U.S. ARMY ENGINEER DIVISION
HUNTSVILLE, ALABAMA

00908

DRAFT FINAL

DECISION DOCUMENT FOR REMOVAL ACTIONS AT SWMUs SEAD-11, SEAD-25, SEAD-26, SEAD-38, SEAD-39, SEAD-40, AND SEAD-41, SENECA ARMY DEPOT ACTIVITY

AUGUST 1995

COMMENTS AND RECOMMENDATIONS
PRE-DRAFT DECISION DOCUMENT FOR REMOVAL ACTION AT SWMU'S
SEAD-11, SEAD-25, SEAD-26, SEAD-38,
SEAD-39, SEAD-40, AND SEAD-41
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NY
JANUARY 1995

Comment #1

Page 1-5, Section 1.4, K. Hoddinott - Discussion of Removal Alternatives - SEAD-11.

While low temperature thermal desorption has been demonstrated to be effective for petroleum contaminated soils, the discussion of the results of this site's sampling has not shown that this site has petroleum contaminated soils. The site's largest problem is metals contamination. Thermal desorption is not effective with metals. The other contaminants are VOC's and SVOC's, which can be derived from sources other than petroleum.

Recommendation: Maybe part of the discussion section is missing, otherwise, it seems that soil washing would be more effective.

Response #1

Agree. Soil washing is an EPA-approved effective remedial technology for hazardous waste sites like SEAD-11 which contain metals-impacted soils. The text has been revised to recommend soil washing.

Since the results of the Expanded Site Investigation (ESI) performed in 1993 recommended further study at SEAD-11, remedial action has been postponed at SEAD-11 until the completion of the current RI/FS.

Comment #2

Page 3-1, Section 3.2.1, 1LT Clemens - Site Description.

Condition of 24 tanks removed from the site in October 1994 is not stated, and their location is not shown in any map of the site.

Recommendation: State condition of 24 tanks removed from the site in October 1994, and show their location on the site maps.

Response #2

Agree. While the exact location of each of the 24 tanks removed from SEAD-26 is unknown, they were stored in the southern region of the site shown on the site map (Figure 1) as the drum storage area.

Tanks were removed from various areas within SEDA and brought to SEAD-26 because they either failed a leakage test or were scheduled for removal through SEDA's tank upgrade program. The condition of the tanks probably ranged from intact to poor. The tanks were empty and unclean when they were brought to SEAD-26.

Comment #3

Page 3-6, Section 3.5, 1LT Clemens - Recommendations.

It is unclear in the RI/FS and other documents related to SEAD-26 if the underground storage tank area will be investigated further.

Recommendation: Show location of USTs on site and sample maps. Discuss approach for determining extent of any potential releases from the USTs.

Response #3

Agree. The drum storage area as well as the remainder of SEAD-26 will be investigated further as part of a remedial investigation and feasibility study (RI/FS). The details of this investigation are presented in the Draft Final SEAD-25 and SEAD-26 Project Scoping Plan for performing a CERCLA Remedial Investigation/Feasibility Study (RI/FS) at the Fire Training and Demonstration Pad (SEAD-25) and Fire Training Pit and Area (SEAD-26), issued in July, 1995 by Parsons Engineering Science. Sample maps, location of the USTs, and the approach for determining the extent of potential releases are presented in the scoping plan.

Comment #4

Page 3-6, Section 3.5, K. Hoddinott - Recommendations - SEAD-26.

It is not clear in the discussion why $6 million for remedial action at this site is too expensive, but not too expensive for SEAD-25.

Recommendation: Clarify the discrepancy between the recommendations at SEAD-25 and SEAD-26.

Response #4

Agree. The $6 million mentioned on pages 2-5 and 3-6 is the estimated cost of treatment to impacted soils at the Ash Landfill using low temperature thermal desorption. This estimate was used to determine a unit cost ($250/cubic yard (CY)) for the low temperature thermal desorption remedial method.

This unit cost was applied to proposed remediation at other sites. The estimated total cost of remediating the impacted soil from SEAD-25 is $550,000 based on a 2,200 CY volume of soil. For SEAD-26, the estimated cost of remediation is $2,500,000 based on a 10,000 CY volume of soil.

Recommendations differ between SEAD-25 and SEAD-26 because the known extent of soil contamination differs. The volumes of soil to be remediated are determined by this known extent of contamination.

Since the extent of impacted soil at SEAD-26 has not been clearly defined, the recommendation of this report is to postpone any remedial action until a RI/FS has been conducted.

Comment #5

Page 4-1, Section 4.2.1, 1LT Clemens - Site Description.

Details discussed in text do not appear on site crude map.

Recommendation: Redraft site map at a larger scale and include details discussed in text.

Response #5

Agree. Figure 1 in Section 4 has been modified to better reflect the written description in Section 4.2.1.

Comment #6

Page 4-1, Section 4.2.2, 1LT Clemens - Site History.

