD 003-R-01



Google.com Aerial of SEAD 003-R-01; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2018.

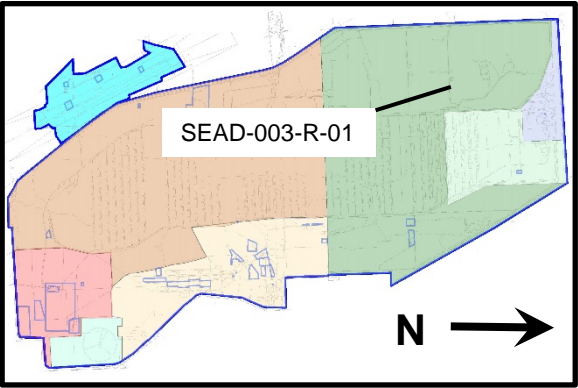


Photo Viewing
Direction



Approximate Site
Boundary

SEDA Overall Map (no scale)



SEAD 003-R-01 is located within the
Conservation Parcel.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
<div style="display: flex; justify-content: space-between;"> <div> Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other </div> <div> Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls </div> </div>	
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX AE

SEAD 007-R-01: RIFLE GRENADE RANGE

APPENDIX AE: SEAD 007-R-01: RIFLE GRENADE RANGE

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The Grenade Range, which was constructed in the mid-1980s, encompasses approximately 28 acres of land in the northwestern portion of the former Depot, to the west and southwest of SEAD 003-R-01 40mm M781 (40mm Low Velocity Practice Cartridge) and 35mm M73 sub-caliber practice rockets were used at the Grenade Range during security forces' training. There is no record (or indication at the targets) that high explosive rounds were used.

The contaminant sources at SEAD 007-R-01 were the military-related items and other debris associated with the historic rifle grenade usage within the AOC. The range also contained wooden and armored vehicle targets; distance and boundary markers; and the range control tower. The ASR states that 40mm M781 and 35mm M73 sub-caliber practice rockets were used at the AOC for security forces training. There is no record (or indication at the targets) that high explosive rounds were used. Small arms (blanks) casings were reported to be present at the time of the ASR in 1998.

1.2 Initial Response

During the OE EE/CA, 15 acres was geophysically mapped at SEAD 007-R-01 using an EM-61 instrument. In addition to the 15 acres (65 grids), the EM61 and a wandering path methodology was used to sample 10% of the area between the firing line and the target area. The EE/CA investigated 865 DGM targets. This intrusive investigation resulted in 102 MPPEH items (101, 35 mm sub-caliber M73 and 1 Rifle Grenade M407A1, Practice) and numerous munitions debris items.

During the 2006 Munitions Response, 218 potential MPPEH items were detected at SEAD 007-R-01. All potential MPPEH items were related to the M73 Practice Rocket and 40mm practice grenade. Since none of the practice rockets found at SEAD 007-R-01 had intact motors, the practice rockets were reclassified as MD. However, since the M73 Practice Rockets potentially contained small, smoke emitting, bursting charges, all items were disposed by detonation as part of the final process to make the items inert. Based on the munitions response survey results, findings, quality control and quality assurance procedures performed at the AOC, SEAD 007-R-01 is considered to be cleared of MPPEH and no further action other than LUCs is required.

1.3 Basis for Taking Action

The contamination to be addressed at SEAD 007-R-01 is related to the potential for MEC hazards that may remain undetected at the AOC at locations that could not be identified using currently available geophysical and intrusive investigative and clearance technologies. Based on the outlined munitions response actions performed by the Army, the Munitions Response Completion Report concluded that SEAD 007-R-01 is free of detected anomalies. Notwithstanding this determination, there is a possibility given the prior use SEAD 007-R-01 that MEC may be encountered on the property in the future.

The remedy proposed for the Seneca AD Munitions Response Sites is needed because there is the potential that MEC may remain undetected at the sites at locations that could not be identified using currently available geophysical and intrusive investigative and clearance technologies. Current characterizations of the environmental media in the four munitions response AOCs indicates that residual levels of hazardous substances and other chemical pollutants and contaminants are not sufficient to warrant any further mitigation or remediation efforts.

1.3.1 CONTAMINANTS OF CONCERN

No COCs were identified in soil samples collected from SEAD 007-R-01.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

Projected carcinogenic risks for all receptors are within, or below, the EPA acceptable range (i.e., 1×10^{-4} to 1×10^{-6}). Projected non-carcinogenic HIs for all receptors, with the exception of the resident child's, at SEAD 007-R-01 are below the EPA preferred limit of 1. However, potential non-carcinogenic impacts to the child resident arising from exposure to soil at SEAD 007-R-01 (Grenade Range) cannot be differentiated from those that would occur due to soils at residential sites or to other background areas in the vicinity of the Depot. The Risk assessment concluded that environmental conditions at the Grenade Range do not pose an unacceptable level of hazard or risk to Conservation/Recreation or Residential/Resort receptors.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled "Final Record of Decision, SEAD-46, SEAD 003-R-01 (SEAD-57), SEAD 002-R-01 and SEAD 007-R-01 (Seneca AD Munitions Response Sites) and SEAD-70, Seneca Army Depot Activity" (Parsons, 2017) requires the establishment of ICs. The elements that composed the remedy included:

- Prohibits the development or use of the property for residential housing, elementary and secondary schools, childcare facilities, or playgrounds through the use of LUCs; and
- Requires the Army (or Army contractor) to conduct an annual 3R Explosives Safety Education Program for property owners of the Seneca AD Munitions Response Sites.

2.2 Remedy Implementation

The LUC RD for SEAD 27, 66, and 64A ("SEAD LUC RD") implemented land use controls for the entire SEAD PID/Warehousing Area. Addendum 6 to the SEAD LUC RD added SEAD-46, SEAD 003-R-01 [SEAD-57]), SEAD 002-R-01, and SEAD 007-R-01 in accordance with the SEAD LUC RD Supplementation provision.

An Environmental Easement for the SEAD 007-R-01 property was recorded in the Seneca County Clerk's office on June 10, 2011. SEAD 007-R-01 was transferred to the SCIDA with a Quitclaim Deed executed on May 27, 2011. The property was transferred with the land use restrictions, consistent with the LUC Objectives as defined in the LUC RD. The deed incorporated by reference the land use restrictions set forth in the Environmental Easement. A summary of the institutional controls currently implemented at SEAD 007-R-01 is presented in **Table AE.2.1** based on the data and risk presented in the ROD and the LUC RD.

As the selected remedy does not allow unrestricted use and unlimited exposures, the Army or its successors are required to complete a review of the selected remedies at least once every five years, in accordance with Section 121(c) of the CERCLA. The selected LUC remedy is reviewed in accordance with this inspection frequency; the LUCs are inspected as part of the FYR and on an annual basis.

Table AE.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	ICs Needed	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	Yes	Yes	SEAD 007-R-01	Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
MEC	Yes	Yes	SEAD 007-R-01	Requires the Army (or Army contractor) to conduct an annual 3R Explosives Safety Education Program for property owners of the Seneca AD Munitions Response Sites.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year review

This is the first five-year review for this site.

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD 007-R-01 was inspected July 22, 2020 to assess whether required LUCs imposed by the approved ROD are being maintained. FYR site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD 007-R-01.

4.4 Interviews

Since SEAD 007-R-01 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD 007-R-01.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed ROD for SEAD 007-R-01 have been completed and documented. No continuing active remediation is required. Based on a review of LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted July 22, 2020, all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD 007-R-01 is currently protective of human health and the environment because:

- A LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment. No early indicators of potential issues have been identified for SEAD 007-R-01. The 3R Explosives Safety Education Program for property owners of the Seneca Munitions Response Sites will begin when the new owners take control of the parcel from SCIDA.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for SEAD 007-R-01.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a). **Table AE.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table AE.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
VOCs						
Acetone	61,000	61,000	0.05	0.05	N	N
Metals						
Arsenic	0.39	0.68	13	13	Y	N
Cobalt	23	23	NA	NA	N	N
Manganese	1,800	1,800	1,600	1,600	N	N
Nickel	1,500	1,500	30	30	N	N
Selenium	390	390	3.9	3.9	N	N
Zinc	23,000	23,000	109	109	N	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 1.0; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD 007-R-01. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and the annual frequency of periodic reviews.

7.0 Protectiveness Statement

- The remedy implemented for SEAD 007-R-01 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment AE-1
Five-Year Review - Site Visit Photo Log
SEAD 007-R-01 – Rifle Grenade Range

PROJECT: Seneca Army Depot LUC Inspection
PROJECT #: 110043.10000

LOCATION: SEAD 007-R-01, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1



Status as of: 7/22/2020 Photo ID: IMG_3966.jpg
Description: SEAD-007-R-01

2020 Site Visit Photo 2

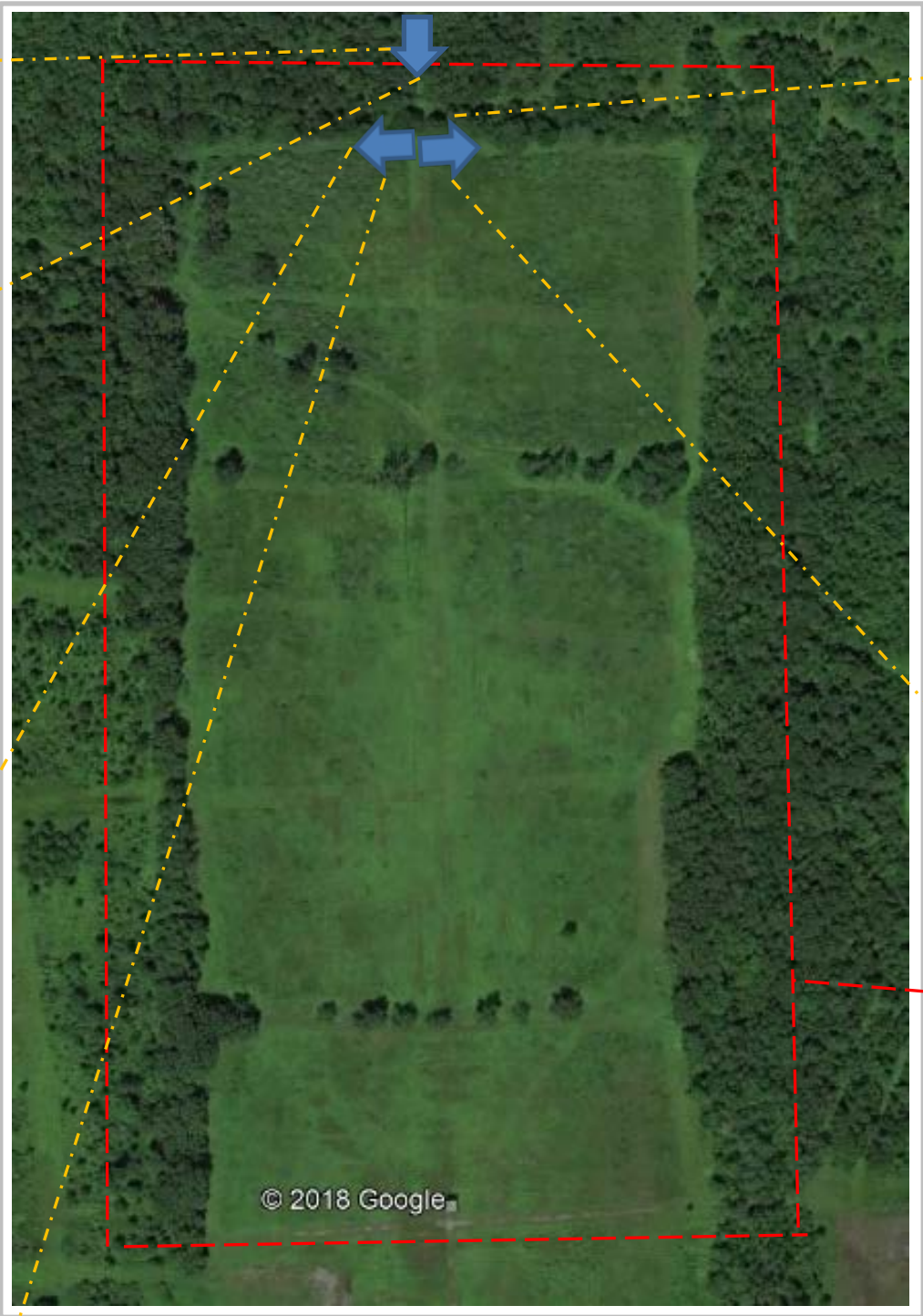


Status as of: 7/22/2020 Photo ID: IMG_3967.jpg Description: SEAD-007-R-01

2020 Site Visit Photo 3



Status as of: 7/22/2020 Photo ID: IMG_3964.jpg
Description: SEAD-007-R-01



Google.com Aerial of SEAD-007-R-01; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2018.