Site chronology and past operations are too vague. When was the boiler built and how long did it operate? What is the estimated contaminant type and concentration in blowdown?

Recommendation: Determine dates of operation for the boiler. Estimate the contaminant type and concentration in blowdown.

Response #6

Agree. A review of existing engineering drawings and extensive discussions with SEDA personnel, indicated that the historic details of boiler installation, startup, operation, and blowdown chemistry are unavailable. Building 2079 was built just prior to SEDAs opening in the fall of 1942. A conservative assumption is that the boiler was in operation 24 hours a day, 365 days per year, since that time until 1980.

In 1971, a Peabody Oil burner (Model PK-54) possibly existed at Bldg. 2079. The boiler was probably a low pressure steam boiler which burned No.5 fuel oil.

These types of boilers blowdown steam-line residue containing a variety of solid and dissolved constituents. Such constituents could include sodium, silica, iron, copper, sulfites, phosphates, and other chemicals added in varying concentrations to the water to facilitate boiler operation. Boilers at SEDA typically contained tannis, caustic soda (sodium hydroxide), and sodium phosphate, as mentioned in Section 4.2.2.

Comment #7

Page 4-4, Section 4.5, 1LT Clemens - Recommendations.

Area sampled, site history, and estimated volume of disposed liquid does not support the estimate for removing only 15 cubic yards of contaminated soil. What is the extent of the contamination?

Recommendation: Determine where contamination drops below TAGM values. Support estimated volume of contaminated soil to be removed with a contaminant concentration map and more detailed site history. These steps will greatly reduce cost.

Response #7

Agree. An extensive amount of data and site history are not available for SEAD-38. The Army initially assigned a No Action classification to SEAD-38. After a review of the site, NYSDEC disagreed with the No Action classification since data was not available and the presence of a leaching pit suggested a potential disposal area. NYSDEC and the Army agreed to conduct a limited soil sampling program to collect samples at the leaching area, providing data necessary for a final SWMU classification. If the results of the chemical analysis failed to detect the presence of hydrocarbons then NYSDEC would agree with the No Action classification.

Soil samples were collected from the blowdown leaching area shown on the site drawing and were analyzed for TRPH, a cost effective analysis typically indicative of other organic compounds.

The TRPH soil analysis results did indicate the presence of TRPH, causing the site to be considered a potential threat to human health, welfare, or the environment and not a No Action SWMU. By definition, all non-No Action SWMUs are Areas of Concern (AOCs). In accordance with the decision process outlined in the Federal Facilities Agreement (FFA), if an AOC is determined to potentially pose a threat to human health, welfare, or the environment, the Army can either perform a removal action to eliminate that threat, or it can conduct a CERCLA Remedial Investigation (RI).

The determination of whether a threat exists at an AOC is based upon the comparison of collected data with available State and Federal standards, guidelines, and criteria. Exceedences of those appropriate standards, guidelines, or criteria may show that a threat exists. Although NYSDEC does not have a TAGM value for TRPH in soil, the NYSDEC guidance document *Spill Technology and Remediation Series (STARS) Memo #1* states that any detection of petroleum hydrocarbons in soil requires a removal action.

A removal action has been proposed for SEAD-38 as the most cost effective alternative because the site is small and the location of the blowdown leaching area is well defined. The blowdown leaching area is a drainage ditch which received blowdown liquids from a discharge pipe. Part of the removal action will include sampling from the excavation walls to confirm all contaminated material has been removed. Although a volume of 15 CY of soil has been estimated for removal, the actual volume of soil to be removed will be based on the results of the confirmatory sampling as described in Section 4.7 of this report.

The quantity of samples at SEAD-38 does not provide enough data points to construct an accurate contaminant concentration map. A concentration contour map of this site would involve interpolation and could not accurately depict the actual zones of TRPH impacted soils.

Comment #8

Page 5-1, Section 5.2.1, 1LT Clemens - Site Description.

Details discussed in text do not appear on site crude map.

Recommendations: Redraft site map at a larger scale and include details discussed in text.

Response #8

Agree. Figure 1 in Section 5 has been modified to better reflect the written description in Section 5.2.1.

Comment #9

Page 5-1, Section 5.2.2, 1LT Clemens - Site History.

Site chronology and past operations are too vague. When was the boiler built and how long did it operate? What is the estimated contaminant type and concentration in blowdown?

Recommendation: Determine dates of operation for the boiler. Estimate the contaminant type and concentration in blowdown.

Response #9

Agree. A review of existing engineering drawings and extensive discussions with SEDA personnel, indicated that the historic details of boiler installation, startup, operation, and blowdown chemistry are unavailable. Building 121 was built just prior to SEDAs opening in the fall of 1942. A conservative assumption is that the boiler was in operation 24 hours a day, 365 days per year, since that time up until 1980. The boiler was probably a low pressure steam boiler which burned No.5 fuel oil.