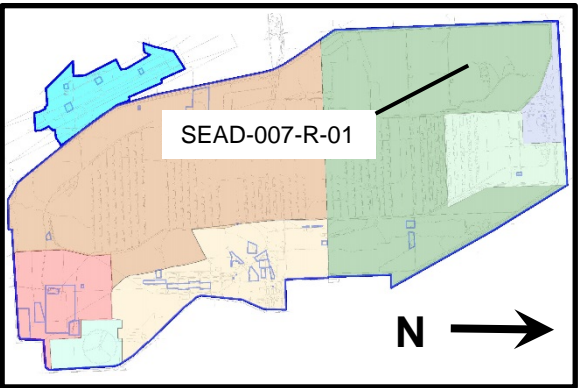


Photo Viewing Direction



Approximate Site Boundary

SEDA Overall Map (no scale)



SEAD-002-R-01 is located within the Conservation Parcel.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX AF

SEAD 002-R-01: EAST EOD RANGES (FORMER EOD AREA #2 AND #3)

APPENDIX AF: SEAD-002-R-01: EAST EOD RANGES (FORMER EOD AREA 2 AND EOD AREA 3)

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5.1	Question A: Is the remedy functioning as intended by the decision documents?.....	AF-4
5.2	Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?.....	AF-4
5.3	Question C: Has any other information come to light that could call into question the protectiveness of the remedy?	AF-7
6.0	ISSUES, RECOMMENDATIONS AND FOLLOW-UP ACTIONS.....	AF-7
7.0	PROTECTIVENESS STATEMENT	AF-7

LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

SEAD 002-R-01 includes two separate areas, EOD-2 and EOD-3, which are located in the northeastern portion of the former Depot in the vicinity of Duck Pond and SEAD-46. EOD-2 encompasses approximately 3 acres of land on the southwestern shore of the Duck Pond. This area is west-northwest of SEAD-46 and southeast of the intersection of Fayette Road and East-West Baseline Road. The 1998 Archives Search Report (ASR) states that explosive devices were used in EOD-2 and that non-explosive projectiles were disposed near the Duck Pond. EOD-3 encompasses approximately 4 acres of land approximately 250 feet north of the earthen protective barrier berm in SEAD-46. EOD-3 was a former EOD disposal area.

The 1998 ASR states that explosive devices were used in this area. Contaminates of concern are the military related items and other debris associated with the historic explosive usage within the AOC.

1.2 Initial Response

As part of the OE EE/CA, geophysical surveys and intrusive investigations were conducted in 2000 at EOD Areas 2 and 3 (SEAD 002-R-01). Forty-six percent (46%) of the 5-acre EOD #2 Area was surveyed and 87 anomalies were investigated. Six of the items were MD and one item was munitions and explosives of concern (MEC). All items were found in the upper three inches of the soil. A total of 80% of the 5-acre EOD #3 Area was surveyed and 64 anomalies were investigated. Thirteen of the items were MD and no items were classified as MEC.

In 2006 two suspected MPPEH items were found in the EOD-2 portion of SEAD 002-R-01. Both items were explosively vented to make them inert. No MPPEH items were found within EOD-3. Additionally, a soil analysis determined that the soil at SEAD 002-R-01 had not been impacted by any historic operations and as a result no further action was needed.

1.3 Basis for Taking Action

The contamination to be addressed at SEAD 002-R-01 is related to the potential for MEC hazards that may remain undetected at the AOC at locations that could not be identified using currently available geophysical and intrusive investigative and clearance technologies. Based on the outlined munitions response actions performed by the Army, the Munitions Response Completion Report concluded that SEAD 002-R-01 is free of detected anomalies. Notwithstanding this determination, there is a possibility given the prior use of SEAD 002-R-01 that MEC may be encountered on the property in the future.

The remedy proposed for the Seneca AD Munitions Response Sites is needed because there is the potential that MEC may remain undetected at the sites at locations that could not be identified using currently available geophysical and intrusive investigative and clearance technologies. Current characterizations of the environmental media in the four munitions response AOCs indicates that residual levels of hazardous substances and other chemical pollutants and contaminants are not sufficient to warrant any further mitigation or remediation efforts.

1.3.1 CONTAMINANTS OF CONCERN

No COCs were identified in soil samples collected from SEAD 002-R-01.

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

Projected non-carcinogenic HIs for the park worker and the recreational child visitor at EOD-2 are below the EPA's acceptable limit of 1; projected non-carcinogenic HIs for the construction worker, adult resident, and child

Table AF.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use	Yes	Yes	SEAD 002-R-01	Prohibit residential housing, elementary and secondary schools, childcare facilities and playground activities.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning.
MEC	Yes	Yes	SEAD 002-R-01	Requires the Army (or Army contractor) to conduct an annual 3R Explosives Safety Education Program for property owners of the Seneca AD Munitions Response Sites.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year review

This is the first five-year review for this site.

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

No data were reviewed as part of the FYR Process.

4.3 Site Inspection

SEAD 002-R-01 was inspected July 22, 2020 to assess whether required LUCs imposed by the approved ROD are being maintained. FYR site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

The following observations were made during the site inspection:

- No residential housing units, elementary or secondary schools, childcare facilities or playgrounds were observed at SEAD 002-R-01.

4.4 Interviews

Since SEAD 002-R-01 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD 002-R-01.

4.5 Institutional Controls Verification

The LUCs, Environmental Easements, and deed restrictions are in place. The LUC performance objectives are listed in Section 2.0.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by completed ROD for SEAD 002-R-01 have been completed and documented. No continuing active remediation is required. Based on a review of LUC RD, Environmental Easements, transfer deeds and the FYR site visit conducted July 22, 2020, all remedies are functioning as intended by the decision documents.

The remedy implemented at SEAD 002-R-01 is currently protective of human health and the environment because:

- A LUC that prevents the use of or the development of the property for residential housing, elementary or secondary schools, childcare facilities, or playgrounds has been implemented and is currently being maintained, monitored, and reported upon periodically.

The selected remedy is still protective of human health and the environment. No early indicators of potential issues have been identified for SEAD 002-R-01. The 3R Explosives Safety Education Program for property owners of the Seneca Munitions Response Sites will begin when the new owners take control of the parcel from SCIDA.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for SEAD 002-R-01.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs

prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of increasing the values of the cleanup levels for these compounds, therefore the cleanup goals are less restrictive. **Table AF.5.1** summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table AF.5.1 Comparison of Toxicity Data and Cleanup Levels

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
VOCs						
Acetone	61,000	61,000	0.05	0.05	N	N
PAHs						
Benzo(a)anthracene	0.15	1.1	1.0	1.0	Y	N
Benzo(a)pyrene	0.015	0.11	1.0	1.0	Y	N
Benzo(b)fluoranthene	0.15	1.1	1.0	1.0	Y	N
Dibenz(a,h)anthracene	0.015	0.11	0.33	0.33	Y	N
Indeno(1,2,3-cd)pyrene	0.15	1.1	0.50	0.50	Y	N
Metals						
Arsenic	0.39	0.68	13	13	Y	N
Manganese	1,800	1,800	1,600	1,600	N	N
Nickel	1,500	1,500	30	30	N	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 1.0; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RODs for SEAD 002-R-01. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. The Army has the following recommendations:

- Continue the implementation of LUCs and the annual frequency of periodic reviews.

7.0 Protectiveness Statement

The remedy implemented for SEAD 002-R-01 is protective of the environment and protects human health. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

\\mabos07fs01\PI\Projects\Huntsville WERS\Seneca LTM, TO 2310 - Five Year Review\Draft FYR 2020\03 Attachment 1\Att AF-1 SEAD-002-R-01_East_EOD_Ranges (Former EOD Area 2 and EOD Area 3).pptx

Attachment AF-1
Five-Year Review - Site Visit Photo Log
SEAD 002-R-01 – East EOD Ranges
(Former EOD Area 2 and EOD Area 3)

PROJECT: Seneca Army Depot LUC Inspection
PROJECT #: 110043.10000

LOCATION: SEAD 002-R-01, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

2020 Site Visit Photo 1



Status as of: 7/22/2020 Photo ID: IMG_3906.jpg
Description: SEAD 002-R-01 (EOD 2)

2020 Site Visit Photo 2



Status as of: 7/22/2020 Photo ID: IMG-3885.jpg
Description: SEAD 002-R-01 (EOD3)

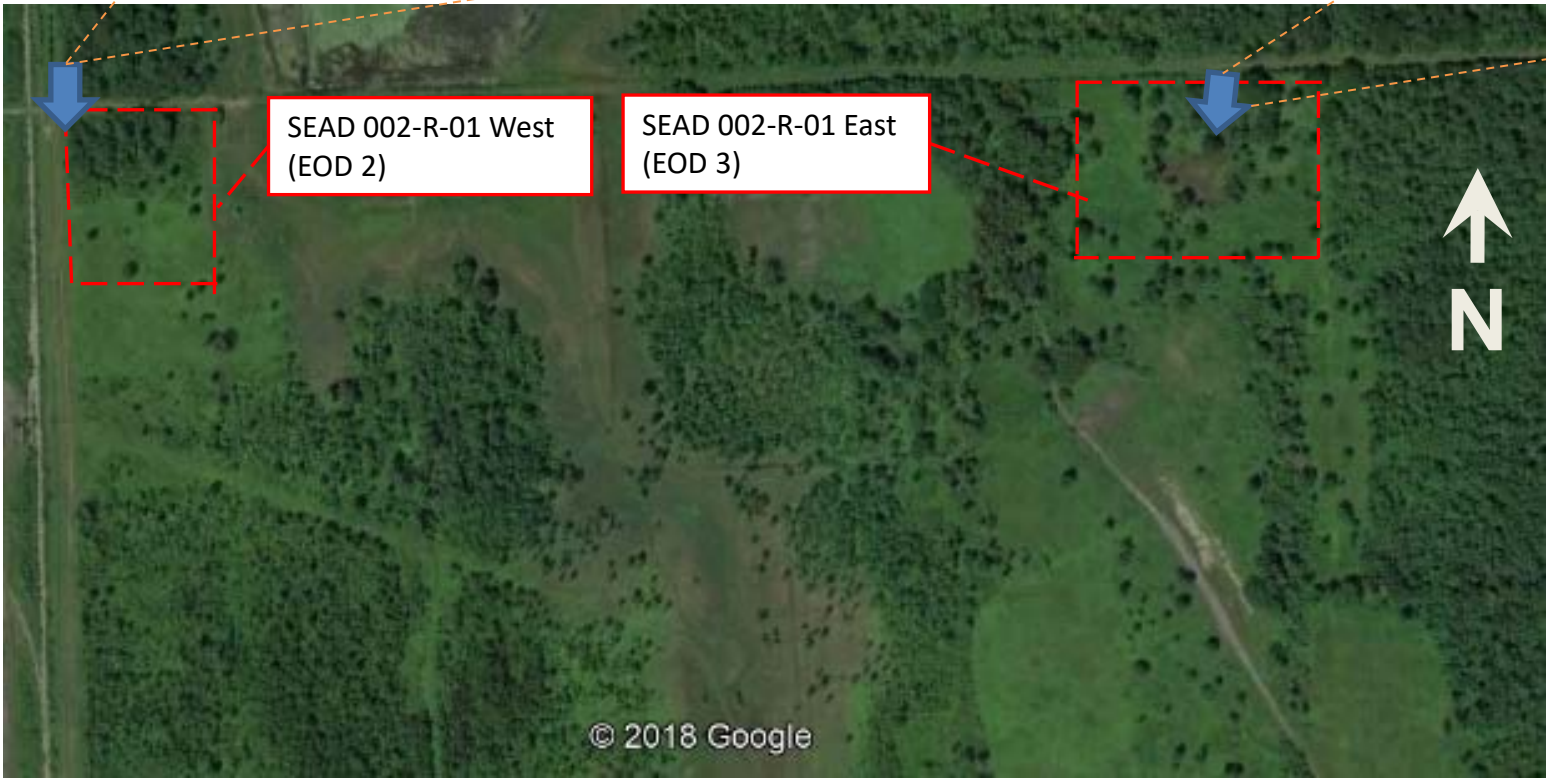


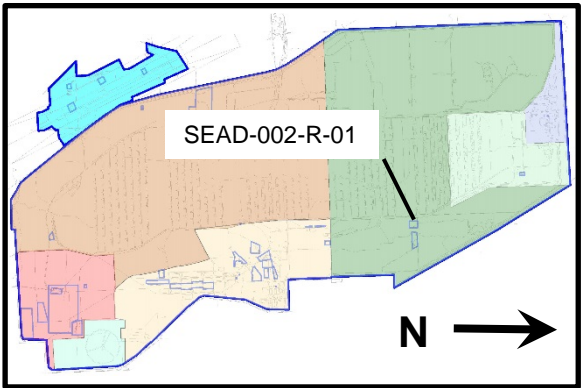
Photo Viewing
Direction



Approximate
Site Boundary

Bing.com (Microsoft) Aerial of SEAD-002-R-01;
actual date of aerial photo is unknown, but
based on observable features at SEDA it may
be from Spring 2018.

SEDA Overall Map (no scale)



SEAD 002-R-01 is located within the
Conservation Parcel.

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: Location and Region: Institution Leading the Five-Year Review: Inspector:	Date of Inspection: EPA ID: Weather: Signature:
Remedy Includes: (Check all that apply)	
Landfill Cover/Containment Access Controls Institutional Controls Groundwater Pump and Treatment Surface Water Collection and Treatment Other	Monitored Natural Attenuation Groundwater Containment Vertical Barrier Walls
Attachments: Inspection Team Roster Attached Site Map Attached	

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
2. O&M Staff				
	Name	Title	Date	
Interviewed	at site	at office	by phone	Phone number:
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
Agency:				
Contact:				
Name	Title	Date	Phone No.	
Problems, suggestions:				
4. Other Interviews (optional): Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents				
O&M Manual	Readily Available	Up to Date	N/A	
As-Built Drawings	Readily Available	Up to Date	N/A	
Maintenance Logs	Readily Available	Up to Date	N/A	
Comments:				
2. Site-Specific Health and Safety Plan				
	Readily Available	Up to Date	N/A	
Contingency plan/Emergency Response Plan				
	Readily Available	Up to Date	N/A	
Comments:				
3. O&M and OSHA Training Records				
	Readily Available	Up to Date	N/A	
Comments:				
4. Permits and Service Agreements				
Air Discharge Permit	Readily Available	Up to Date	N/A	
Effluent Discharge	Readily Available	Up to Date	N/A	
Waste Disposal, POTW	Readily Available	Up to Date	N/A	
Other Permits	Readily Available	Up to Date	N/A	
Comments:				
5. Gas Generation Records				
	Readily Available	Up to Date	N/A	
Comments:				
6. Settlement Monument Records				
	Readily Available	Up to Date	N/A	
Comments:				
7. Groundwater Monitoring Records				
	Readily Available	Up to Date	N/A	
Comments:				
8. Leachate Extraction Records				
	Readily Available	Up to Date	N/A	
Comments:				
9. Discharge Compliance Records				
Air	Readily Available	Up to Date	N/A	
Water (effluent)	Readily Available	Up to Date	N/A	
Comments:				
10. Daily Access / Security Logs				
	Readily Available	Up to Date	N/A	
Comments:				

APPENDIX AG

SEAD-23: OPEN BURNING GROUND

APPENDIX AG: SEAD-23 OPEN BURNING GROUNDS

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LIST OF ATTACHMENTS

- Attachment 1 Photo Log
Attachment 2 Site Inspection Checklist

1.0 Area Specific Background Information

1.1 History of Contamination

The OB Grounds (SEAD-23) site occupies approximately 30 acres on gently sloping terrain in the northwest corner of SEDA. The OB Grounds is bounded on the east by Reeder Creek, which is a perennial creek that is generally less than 1 foot deep and eventually flows into Seneca Lake. The quality of surface water in Reeder Creek has been designated by the State of New York as a Class C water body. Seneca Lake is located approximately 10,000 feet west of the site and is used as a source of drinking water for SEDA and surrounding communities.

The land at the OB Grounds had been used for demilitarization of munitions for approximately forty years. The open burning procedure involved the preparation of combustible beds of pallets and wooden boxes on the pads followed by the placement of ammunition or the components to be demilitarized on the beds. A trail of propellant was placed on the ground leading to the combustible bed. Once ignited the energetic material was allowed to burn until only ash and casing residues remained. Items burned included various military munitions such as propellants and projectiles.

The burning of munitions had been performed at designated burning pads, which ranged in size from approximately 100 by 100 feet to 300 by 800 feet. Designated munitions waste was open-burned on the nine separate burning pads until 1987. After 1987, munitions were destroyed by burning them within an aboveground steel tray to minimize the impact of the burning on the environment.

1.2 Initial Response

The open burning of waste munitions was identified as a RCRA regulated process. Due to the nature of SEDA's former mission, it was necessary for the facility to treat, store, and dispose of hazardous wastes including waste munitions. Consequently, a RCRA permit was a regulatory requirement for SEDA to perform these operations as a TSD facility.

SEDA applied for a RCRA Part A and Part B permit on May 1, 1987 and operated the facility under the interim status provisions of RCRA. Interim status allows a facility to operate as a TSD facility during the RCRA Part B permit application process.

Final closure of the OB Grounds under RCRA guidelines was deferred when SEDA was nominated for inclusion of the NPL in July 1989; SEDA was listed on the NPL in Group 14 on the Federal Section. Following SEDA's NPL listing, the Army, EPA, and NYSDEC agreed that any corrective actions required for any targeted problem sites would be regulated under CERCLA guidelines. RCRA requirements are an Applicable or Relevant and Appropriate Requirement (ARAR) pursuant to Section 121 of CERCLA.

1.3 Basis for Taking Action

Because site conditions may pose an elevated ecological risk due to the presence of heavy metals, especially copper and lead in soil and sediment, an action was required at SEAD-23 to ensure land use remains protective of ecological receptors.

1.3.1 CONTAMINANTS OF CONCERN

The primary media investigated at the OB Grounds included soil, surface water and sediment (from Reeder Creek, on-site areas and drainage swales), and groundwater. The primary COCs identified included metals, PAHs, explosive compounds, and phthalates. These components were likely released to the environment during the historic open burning activities.

During the 1999 remedial investigation, the burn pads at the OB Grounds were sampled for explosives including: HMX; RDX; 1,3,5-trinitrobenzene; 1,3-dinitrobenzene; tetryl; 2,4,6-trinitrotoluene; 4-amino-2,6-dinitrotoluene; 2-amino-4,6-dinitrotoluene; 2,6-dinitrotoluene; and 2,4-dinitrotoluene. None of the detections of explosives within soil were above the current EPA Industrial SCO (no state standards exist for these compounds).

1.3.2 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The risk assessment concluded that at SEAD-23, the human health cancer risks were within the CERCLA cancer risk management range of 1×10^{-4} to 1×10^{-6} and the he calculated non-cancer HI were less than 1.0 for all receptors. Table 7-3 in the ROD (Parsons ES, 1999c) summarizes the results for total carcinogenic risks and non-carcinogenic hazard.

The ecological risk assessment for the OB Grounds began by evaluating the COCs found at the site in conjunction with the site-specific biological species/habitat information. Soils and sediment, in particular on-site soils and sediment in the low lying wet areas suggest that site conditions may pose an elevated ecological risk due to the presence of heavy metals, especially copper and lead. This risk is increased in the low-lying areas where sediment from runoff accumulates. Sediments in Reeder Creek may also pose an elevated ecological risk due to the presence of heavy metals, such as copper and lead.

2.0 Remedial Actions

2.1 Remedy Selection

The ROD titled “Final ROD Former Open Burning (OB) Grounds Site” (Parsons ES, 1999c) outlines the elements that composed the remedy:

- Although OE is not expected to be found at depth at this site, through a combination of geophysics, excavation, sifting, removal and soil cover, the Army will nevertheless remediate OE to meet the DoD Explosive Safety Board (DDESB) requirements for unrestricted use or put into place land use restrictions as may be required by the DDESB.
- Excavation of soils with lead concentrations above 500 mg/kg and sediments from Reeder Creek with concentrations of copper and lead above the NYSDEC criteria of the 16 mg/kg and 31 mg/kg, respectively.
- Treatment of soils exceeding the TCLP, estimated to be approximately 3,800 cy of the excavated soil, via solidification /stabilization will be performed to remove the RCRA characteristic of toxicity. This will allow the soil to be landfilled, in accordance with the requirements of the LDR of RCRA.
- Disposal of the excavated and solidified soil in an off-site Subtitle D landfill. The total quantity of soil to be disposed of was estimated to be 17,900 cy, including the 3,800 cy of solidified soil.
- Construction of a soil cover of at least 9 inches of compacted soils in the areas of the OB Grounds with soils remaining on the site with lead concentrations above 60 ppm. The area to be covered is estimated to be approximately 27.5 acres, which encompasses most of the area of the OB Grounds. The cap will be vegetated with indigenous grasses to prevent erosion and to prevent direct contact and incidental soil ingestion by terrestrial wildlife. The monitoring program will ensure that the 9-inch soil/vegetative cover is maintained after the remedy is complete.
- Control of surface water runoff, as necessary, to prevent erosion of the vegetative cover and solids loading to the creek. This will be accomplished with vegetation, regrading of site topography and drainage swales.

- Conducting a monitoring program for site groundwater and sediment in Reeder Creek. This program will monitor metals. For groundwater, the level of detection will be to below 15 µg/L, the federal action level for lead in groundwater. For sediment, the detection limit for lead will be to 10 mg/kg. Should a significant exceedance be noted, the exceedance will be confirmed through additional sampling and, if confirmed, appropriate corrective measures will be implemented to eliminate the threat posed by the exceedance. For groundwater, this action may include metals removal via filtering. A similar process will apply for a sediment exceedance observed in Reeder Creek. First, the source of the exceedance will be identified and confirmed. If the exceedance is determined to originate from the OB Grounds site, then maintenance of or improvements to the existing erosion control systems will be instituted to reduce the threat due to erosion of on-site soils to the Creek. This may include revegetation or the construction of drainage control swales or structures.
- Periodic monitoring of groundwater quality at the OB Grounds for lead and copper content.
- Periodic monitoring of the vegetated, compacted soil cover placed over the lead contaminated soil remaining at the OB Grounds to assess whether evidence of erosion or protective cover breaching were present, which could result in the potential migration of contaminated soil.
- Periodic monitoring of the sediment in Reeder Creek for lead and copper content.

2.2 Remedy Implementation

The OB Grounds Soil and Sediment Remediation Completion Report documents the remediation at the OB Grounds in accordance with WESTON's Revised Draft Work Plan dated April 1999, Parsons' Section C - Technical Specifications dated August 1998, and the ROD (Parson ES, 1999c). The primary activities completed by WESTON to achieve the remediation objectives for the Site included excavation and disposal of soils with concentrations of lead greater than 500 mg/kg, removal of sediment from Reeder Creek in areas adjacent to the OB Grounds, application of 9 inches of clean soil cover to areas where lead concentrations exceed 60 mg/kg, and establishment of a vegetative cover to prevent soil erosion.

Remediation activities at the site were conducted between June 1999 and May 2004. Work was conducted over this five year period in several different mobilizations and included the following tasks:

- Mobilization and site preparation, including surveying and excavation area layout.
- Decommissioning of 33 groundwater monitoring wells and one ground boring where a monitoring well (MW-28) had reportedly been installed but was not found at the time of the fieldwork.
- Excavation of approximately 88,000 cubic yards of Case I soil (>800 milligrams per kilogram (mg/kg) total lead), Case II soil (500 mg/kg – 800 mg/kg total lead), and Case III soil (<500 mg/kg total lead).
- Diversion of Reeder Creek and excavation of approximately 2,300 cubic yards of creek sediments.
- Post-excavation confirmation sampling and characterization sampling.
- Stabilization of soils and sediments to meet TCLP hazardous waste disposal criteria.
- Off-site disposal of approximately 7,000 tons of untreated soil and 50,400 tons of treated (stabilized) soils and sediment as non-hazardous material at a licensed disposal facility.
- Off-site disposal of approximately 283,300 gallons of wastewater generated from site activities.
- Site restoration including: backfilling, grading, and seeding the site.

Following a review of the confirmatory soil sample results, it was concluded that the horizontal and vertical extents of lead in soil at the burn pad locations has been sufficiently delineated and removed from the OB Grounds to below 60 mg/kg (20.6 mg/kg average). In addition, all adjacent surface soils (within the 1-ft cut and

site perimeter) have been reduced to below 500 mg/kg (89.6 mg/kg average). Combined, the burn pad, 1-ft cut, and site perimeter total lead average is 55.1 mg/kg (based on 274 samples).

SEAD-23 (OB Grounds) Soil Removal Cleanup Goals		
Analyte	Cleanup Goal (mg/Kg)	Goal Met?
Lead	60*	Yes

*The value of 60 mg/kg was based on soil lead levels considered to be protective of ecological receptors presented by the U.S. Fish and Wildlife Service in the publication, *Evaluating Soil Contamination, Biological Report 90, (2), July, 1990*.

A total of approximately 2,300 cy of sediment from Reeder Creek was removed and disposed of off-site, 32 monitoring wells were decommissioned, approximately 50,426 tons of soil were stabilized on-site prior to off-site disposal, and approximately 57,424 tons of soil was disposed of as RCRA Subtitle D Non-Hazardous soil at an approved facility.

A total of 25 grids encompassing an area of approximately 7 acres were backfilled to a depth of 9 inches using excavated soils containing less than 60 mg/kg total lead. All accessible areas of the OB Grounds were fine-graded and seeded.

The OB Grounds LTM program includes a qualitative assessment (i.e., visual inspection) of Reeder Creek for evidence of migration of material via surface water flow or groundwater transport of contaminants into the remediated section of Reeder Creek adjacent to and down gradient of the OB Grounds. The visual inspection consists of walking the creek bed (or embankment) to look for evidence of soil erosion or sloughing from the Creek embankment adjacent to the OB Grounds and/or the accumulation of sediment along the stream bed. Additionally, groundwater transport of contaminants is monitored by the annual groundwater sampling of the OB Grounds wells. Presently, quantitative monitoring of sediment quality (i.e., submitting samples for copper and lead analysis as identified in the approved remedy for the Site in the ROD) is not included as part of the LTM activities; the Army, the U.S. Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) agreed that until data indicated that either groundwater transport of contaminants or soil transport from the OB Grounds was occurring, sampling and analysis of Creek sediments would not be required.

While the OB Ground ROD required an LTM program, no LUCs have been established for this site.

2.3 System Operations/Operation and Maintenance

Not applicable; no active remedy.

3.0 Progress Since Last Five-Year Review

This section includes the protectiveness determinations and statements from the last five-year review (**Table AG.3.1**) as well as the recommendations from the last five-year review and the current status of those recommendations (**Table AG.3.2**).

Table AG.3.1: Protectiveness Determination/Statements from the 2017 FYR

Site	Protectiveness Determination	Protectiveness Statement
SEAD-23	Protective	The remedy implemented for SEAD-23 is protective of the environment and protects human health. The remedy continues to minimize explosive safety hazards. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

Table AG.3.2 Status of Recommendations from the 2017 FYR

Site	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
SEAD-23	N/A	Due to the absence of any evidence that suggests contaminants of concern have been mobilized from the OB Grounds either via the groundwater or overland flow of storm-event waters, and due to the continued scouring of the creek bed by the perennial flow of water, there is no reason to develop or implement a sediment monitoring plan for Reeder Creek at this time.	Completed	The Army, the U.S. Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) agreed that until data indicated that either groundwater transport of contaminants or soil transport from the OB Grounds was occurring, sampling and analysis of Creek sediments would not be required.	N/A
SEAD-23		With mutual agreement of all parties, no further LTM monitoring of the groundwater will occur at the OB Grounds. Soil cover inspections will continue and be performed as part of annual LUC inspections. A review of the results and conclusions from the OB Grounds LTM program will be provided in the third FYR in 2021.	Complete	After further discussion with all parties, LTM monitoring was continued at the OB Grounds. Groundwater samples are currently being collected on an annual basis. The inspection of Reeder Creek and the soil cover occur on an annual basis. The review of the results and conclusions of the LTM program is included in Section 4.2.	N/A

4.0 Five-Year Review Process

4.1 Document Review

See Section 12.0 References in the main FYR report for a summary of the documents, data, and information which were reviewed in completing this FYR.

4.2 Data Review

LTM is an integral component of the approved remedy implemented at the OB Grounds. The ROD, Former Open Burning Grounds Site, Final” (Parsons ES, 1999c) indicated that monitoring of groundwater and the vegetated soil cover at the OB Grounds, and of the sediment within Reeder Creek was required. In accordance with the approved remedy as presented in the ROD, the current LTM activities at the Site per the LTM Monitoring Plan for the OB Grounds (Parsons, 2007d) include the following three components:

- The annual collection and analysis of groundwater samples for lead and copper concentrations;
- The inspection of the vegetated, compacted soil cover that has been constructed over interred lead-contaminated soil as part of the Site remedial actions in order to assess if erosion or breaching of the protective cover has occurred, which could result in the potential migration of contaminated soil; and
- The inspection of Reeder Creek where the Creek abuts the OB Grounds to evaluate the potential for inward migration and deposition of soil from the OB Grounds.

The collection of groundwater quality data is needed to monitor the effectiveness of the implemented remedy at the site for preventing future impacts to groundwater at the OB Grounds and to sediments in Reeder Creek. Additionally, monitoring of the vegetated compacted soil cover placed over the buried soils at the OB Grounds is required to assure its long-term integrity and to prevent direct contact to, and incidental ingestion of, soils containing lead at concentrations up to 500 mg/kg by terrestrial wildlife at the site.

Long-term monitoring began at the OB Grounds site in November 2007 (Exhibit 2.4). LTM at the OB Grounds site was initially scheduled to occur on a quarterly basis. The results of the first four LTM rounds were combined and summarized in an annual report, in which, the frequency of monitoring was recommended to change from quarterly to annually. The change in monitoring frequency of groundwater from quarterly to annually was agreed upon by EPA and NYSDEC in February 2010 and Round 5 was the first annual monitoring event. Based on comments received from EPA and NYSDEC in 2009, the Army authorized the performance of an inspection of Reeder Creek. Subsequent to Round 5, investigations at the OB Grounds have included yearly groundwater sampling and inspection of both the soil caps and Reeder Creek. A summary of the groundwater trends based on the RI results, post-remedial action to date is summarized in the 2019 Long-Term Monitoring Annual Report for the Open Burning Grounds (Parsons, 2020b).

The LTM data supports that groundwater at the Site has not been impacted by residual levels of copper and lead that remain in the soils at the Site. All of the copper detections are two orders of magnitude lower than the GA action level of 200 µg/L. Total lead has not been detected in the groundwater above the action level of 15 µg/L during any of the post remedial action sampling rounds. Seven of the eight lead detections were estimated concentrations and the maximum concentration of lead detected in fourteen rounds of sampling was 5.4 µg/L at well MW23-4 in Round 2.

4.3 Site Inspection

The OB Grounds soil covers were inspected on 22 November 2019 by documenting observations of the twenty-five (25) 125-foot by 125-foot grids, where soils with residual lead concentrations between 60 mg/kg and 500 mg/kg were interred under a 9-inch thick soil cover. No animal burrowing activity was observed in any of the capped areas. Limited vegetation that was observed in Grids A5 and I8. Dense, grassy conditions were observed in most grids although thin vegetation was noted in Grids E9, J6, J8, L8 (along roadway), and L9 (along roadway). No disturbances to the soil caps were observed and no signs of erosion were evident. The 2019 LTM report recommended seeding of the thinned areas.

A visual inspection of the Reeder Creek streambed was conducted on November 22, 2019 at locations adjacent, down-gradient, and up-gradient to the OB Grounds. No evidence was observed that showed materials from the sidewalls of the Reeder Creek embankments had collapsed into the creek. The embankments were very well vegetated, aiding in the prevention of any sidewall collapse and sediment transport. However, local erosion was apparent at the base of the embankments in several areas and was likely the cause of elevated water levels and accelerated currents during strong rain fall events. Examination of the spillways, where surface water from the OB Grounds discharges to Reeder Creek, found no visible evidence that overland surface water flow had transported soils from the OB Grounds into Reeder Creek. The spillways were free of accumulation of excessive soil, but debris in the form of tree branches were observed near the culvert leading down into Reeder Creek. Field observations noted that the mechanisms previously placed at the OB Grounds to prevent transported soil material from entering the spillways were recently repaired and reinforced. FYR-site visit photo logs are contained in **Attachment 1** and completed FYR site inspection checklists are contained in **Attachment 2**.

4.4 Interviews

Since SEAD-23 is uninhabited and unoccupied, no interviews were conducted during the FYR process for SEAD-23.

4.5 Institutional Controls Verification

Not applicable.

5.0 Technical Assessment

5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes. Remedial actions required by the ROD for the OB Grounds have been completed and documented (Weston, 2005b). No continuing active remediation is required in OB Grounds. Based on a review of the remediation completion report, LTM Reports, the remedy is functioning as intended by the decision documents.

The remedy implemented at SEAD-23 is currently protective of human health and the environment because:

- Residual lead and copper concentrations remaining in the soils have not impacted groundwater at, or in the immediate vicinity of the Site above the applicable action levels.
- During fourteen rounds of groundwater sampling, copper and lead concentrations have not been detected above their RL enough times to perform a meaningful statistical analysis of the historical data thus indicating little to no migration of these COCs into the groundwater.

- The integrity of the vegetated soil cover overlying interred contaminated soils at the OB Grounds Site was intact and there was no evidence that terrestrial wildlife are exposed or will be exposed to the lead-contaminated soils interred below the 9-inch soil cover.
- The Army will continue to monitor soil cover erosion and will note any instance of cover erosion or exposed native or interred soil. At this time, reseeding in areas with thinning vegetation has been completed and will be reported on in the 2020 annual LTM report.
- Based on evaluation of the groundwater data and the results of the cover inspection, there is no evidence to suggest that the OB Grounds may be contributing to the degradation of sediment quality in Reeder Creek.
- Field observations noted that the mechanisms previously placed at the OB Grounds to prevent transported soil material from entering the spillways were working as intended.
- The Army will continue to inspect Reeder Creek for evidence of sediment deposition and if it is observed, a sediment sampling and analysis program plan will be prepared, submitted for approval, and implemented for Reeder Creek at locations adjacent to the OB Grounds.

The selected remedy is still protective of human health and the environment. Recommendations for optimization of the LTM program are discussed further in Section 6.0.

5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

- The exposure assumptions and RAOs used at the time of the remedy are still valid.
- There have been no changes in the exposure pathway or changes in the physical conditions of the site since completion of remedial action activities and implementation of LUCs that would affect the protectiveness of the remedy selected for SEAD-23.

Summary of toxicity data and cleanup level changes:

The toxicity data and cleanup levels have changed from those used at the time of the remedy. Soil investigations used NYS Soil Cleanup Objectives (SCO) values contained in Technical and Administrative Guidance Memorandum (TAGM) #4046 (NYSDEC, 1996) or Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 375-6 (NYSDEC, 2006) values. Groundwater investigations used NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (NYSDEC, 2000). The NYS SCO values contained in TAGM #4046 used in RODs prior to 2006 were compared to 6 NYCRR Part 375-6 Remedial Program SCO values. TAGM #4046 SCO were found to be lower than the restricted commercial cleanup objectives contained in Table 375-6.8(b) and for many contaminants lower than unrestricted cleanup objectives contained in Table 375-6.8(a).

Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of either increased or decreased values of the cleanup and screening levels, depending on the specific compounds. **Tables AG.5.1 through AG.5.4** summarize the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD.

As a result, **the cleanup levels and RAOs from earlier RODs are considered still valid.** Since the soil and groundwater cleanup standards for the remedy are equivalent to, or more stringent than human-health based promulgated standards and cleanup criteria, **the cleanup standards remain protective of human health.**

Table AG.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
SVOCs						
2-Methylnaphthalene	36.4	24	ROD did not establish cleanup levels		Y	Y
3-Nitroaniline	0.5	NA			N	N
2,4-Dinitrotoluene	50	1.7			Y	Y
Benzo(a)anthracene	0.224	1.1			Y	N
Benzo(a)pyrene	0.061	0.11			Y	N
Benzo(b)fluoranthene	1.1	1.1			N	N
Benzo(g,h,i)perylene	50	NA			N	N
Benzo(k)fluoranthene	1.1	11			Y	N
Chrysene	0.4	110			Y	N
Dibenz(a,h)anthracene	0.014	0.11			Y	N
Indeno(1,2,3-cd)pyrene	3.2	1.1			Y	Y
Phenanthrene	50	NA			N	N
Pesticides/PCBs						
4,4'-DDE	2.1	2	ROD did not establish cleanup levels		Y	Y
4,4'-DDT	2.1	1.9			Y	Y
Dieldrin	0.044	0.034			Y	Y
Explosives						
RDX	--	8.3	ROD did not establish cleanup levels		Y	N
1,3,5-Trinitrobenzene	--	NA			N	N
Tetryl	--	16			Y	N
2,4,6-Trinitrotoluene	--	3.6			Y	N
4-amino-2,6-Dinitrotoluene	--	0.77			Y	N
2-amino-4,6-Dinitrotoluene	--	0.77			Y	N

Table AG.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil (continued)

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) (1)	Current Federal Screening Level (Residential Use)(2)	Former Potential ARAR/TBC in ROD (1)	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use)(2)		
Metals						
Barium	300	1500	ROD did not establish cleanup levels		Y	N
Cadmium	1.8	7.1			Y	N
Chromium	26.6	12000			Y	N
Copper	25	310			Y	N
Lead	30	400			Y	N
Thallium	0.3	0.078			Y	Y
Zinc	89.1	2300			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table AG.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
2-Methylnaphthalene	--	24	ROD did not establish cleanup levels		Y	N
Benzo(a)anthracene	--	1.1			Y	N
Benzo(a)pyrene	--	0.11			Y	N
Benzo(b)fluoranthene	--	1.1			Y	N
Benzo(k)fluoranthene	--	11			Y	N
Indeno(1,2,3-cd)pyrene	--	1.1			Y	N
Phenanthrene	1390	NA			N	N
Explosives						
4-amino-2,6-Dinitrotoluene	--	0.77	ROD did not establish cleanup levels		Y	N
2-amino-4,6-Dinitrotoluene	--	0.77			Y	N
Metals						
Aluminum	--	7700	ROD did not establish cleanup levels		Y	N
Antimony	--	3.1			Y	N
Arsenic	5	0.68			Y	Y
Barium	--	1500			Y	N
Beryllium	--	16			Y	N
Cadmium	2.5	7.1			Y	N
Chromium	26	12000			Y	N
Cobalt	--	2.3			Y	N
Copper	24000	310			Y	Y
Lead	27	400			Y	N
Manganese	428	180			Y	Y
Mercury	0.11	1.1			Y	N
Nickel	--	150			Y	N
Selenium	--	39			Y	N
Vanadium	--	39			Y	N
Zinc	--	2300			Y	N

Table AG.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment (continued)

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State soil cleanup goals are from 6 CRR-NY 375-6.8 (b) Unrestricted Use Soil Cleanup Objectives; Verified 9/21/2020. Federal soil screening values are EPA Regional Screening Levels (RSL) for Residential Soil based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in milligrams per kilogram (mg/kg)

Table AG.5.3 Comparison of Toxicity Data and Cleanup Levels in Surface Water

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
SVOCs						
bis(2-ethylhexyl)phthalate	--	5.60	ROD did not establish cleanup levels		Y	N
VOCs						
1,2-Dichloroethane	--	0.17	ROD did not establish cleanup levels		Y	N
Trichloroethene	11	0.28			Y	Y
Explosives						
RDX	--	0.97	ROD did not establish cleanup levels		Y	N
Tetryl	--	3.90			Y	N
Metals						
Aluminum	--	2000	ROD did not establish cleanup levels		Y	N
Arsenic	0.15	0.05			Y	Y
Barium	--	380			Y	N
Beryllium	0.139	16			Y	N
Chromium	0.005	2200			Y	N
Copper	0.017	80			Y	N
Lead	0.3	15			Y	N
Manganese	0.223	43			Y	N
Nickel	--	150			Y	N
Vanadium	0.0014	8.6			Y	N

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State surface water cleanup goals, when available, are from 6 CRR-NY 703.5 Water quality standards for taste-, color- and odor-producing, toxic and other deleterious substances Class C standard; Verified 9/21/2020. Federal surface water screening values are EPA Regional Screening Levels (RSL) for tapwater based on a target HQ = 0.1; updated May 2020.

"--" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

Table AG.5.4 Comparison of Toxicity Data and Cleanup Levels in Groundwater

COPCs Listed in ROD	Comparison of Screening Levels		Comparison of Potential Cleanup Levels		Is there a newly promulgated cleanup goal or published screening level? (Y/N)	Are the newly promulgated screening levels or cleanup goals less than those used in the ROD? (Y/N)
	Former Screening Value in ROD (Residential Use) ⁽¹⁾	Current Federal Screening Level (Residential Use) ⁽²⁾	Former Potential ARAR/TBC in ROD ⁽¹⁾	Current NYSDEC Soil Cleanup Objectives (Unrestricted Use) ⁽²⁾		
PAHs						
Di-n-butylphthalate	50	90	ROD did not establish cleanup levels		Y	N
Di-n-octylphthalate	50	20			Y	Y
VOCs						
Acetone	5	1400	ROD did not establish cleanup levels		Y	N
Explosives						
RDX	5	0.97	ROD did not establish cleanup levels		Y	Y
2,4,6-Trinitrotoluene	500	0.98			Y	Y
2,6-Dinitrotoluene	5	0.05			Y	Y

(1) Former screening levels and former ARARs/TBCs presented in the table originate from the site-specific ROD

(2) State groundwater cleanup goals are from 6 CRR-NY 703.5 Water quality standards for taste-, color- and odor-producing, toxic and other deleterious substances Class GA standard; Verified 9/21/2020. Federal groundwater screening values are EPA Regional Screening Levels (RSL) for tapwater based on a target HQ = 0.1; updated May 2020.

"-" Indicates no criteria/MCL or not applicable

Units are in micrograms per liter (µg/L)

5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no new information of significance that would affect the protectiveness of the remedy.

According to the data reviewed and the site inspection, the remedy is functioning as intended by the ROD for SEAD-23. On-going remedial monitoring activities include periodic evaluations of the effectiveness of the remedy. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. ARARs cited in the RODs remain protective of human health and the environment.

6.0 Issues, Recommendations and Follow-Up Actions

No issues were identified for this FYR. After 14 years of LTM, there is no evidence that metals are migrating into the groundwater. Therefore, based on the results of the LTM sampling events conducted at the OB Grounds, the Army recommends discontinuing LTM of the groundwater. As presented and summarized above, available monitoring data shows no evidence of total lead or total copper in the groundwater above the cleanup goals subsequent to the completion of the remedial action for the Site. These findings are consistent with the groundwater analytical results obtained during the remedial investigation stage (1990s) of work at the Site, indicating that there is no evidence of groundwater quality deterioration over approximately 25 years. Further, the annual inspections of the soil cover have shown minimal evidence of erosion or animal breaching of the protective soil cover. NYSDEC concurred with the decision to conclude LTM sampling on 06 April 2015. Discussion with EPA is in progress. If the EPA concurs with termination of LTM, it is recommended that the cap and creek inspections be performed as part of the Annual SEDA LUC inspections.

7.0 Protectiveness Statement

The remedy implemented for SEAD-23 is protective of the environment and protects human health. The remedy continues to minimize explosive safety hazards. Currently, there are no unacceptable exposures to human or environmental receptors from source area contaminants and none are expected to occur during the next five years.

ATTACHMENTS

- Attachment 1 Photo Log
- Attachment 2 Site Inspection Checklist

ATTACHMENT 1

PHOTO LOG

Attachment AG-1
Five Year Review- Site Visit Photo Log
SEAD-23 OB Grounds

PROJECT: Seneca Army Depot Five-Year Review
PROJECT #: 110043.10000

LOCATION: SEAD-23, Seneca Army Depot
CLIENT: U.S. Army Corp of Engineers

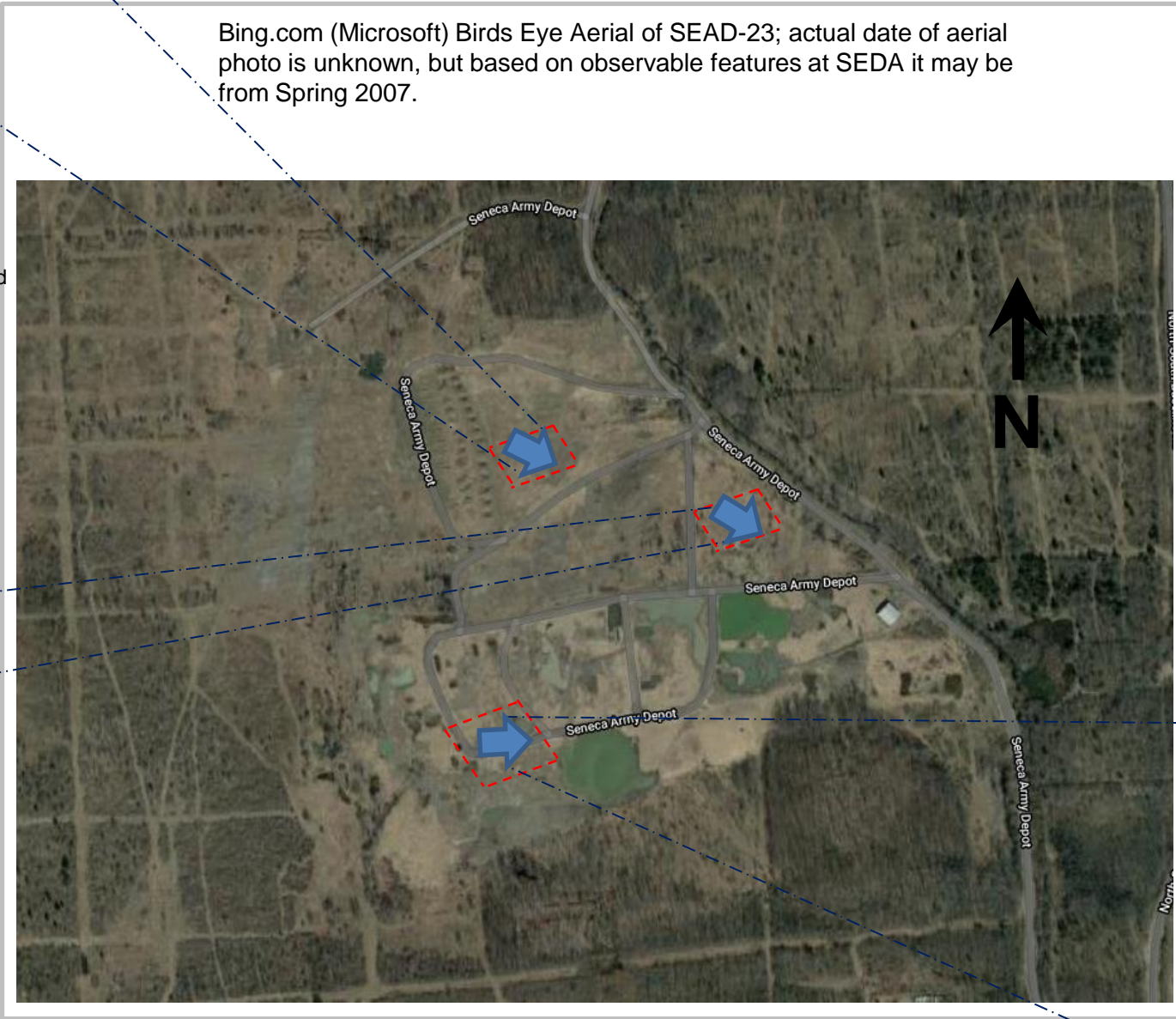
2019 Site Visit Photo 1 - 3



Status as of: 11/22/2019 Grid D7. Dense vegetation. No erosion or disturbances observed. Two low areas (NW and NE corners) collecting water. View to southeast



Status as of: 11/22/2019 Grid P10. No erosion or disturbances to the cap were observed. The grid is well vegetated. Wet swampy area in northeast portion of grid. View to the southeast

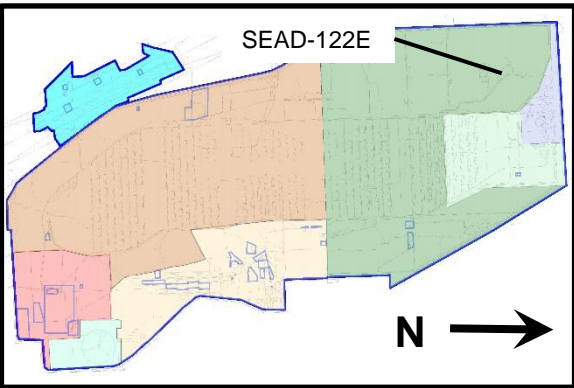


Bing.com (Microsoft) Birds Eye Aerial of SEAD-23; actual date of aerial photo is unknown, but based on observable features at SEDA it may be from Spring 2007.

SEAD-23 is located within the Airfield Parcel.

- Approximate Site Boundary
- Photo Viewing Direction

SEDA Overall Map (no scale)



Status as of: 11/22/2019 Grid L9. The grid is well vegetated along the edges of the pond; thin areas noted in center of grid and along slopes. View to the southeast

ATTACHMENT 2

SITE INSPECTION CHECKLIST

SEDA LUC Inspections Site Inspection Checklist

I. SITE INFORMATION

Site Name: SEAD 23 - OB Grounds Location and Region: PID Area Institution Leading the Five-Year Review: Parsons Inspector: Matthew Muto	Date of Inspection: 7/22/20 EPA ID: NY0213820830 Weather: Sunny to PC, 65-82F, SE at 5mph Signature: Matthew Muto <small>Digitally signed by Matthew Muto Date: 2020.08.06 11:17:24 -04'00'</small>												
Remedy Includes: (Check all that apply)													
<table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Landfill Cover/Containment</td> <td><input checked="" type="checkbox"/> Monitored Natural Attenuation</td> </tr> <tr> <td><input type="checkbox"/> Access Controls</td> <td><input type="checkbox"/> Groundwater Containment</td> </tr> <tr> <td><input checked="" type="checkbox"/> Institutional Controls</td> <td><input type="checkbox"/> Vertical Barrier Walls</td> </tr> <tr> <td><input type="checkbox"/> Groundwater Pump and Treatment</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Surface Water Collection and Treatment</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Other No apparent GW use, development or residential/child use</td> <td></td> </tr> </table>		<input checked="" type="checkbox"/> Landfill Cover/Containment	<input checked="" type="checkbox"/> Monitored Natural Attenuation	<input type="checkbox"/> Access Controls	<input type="checkbox"/> Groundwater Containment	<input checked="" type="checkbox"/> Institutional Controls	<input type="checkbox"/> Vertical Barrier Walls	<input type="checkbox"/> Groundwater Pump and Treatment		<input type="checkbox"/> Surface Water Collection and Treatment		<input checked="" type="checkbox"/> Other No apparent GW use, development or residential/child use	
<input checked="" type="checkbox"/> Landfill Cover/Containment	<input checked="" type="checkbox"/> Monitored Natural Attenuation												
<input type="checkbox"/> Access Controls	<input type="checkbox"/> Groundwater Containment												
<input checked="" type="checkbox"/> Institutional Controls	<input type="checkbox"/> Vertical Barrier Walls												
<input type="checkbox"/> Groundwater Pump and Treatment													
<input type="checkbox"/> Surface Water Collection and Treatment													
<input checked="" type="checkbox"/> Other No apparent GW use, development or residential/child use													
Attachments: <input checked="" type="checkbox"/> Inspection Team Roster Attached <input type="checkbox"/> Site Map Attached													

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager				
Interviewed	<input type="checkbox"/> at site	<input type="checkbox"/> at office	<input type="checkbox"/> by phone	Name _____ Title _____ Date _____ Phone number: _____
Problems, suggestions:				
2. O&M Staff				
Interviewed	<input checked="" type="checkbox"/> at site	<input type="checkbox"/> at office	<input type="checkbox"/> by phone	Name _____ Title _____ Date _____ Phone number: _____
Problems, suggestions:				
3. Local Regulatory Authorities and Response Agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
Agency:				
Contact:				
	Name	Title	Date	Phone No.
Problems, suggestions:				
4. Other Interviews (optional):				
Report Attached				

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents			
<input type="checkbox"/> O&M Manual	<input type="checkbox"/> Readily Available	<input checked="" type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> As-Built Drawings	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
<input type="checkbox"/> Maintenance Logs	<input type="checkbox"/> Readily Available	<input checked="" type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Comments:			
2. Site-Specific Health and Safety Plan			
	<input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
Contingency plan/Emergency Response Plan			
	<input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
Comments:			
3. O&M and OSHA Training Records			
	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Comments:			
4. Permits and Service Agreements			
Air Discharge Permit	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Effluent Discharge	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Waste Disposal, POTW	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Other Permits	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Comments:			
5. Gas Generation Records			
	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Comments:			
6. Settlement Monument Records			
	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Comments:			
7. Groundwater Monitoring Records			
	<input checked="" type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input type="checkbox"/> N/A
Comments: Annual LTM reports for groundwater available. Includes cap inspection and creek inspection.			
8. Leachate Extraction Records			
	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Comments:			
9. Discharge Compliance Records			
Air	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Water (effluent)	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Comments:			
10. Daily Access / Security Logs			
	<input type="checkbox"/> Readily Available	<input type="checkbox"/> Up to Date	<input checked="" type="checkbox"/> N/A
Comments:			

ATTACHMENT 3

RESPONSE TO COMMENTS

Army's Response to Comments from the Environmental Protection Agency

Subject: Draft Final 2021 Five Year Review

Seneca Army Depot

NYSDEC Site No. 850006

Romulus, New York

Comments Dated: 10 June 2021

Date of Comment Response: 19 August 2021

FIVE YEAR REVIEW COORDINATOR COMMENTS

Comment 1: Page 1, first paragraph: In line with the "Correction to the Memorandum "Program Priorities for Federal Facility Five-Year Reviews," the triggering action of the FYR is EPA's signing of the independent finding of protectiveness letter, which was dated August 30, 2016.

Army Response to Comment 1: The text has been updated as follows *"The triggering action for this statutory FYR was the signing of the independent finding of protectiveness letter by the U.S. Environmental Protection Agency (USEPA), dated August 30, 2016."*

Comment 2: A large area of SEDA is designated for farming. For the sites within this area, where the risk assessments are being revisited to potentially remove LUCs, this unique pathway should be evaluated.

Army Response to Comment 2: There are two sites located within the "farming" area where reevaluation of the remedy is proposed: SEAD-64B and SEAD-64D. As part of the re-evaluation, if new data are collected and a risk assessment is performed, the farmer will be evaluated as a receptor.

Comment 3: Section 7.2, in addition to EPA's posting notification on its website: <https://www.epa.gov/superfund/R2-fiveyearreviews> (please include the link), there should be additional site-specific outreach to the community to inform them that the review is happening. Attached is an example used by EPA for this purpose.

Army Response to Comment 3: The text has been updated with the following two statements *"The Army will perform site-specific outreach to the community, such as placing an ad in the local newspaper, to inform them that the FYR is being conducted."* and *"The USEPA will notify the community that the FYR is being conducted. The announcement and any comments received will be posted on the USEPA website at the following link: <https://www.epa.gov/superfund/R2-fiveyearreviews>"*

Comment 4: Page 12, Question B discusses the changes in PAH toxicity; however, our understanding of the health effects from exposure to low levels of lead has also evolved. At the time of the ROD, risks associated with exposure to lead in soils were evaluated using a target blood lead level (BLL) of 10 micrograms per deciliter (µg/dL). However, recent toxicological evidence suggests that adverse health effects are associated with lower blood lead levels. To achieve a lead risk reduction goal consistent

with recent toxicological findings, EPA Region 2 currently evaluates lead using a target blood lead level of 5 µg/dL, which equates to 200 mg/kg screening level using standard default inputs to the IEUBK model. This language needs to be added to the report. Also, for sites where lead was a COC, there should be a discussion of how the cleanup is still protective considering these lower values. Additionally, for risk evaluations planned for sites to remove LUCs, an evaluation of the data will be needed to ensure that lead would not pose an unacceptable risk if LUCs were removed. For example, page D-5 includes a soil cleanup value of 1250 mg/kg. There should be a discussion of how this level is still protective considering the lower BLL target and current use.

Army Response to Comment 4: Acknowledged. The EM CX still recommends using 10 µg/dL as the blood lead level of concern. Since there is nothing in place yet that directs the use of 5 µg/dL, it is not recommended that this value be used or evaluated at this time.

Comment 5: Page 13, Question C: in the discussion of PFAS here and in the relevant AOC appendices, it is important to indicate whether there might be any potential current exposure. Could groundwater contaminated with PFAS be migrating off base to where it may impact private wells? Recognizing that additional characterization work needs to be done, the FYR should provide as much information as possible regarding the nature and extent of PFAS contamination and the potential exposures in order for the remedies to be considered protective. For example on page H-10, in addition to the groundwater restriction, can it also be said that no private wells are impacted? Also, describe how PFAS will be addressed going forward.

Army Response to Comment 5: Acknowledged. At this time, the site is being investigated for PFAS as part of an ESI. Current data provides no indication of PFAS migration off-site. The Army plans to conduct a well survey in 2021 which will identify impacts to private wells, if any.

Comment 6: Page 13, Recommendations: any recommendations related to LTM should be documented outside of the FYR. For example, on page AG-15, the decision to discontinue sampling should be coordinated with EPA and NYSDEC through the official submittal and approval process.

Army Response to Comment 6: Acknowledged. The official recommendations will be made as part of the annual report process which is reviewed by NYSDEC and the USEPA.

Comment 7: Page 14, Section 10: a sitewide protectiveness statement is only appropriate for sites that are construction complete. Please remove this and refer to the individual protectiveness statements for the AOCs evaluated in the appendices.

Army Response to Comment 7: The text has been updated as follows *“Based upon the review conducted by the Army of the CERCLA sites at the former Seneca Army Depot, determinations have been made identifying whether the remedies selected remain protective of human health and the environment. The determinations are detailed in Section 7 in each site-specific appendix.”*

Comment 8: Page AB-13: the recommendation related to vapor intrusion suggests that there is potential exposure which would make this AOC short-term or deferred protectiveness. Suggest re-writing this recommendation to be clear that there are no occupied buildings over the plume and there is already an IC in place that would prevent VI from occurring were buildings to become occupied.

Army Response to Comment 8: Concur. Page AB-13, Section 6.0 text has been updated as follows *“Perform vapor intrusion study to assess and estimate potential risks for VOC vapor*

intrusion exposure in the event that Building 813 or 814 were to be occupied, and possibly remove the associated LUCs."

HUMAN HEALTH RISK ASSESSOR COMMENTS

Comment 1: The following tables need to be updated to reflect the 200 mg/kg for Current Federal Screening Level (Residential Use) in soil with Region 2's updated lead guidance:

Table B.5.1 Comparison of Toxicity Data and Cleanup Levels

Table C.5.1 Comparison of Toxicity Data and Cleanup Levels

Table F.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil

Table G.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil for SEAD 121C

Table K.5.1 Comparison of Toxicity Data and Cleanup Levels (continued)

Table P.5.1 Comparison of Toxicity Data and Cleanup Levels (continued)

Table Q.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil (continued)

Table R.5.1 Comparison of Toxicity Data and Cleanup Levels (continued)

Table V.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment (continued)

Table X.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment (continued)

Table AA.5.1 Comparison of Toxicity Data and Cleanup Levels for SEAD 122B

Table AB.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment

Table AC.5.1 Comparison of Toxicity Data and Cleanup Levels

Table AD.5.1 Comparison of Toxicity Data and Cleanup Levels

Table AG.5.1 Comparison of Toxicity Data and Cleanup Levels in Soil (continued)

Table AG.5.2 Comparison of Toxicity Data and Cleanup Levels in Sediment

Army Response to Comment 1: Refer to response to Five Year Review Coordinator Comments, Comment 4.

Comment 2: For SEAD 23 (OB Grounds), 60 mg/kg was used as the soil cleanup goal level (page AG-4). Please provide reasoning for why this value was used as the soil cleanup goal level for this area of concern.

Army Response to Comment 2: The value was an ecological-based value. A reference has been added to Soil Removal Cleanup Goals table as follows *"The value of 60 mg/kg was based on soil lead levels considered to be protective of ecological receptors presented by the U.S. Fish and Wildlife Service in the publication, Evaluating Soil Contamination, Biological Report 90, (2), July, 1990."*

Comment 3: Throughout the FYR draft, it is stated that "in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs." However, it is not clearly stated as to whether risk assessments have been updated using the revised toxicity values of benzo(a)pyrene and PAHs in some areas of concern. Please provide a statement for clarification.

Army Response to Comment 3: The risk assessments have not been updated using the revised toxicity values. The revised toxicity values are less conservative, and so the original risk assessments overestimated the risk.

Comment 4: The human health risks should be appropriately re-evaluated using the updated toxicity values of benzo(a)pyrene and other PAHs if and when any sites are to be evaluated for residential risk in order to remove non-residential ICs.

Army Response to Comment 4: Acknowledged.

Comment 5: Information on the specific chemicals contributing to non-cancer HIs above 1 will need to be provided for the following areas of concern that have not previously addressed HHRA in the past FYR:

- SEAD-46: for the construction worker, adult resident, and resident child (page AC-2)
- SEAD 003-R-01: for the residential child and adult (page AD-2)
- EOD-2: for the construction worker, adult resident, and child resident (page AF-2)

Army Response to Comment 5: The text has been updated as follows:

- SEAD-46, Page AC-2, Section 1.3.2 *"The elevated HI is due to exposure to metal contaminants: manganese, iron, arsenic, cobalt, aluminum and thallium."*
- SEAD 003-R-01, Page AD-2, Section 1.3.2 *"The elevated HI is due to exposure to COPCs which include aluminum, manganese, arsenic, cadmium, cobalt, iron, thallium, vanadium, and antimony."*
- SEAD 002-R-01, Page AF-2, Section 1.3.2 *"The elevated HI is due to exposure to metal contaminants: aluminum, cobalt, iron and manganese."*

HYDROGEOLOGIST COMMENTS

Comment 1: Section 4.2, p.5: Text states that groundwater is "minimally acceptable for use as potable water." It would be helpful to include the actual prevalence of groundwater utilization as potable water in the vicinity of SEDA.

Army Response to Comment 1: We have no knowledge of any local wells that are used for potable water. The Town has provided water pipelines as a public water source from Seneca County, which is the potable water source for the area.

Comment 2: Section 8.1, p.11: The text states that "...many of the RODs relied on very old groundwater data." To the degree possible, this statement should be made more quantitative. Additionally, it should be clarified whether data were generally outdated at the time the RODs were signed, or if these data were generally collected around the times that RODs were signed, but are considered dated at present as a result of subsequent changes to recommended best practices, sampling procedures, etc.

Army Response to Comment 2: The "very old groundwater data" were collected in the same timeframe that the RODs were prepared and signed. The phrasing has been revised.

Comment 3: Appendix D: Figures depicting the monitoring well network and local COC concentrations are recommended.

Army Response to Comment 3: The information is provided in the Annual Report. Refer to the most recent annual report referenced in the FYR for the details.

Comment 4: Appendix D, Section 4.2: References to "nine years of LTM sampling" at SEAD 16 and 17 could be made more accurate by clarifying that there have been nine LTM sampling events which occurred between 2007 and 2019.

Army Response to Comment 4: Acknowledged. Page D-8, Section 4.2 text has been updated as follows *"Between 2007 and 2019, there were nine LTM sampling events at SEAD-16, during which five metals have exceeded project action limits..."* and *"During the period of the nine LTM sampling events, five metals have exceeded project action limits..."*

Comment 5: Appendix H: A figure depicting the monitoring well network and local COC concentrations is recommended.

Army Response to Comment 5: Refer to response to Hydrogeologist Comments, Comment 3.

Comment 6: Appendix V, Section 1.1: The section History of Contamination references "the limestone." Please clarify if this refers to native limestone bedrock in-place or limestone which was transported into the pits as a part of the disposal process. If disposal was conducted within the bedrock, please clarify whether groundwater quality was analyzed in the bedrock underlying the site.

Army Response to Comment 6: Appendix V, Section 1.1 was revised to clarify that the pits were excavated out of the till overburden and lined with limestone chips. Text was updated as follows: *"During the operation of the IRFNA Disposal Site, five pits were excavated out of the till overburden and were utilized as a neutralization area for IRFNA. The pits were approximately 30 ft long, 8 ft wide, and 4 ft deep and were filled approximately 2.5 ft deep with limestone chips. The sides of the pits were also lined with limestone. Barrels of..."*

Comment 7: Appendix V, Section 2.1: Please evaluate the accuracy of the last sentence in the first paragraph in this section: "The risk from the presence of metals is associated with the suspended solids contained in the collected groundwater samples and not from the groundwater itself."

Army Response to Comment 7: The Army believes this is accurate.

Comment 8: Appendix V, Sections 5.1 and 6.0: Section 5.1 states "No opportunities for optimization... have been identified for SEAD-13." However, Section 6.0 presents recommendations for potential optimization.

Army Response to Comment 8: Page V-4, Section 5.1 text has been updated as follows *"No early indicators of potential issues have been identified for SEAD-13. Recommendations for optimization of the LTM program are discussed further in Section 6.0."*

Comment 9: Appendix Z, Section 4.2: It would be appropriate to expand the Data Review section with additional data regarding spatial trends, temporal trends, any apparent effects from biowall recharge events, etc. A figure depicting the contaminant plume and the monitoring well network is recommended.

Army Response to Comment 9: Refer to response to Hydrogeologist Comments, Comment 3.

Comment 10: Appendix AG: Attachments such as site photos and completed inspection forms are not included for this site.

Army Response to Comment 10: A photo log and site inspection checklist have been added to Appendix AG SEAD-23 as Attachment 1 and Attachment 2, respectively.

Comment 11: Appendix AG: A figure depicting the monitoring well network is recommended.

Army Response to Comment 11: Refer to response to Hydrogeologist Comments, Comment 3.

ECOLOGICAL RISK COMMENTS

In general, this five-year review does not always address ecological issues at individual SEADs. Additionally, Question B of the Technical Assessments for the overall five-year review and each SEAD should include a statement on how exposure assessments remain valid for ecological receptors. Individual comments are provided below:

Comment 1: Section 4.6, p. 17: Please indicate what the basis was for performing ecological risk assessments, similar to the text provided for human health.

Army Response to Comment 1: Section 4.6, page 7, text has been updated as follows *"Ecological risk assessments were performed to determine if the hazard quotients (HQ) were less than 1, between 1 and 10, between 10 and 100, or greater than 100. In general, guidelines suggest that HQs less than or equal to 1 present no probable risk. HQs between 1 and 10 present a small potential for environmental effects; HQs between 10 and 100 present a significant potential that effects could result from greater exposure; and HQs greater than 100 indicate the highest potential for expected effects."*

Comment 2: Section 8.2, p. 22: Question B should include a statement that exposure assumptions are still valid for protection of ecological receptors.

Army Response to Comment 2: Page 12, Section 8.2 states *"The exposure assumptions for protection of human health and ecological receptors and RAOs used at the time of the remedy are still valid."*

Comment 3: SEAD-1, Section 1.3.2, p. 46: Please provide a brief statement about why ecological risk was not assessed.

Army Response to Comment 3: An RI was not completed for this site, and as such a HHRA and a SLERA was not initially conducted. When a Proposed Plan was prepared for this site, circa 2007, the EPA, NYSDEC, and Army agreed that a risk assessment was required. At the time, since the site was in a portion of the Depot where the defined future use was Industrial / Office Development, the risk assessment calculations completed focus on the evaluation of the potential risks for human receptors, and ecological risk assessment was not requested or conducted.

Comment 4: SEAD-2, Section 1.3.2, p. 61: Please provide a brief statement about why ecological risk was not assessed.

Army Response to Comment 4: Refer to response to Ecological Risk Comments, Comment 3.

Comment 5: SEAD-5, Section 1.3.2, p. 78: Please provide a brief statement about why ecological risk was not assessed.

Army Response to Comment 5: Refer to response to Ecological Risk Comments, Comment 3.

Comment 6: SEAD 16/17, Section 1.3.2, p. 97: Please define “small potential” and define which COPCs drive the risk. Please clarify why no ecological risk was at this site based on these questions.

Army Response to Comment 6: As noted in response to Ecological Risk Comments, Comment 1, guidelines suggest that HQs between 1 and 10 present a small potential for environmental effects.

An ecological risk assessment was completed as part of the RI. The text has been updated as follows *“An ecological risk assessment was conducted to evaluate potential risk to deer mouse and the creek chub posed by the contaminants of concern (COPCs) detected in soils, surface water, and ditch sediment/soils.”* The COPCs contributing to ecological HQs at SEAD-16 were lead, mercury, antimony, and copper. There was no ecological risk identified at SEAD-17.

Comment 7: SEAD-25, Section 1.3.2, p. 171: Were chronic effects considered for the ecological risk? Please define “small potential” and define which COPCs drive the risk.

Army Response to Comment 7: Refer to response to Ecological Risk Comments 1 and 6 for “small potentials”. The terms “chronic” and “acute” are not generally used in ecological risk assessments. Chronic effects are associated with human health risk assessments.

Comment 8: SEAD-26, Section 1.3.2, p. 189: Please indicate which COPCs drive the potential risk and state whether chronic toxic impacts were assessed along with acute effects. The statement “small potential for environmental effects” should include a brief description of what the environmental effects are.

Army Response to Comment 8: Page I-2, Section 1.3.2, text updated as follows *“The quantitative ecological risk evaluation determined that a possibility exists for the COPCs (SVOCs) to present a small potential for environmental effects to terrestrial receptors and aquatic-amphibian population due to sediment, soil, and surface water at SEAD-26.”*

Comment 9: SEAD-27, Section 1.3.2, p. 203: Please provide a brief statement about why ecological risk was not assessed.

Army Response to Comment 9: Page J-2, Section 1.3.2 text updated as follows *“The Mini-Risk Decision Document identified that no compounds of concern were detected in SEAD-27 soils. Therefore, no HQs were calculated for this site (Parsons, 2002a).”*

Comment 10: SEAD-40, Section 1.3.2, p 266: Please provide a brief statement about why ecological risk was not assessed.

Army Response to Comment 10: Refer to response to Ecological Risk Comments, Comment 3.

Comment 11: SEAD-67, Section 1.3.2, p 281: Please provide a brief statement about why ecological risk was not assessed.

Army Response to Comment 11: Refer to response to Ecological Risk Comments, Comment 3.

Comment 12: SEAD-44B, Section 1.3.2, p. 332: Please provide a brief statement about why ecological risk was not assessed.

Army Response to Comment 12: The text has been updated to indicate that *“An ecological risk assessment was conducted as part of the Mini-Risk Assessment (Parsons, 2002a), and no significant ecological risk was found at this site.”*

Comment 13: SEAD-41, Section 1.3.2, p. 416: Please provide a brief statement about why ecological risk was not assessed.

Army Response to Comment 13: A mini-risk assessment was performed around 2006 for this site. At the time, the assessment was focused on human health and did not include an ecological risk assessment due to the anticipated future use.

Comment 14: Ash Landfill, Section 1.3.2, p. 466: Please clarify the statement “not readily observable.”

Army Response to Comment 14: An ecological survey, performed during the RI, reported no observable ecological damage.

Comment 15: Airfield Parcel, Section 1.3.2, p. 485: Please provide a brief statement about why ecological risk was not assessed.

Army Response to Comment 15: As detailed on Page AA-2, Section 1.3.2, no risk assessment was performed since a treatability study and a removal action was completed at this AOC.

ADDITIONAL COMMENTS:

Comment 1: The structure of the document needs to be revised when the next 5 Year Review is done for this site. We would recommend more closely following the template: <https://semspub.epa.gov/work/HQ/100000001.pdf>. [semspub.epa.gov] At the very least, the Army needs to add the 5-year review summary forms for each site under review at the beginning of the document.

Army Response to Comment 1: Acknowledged. Future FYR documents will be prepared in accordance with the guidance.

Comment 2: Please clarify what the source of the OU #s are. Are they from CERCLIS (now SEMS)? Please present an additional table listing the SEMS OU # then the site names and #s that correspond to each SEMS OU.

Army Response to Comment 2: The OU numbers were based on Army records; however, duplicates and inconsistencies have been identified. The OU designations were reviewed and have been matched to the SEMS OU list. A crosswalk to the OU and associated SEADs is attached. References to the appropriate decision document are also included. Table 3 was updated with the revised OU numbers. Table 5 (attached) was added to the 5YR report.

Comment 3: Page B-2 to B-3: Please provide a citation for the FOST for the PID/Warehousing Area property.

Army Response to Comment 3: Finding of Suitability to Transfer (FOST). Seneca Army Depot Activity (SEDA). Planned Industrial Development and Warehouse Area (PID FOST). July 2003.

Comment 4: Page D-8, sec 4.2, 5th bullet: The text should state why MW16-7 is being abandoned and replaced.

Army Response to Comment 4: This well is aged and the Army believes that the well construction may be compromised, likely due to the well's proximity to the excavation area from the remedial action. A new well construction under current methods will provide higher data quality and confidence in the results. Section 4.3 details observations made during the site inspection and states the following *"Observations of the monitoring wells at SEAD-16/17 indicate that the wells located on the site are in acceptable condition with the exception of MW16-7 which was recommended for replacement due to turbidity concerns"*.

Comment 5: Page F-5, Summary of Toxicity Data and Cleanup Level changes: Did some of the cleanup levels for PAHs go down?

Army Response to Comment 5: Yes. The text has been updated as follows *"These revisions have the result of either increased or decreased values of the cleanup levels, depending on the specific compounds."*

Comment 6: Page J-5 and Table J.5.1: Based on the information in the table, all of the current standards appear to be lower than the ROD values. This conflicts with the text on Page J-5, summary of Toxicity Data and cleanup Level Changes, 2nd paragraph, which states that the cleanup standards for the remedy are equivalent to or more stringent than human health based promulgated standards and cleanup criteria. Please clarify and/or reconcile so that the text agrees with the table.

Army Response to Comment 6: Table J.5.1 focuses on groundwater only. The text under Section J.5.2 has been reorganized so that the first paragraph only discusses the changes in values for soil. The second paragraph references Table J.5.1 and addresses groundwater.

Comment 7: Page L-1, Sec 1.3.2 Human Health and Ecological Risk Assessment, 2nd para: When was the risk assessment for the residential scenario conducted? If it was conducted recently (i.e., after the ROD and remedy implementation), then this discussion as well as the text in the 3rd paragraph should be deleted from the report and presented in another separate report for the site (i.e., optimization).

Army Response to Comment 7: Risk assessment for the residential scenario was conducted before the ROD and remedy implementation.

Comment 8: Page L-5, 2nd and 3rd paragraphs: What is the basis for stating that the conclusions remain valid, especially given the presence of pesticides at levels greater than the new screening levels?

Army Response to Comment 8: The final paragraph of Section 5.2 explains that although toxicity values may have changed, the risk assessment process that was used is still consistent with current practices, and the conclusions remain valid.

Comment 9: Page M-1, Sec 1.3.2, 1st para: What scenario was evaluated in the risk assessment?

Army Response to Comment 9: Page M-1, Section 1.3.2 Text updated as follows *“These EPCs were then evaluated in reasonable maximum exposure (RME) scenario for receptors including an industrial worker, a construction worker, an adolescent trespasser, and a daycare center child. The results of the risk assessment indicate that HIs (non-carcinogenic risks) to all industrial receptors were below the USEPA acceptable limits (i.e., HI of 1 or less). The cancer risk for the industrial worker, construction worker, and adolescent trespasser were each in USEPA’s targeted cancer risk range of 10^{-4} - 10^{-6} or less, while the cancer risk determined for the daycare center child was 1×10^{-4} .”*

Comment 10: Page M-5, Sec 5.2, last para: The statements are not true for arsenic.

Army Response to Comment 10: The second paragraph has been revised as follows: *“Arsenic is an exception, and the Table 375-6.8 unrestricted value is lower (more restrictive) than the TAGM #4046... Additionally, in September 2017, USEPA revised the toxicity values used to evaluate the risk and hazard associated with exposure to benzo(a)pyrene and other PAHs. These revisions have the result of increasing the values of the cleanup levels for most of these PAHs, therefore the cleanup goals are less restrictive, with the exception of naphthalene. Table M.5.1 summarizes the change in the screening levels and potential cleanup levels listed as ARARs in the Final ROD. A review of the risk assessment results presented in the ROD show that PAHs contributed to 86% of the cancer risk to the on-site daycare child; since the screening levels for these PAHs are currently less restrictive by at least 10-fold, the risk due to PAHs will be significantly reduced. The screening level for arsenic is more restrictive, but since that accounts for only 14% of the risk reported in the ROD for this scenario, the screening level change will likely not increase the overall risk when combined with the PAHs.”*

Comment 11: Page N-5, 2nd sentence: The statement is not true for Indeno(1,2,3-cd)pyrene, ROD value was 3.2 mg/kg and the current DEC SCO is 0.5 mg/kg.

Army Response to Comment 11: The UCL for indeno(1,2,3-cd)pyrene used in the risk assessment exceeded the screening value, and therefore, was included in the risk assessment presented in the ROD for SEAD-40. The PAHs did not generate a risk to human health. Therefore, even if the screening value is now lower (more conservative), it would not change the outcome of the risk assessment since the PAHs were already included in the risk assessment calculations.

The second sentence in the second paragraph has been revised as follows: *“These revisions have the result of changing the values of the cleanup levels for these compounds, where some of the cleanup goals are less restrictive while some are more restrictive.”*

The third paragraph has been revised as follows: *“PAHs were screened and included as part of the HHRA, and they did not cause a risk to human health. As such, PAH screening values*

*that are now more restrictive would not impact the outcome of the risk assessment. As a result, the cleanup levels and RAOs from earlier RODs **are considered still valid.***

Comment 12: Page O-1, sec 1.3.2: Please identify the scenario used in the risk calculations, does the term "all receptors" include an assessment of residential use? It doesn't appear so based on the LUCs required but the description in this section should be clearer.

Army Response to Comment 12: Text updated as follows *"The human health risk assessment evaluated industrial (i.e., industrial worker, construction worker, daycare center child, daycare center worker) and residential (adult resident, child resident, and lifetime resident) receptors."*

Comment 13: Table O.5.1, Arsenic, last column: The ROD value of 8.24 for arsenic is lower than the SCO of 13, so this should be flagged "N".

Army Response to Comment 13: In Table O.5.1, the last column asks if the newly promulgated screening levels or cleanup goals are LESS than those used in the ROD. Comment 13 is referring to the cleanup levels only but the former screening level for arsenic is 8.24 and the current screening level is 0.68. Therefore, the table is accurate.

Comment 14: Page P-4, sec 5.1, 3rd para, 2nd: Please clarify the intent of this sentence.

Army Response to Comment 14: The sentence has been revised to replace "period" with "periodic".

Comment 15: Page R-4, sec 5.1, 1st para, last sentence: "the remedy" appears twice. Please fix typo.

Army Response to Comment 15: Text has been updated.

Comment 16: Page T-4, sec 5.1, 3rd para, 2nd sentence: Please clarify the intent of this sentence.

Army Response to Comment 16: Refer to response to Additional Comments, Comment 14.

Comment 17: Page W-1, sec 1.3.2: Specify the exposure scenario used.

Army Response to Comment 17: Page W-1, Section 1.3.2, text updated as follows *"The risk assessment evaluated risk to receptors under the Institutional future land use scenario (i.e., construction worker, adult resident, child resident, and lifetime resident)."*

Comment 18: Page Z-8, sec 4.2: Is there a summary data table?

Army Response to Comment 18: Refer to response to Hydrogeologist Comments, Comment 3.

END OF COMMENTS

Army's Response to Comments from the New York State Department of Environmental Conservation

Subject: Draft Final 2021 Five Year Review

Seneca Army Depot

NYSDEC Site No. 850006

Romulus, New York

Comments Dated: 22 June 2021

Date of Comment Response: 19 August 2021

NYSDEC COMMENTS

Comment 1: General: Throughout the report, it states that no interviews were conducted as property is unoccupied and uninhabited. However, these properties are owned and may be in use in other ways. Interviews should have been conducted with property owners and entities that make use of those properties, even though they do not occupy those properties.

Army Response to Comment 1: Acknowledged. Interviews will be conducted and reported in future Five Year Review reports. Please note that during the preparation of these response to comments, the project team did perform interviews of Earl Martin and Michael Palumbo, and are willing to share a summary of the information obtained.

Comment 2: General: In each Appendix, an Institutional Controls Summary Table is present for those properties with institutional controls. The column labeled "ICs Needed" is in some instances in disagreement with the column "ICs called for in the Decision Document". In most instances, the data to support this recommendation/ conclusion drawn by the USACE is not well supported or documented further. Should this column remain in the report then these appendices should contain further supporting information for the "ICs Needed" column.

Army Response to Comment 2: The intention of this table "A.2.1" is to describe the current ICs (which were established in the ROD) and the basis for those ICs at the time they were imposed; and specifically to elucidate if an IC is in place because of a risk or exceedance of ARARs or merely because of its geographic location. This table 100% reflects information from when the ROD was signed, and nothing more recent than that.

A sentence has been added to the end of the second paragraph under Section 2.2 of each appendix: *"A summary of the institutional controls currently implemented at SEAD-40 is presented in **Table N.2.1** based on the data and risk presented in the ROD and the LUC RD."*

The titles of the second and third columns have been revised and footnotes have been added to each table to provide clarity, as needed. The second column heading was changed from "ICs Needed?" to "Were media of concern identified in the ROD?"; The third column heading was changed from "ICs called for in the Decision Document?" to "Were ICs Implemented in the ROD"? For an example, Table N.2.1 is provided below:

Table N.2.1: Institutional Controls Summary Table

Media, engineered controls, and area that do not support UU/UE based on current conditions	Were media of concern identified in the ROD?	Were ICs Implemented in the ROD?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	No ⁽¹⁾	Yes ⁽³⁾	SEAD PID/ Warehousing Area	Restrict site use.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant, zoning
Groundwater	Unknown ⁽²⁾	Yes ⁽³⁾	SEAD PID/ Warehousing Area	Restrict use of groundwater.	Environmental Easement, Deed Restriction, CERCLA Section 120(h)(3) notice and covenant

Note:

(1) Results from the 2003 TCRA determined that further excavation would not be necessary at SEAD-40 (Parsons, 2002b); 2007a).

(2) Groundwater samples were not collected and therefore, risk to human health from groundwater was not evaluated.

(3) SEAD-40 is located within the PID/Warehouse Area where an area-wide IC is present. This IC prohibits use or access to groundwater and prohibits land use for residential housing, elementary and secondary schools, childcare facilities and playground activities. Although no risk was identified within the soil and risk is unknown with respect to groundwater, this site is physically located within the boundary of the PID/Warehouse area, and therefore, the ICs are applied to this site.

Comment 3: Appendix H: SEAD-25, Section 6.0: The recommendations presented in the report were commented on by NYSDEC in a letter dated 4/9/2021.

Army Response to Comment 3: Acknowledged. This will be addressed in the Annual Report and the text has been updated to reflect that.

Comment 4: Appendix L: SEAD-66, Section 1.3.2: To make the statement that the maximum concentration of 4,4'-DDT in the soil is an outlier, additional samples results should be presented to statistically show this.

Army Response to Comment 4: Acknowledged. The sample was identified as an outlier compared to the other eight samples collected. Collection of new soil samples will be a part of any effort by the Army to reevaluate the site conditions and the need for the ICs.

END OF COMMENTS