These types of boilers blowdown steam-line residue containing a variety of solid and dissolved constituents. Such constituents could include sodium, silica, iron, copper, sulfites, phosphates, and other chemicals added in varying concentrations to the water to facilitate boil operation. Boilers at SEDA typically contained tannis, caustic soda (sodium hydroxide), and sodium phosphate, as mentioned in Section 5.2.2.

Comment #10

Page 5-3, Section 5.3.2, 1IT Clemens - Results of Sampling Program.

Area sampled site history, and estimated volume of disposed liquid does not support the estimated area of contamination.

Recommendation: Determine where contamination drops below TAGM values. Support estimated volume of contaminated soil to be removed with a contaminant concentration map, additional sampling and more detailed site history. These steps will greatly reduce cost.

Response #10

Agree. An extensive amount of data and site history are not available for SEAD-39. The Army initially assigned a No Action classification to SEAD-39. After a review of the site, NYSDEC disagreed with the No Action classification since data was not available and the presence of a leaching pit suggested a potential disposal area. NYSDEC and the Army agreed to conduct a limited soil sampling program to collect samples at the leaching area, providing data necessary for a final SWMU classification. If the results of the chemical analysis failed to detect the presence of hydrocarbons then NYSDEC would agree with the No Action classification.

Soil samples were collected from the blowdown leaching area shown on the site drawing and were analyzed for TRPH, a cost effective analysis typically indicative of other organic compounds.

The TRPH soil analysis results did indicate the presence of TRPH, causing the site to be considered a potential threat to human health, welfare, or the environment and not a No Action SWMU. By definition, all non-No Action SWMUs are Areas of Concern (AOCs). In accordance with the decision process outlined in the Federal Facilities Agreement (FFA), if an AOC is determined to potentially pose a threat to human health, welfare, or the environment, the Army can either perform a removal action to eliminate that threat, or it can conduct a CERCLA Remedial Investigation (RI).

The determination of whether a threat exists at an AOC is based upon the comparison of collected data with available State and Federal standards, guidelines, and criteria. Exceedences of those appropriate standards, guidelines, or criteria may show that a threat exists. Although NYSDEC does not have a TAGM value for TRPH in soil, the NYSDEC guidance document *Spill Technology and Remediation Series (STARS) Memo #1* states that any detection of petroleum hydrocarbons in soil requires a removal action.

A removal action has been proposed for SEAD-39 as the most cost effective alternative because the site is small and the location of the blowdown leaching area is well defined. The blowdown leaching area is a drainage ditch which received blowdown liquids from a discharge pipe. Part of the removal action will include sampling from the excavation walls to confirm all contaminated material has been removed. Although a volume of 18.5 CY of soil has been estimated for removal, the actual volume of soil to be removed will be based on the results of the confirmatory sampling as described in Section 5.7 of this report.

The quantity of samples at SEAD-39 does not provide enough data points to construct an accurate contaminant concentration map. A concentration contour map of this site would involve interpolation and could not accurately depict the actual zones of TRPH impacted soils.

Comment #11 Page 6-1, Section 6.2.1, 1LT Clemens - Site Description.

Details discussed in text do not appear on-site crude map.

Recommendation: Redraft site map at a larger scale and include details discussed in text.

Response #11 Agree. Figure 1 in Section 6 has been modified to better reflect the written description in Section 6.2.1.

Comment #12 Page 6-1, Section 6.2.2, 1LT Clemens - Site History.

Site chronology and past operations are too vague. When was the boiler built and how long did it operate? What is the estimated contaminant type and concentration in blowdown?

Recommendation: Determine dates of operation for the boiler. Estimate the contaminant type and concentration in blowdown.

Response #12 Agree. A review of existing engineering drawings and extensive discussions with SEDA personnel, indicated that the historic details of boiler installation, startup, operation, and blowdown chemistry are unavailable. Building 319 was built just prior to SEDAs opening in the fall of 1942. A conservative assumption is that the boiler was in operation 24 hours a day, 365 days per year, since that time up until 1980. The boiler was probably a low pressure steam boiler which burned No.5 fuel oil.

These types of boilers blowdown steam-line residue containing a variety of solid and dissolved constituents. Such constituents could include sodium, silica, iron, copper, sulfites, phosphates, and other chemicals added in varying concentrations to the water to facilitate boil operation. Boilers at SEDA typically contained tannis, caustic soda (sodium hydroxide), and sodium phosphate, as mentioned in Section 6.2.2.

Comment #13 Page 6-4, Section 6.5, 1LT Clemens - Recommendations.

Area sampled, site history, and estimated volume of disposed liquid does not support the estimate for removing only 15 cubic yards of contaminated soil. What is the extent of the contamination?

Recommendation: Determine where contamination drops below TAGM values. Support estimated volume of contaminated soil to be removed with a contaminant concentration map and more detailed site history. These steps will greatly reduce cost.

Response #13

Agree. An extensive amount of data and site history are not available for SEAD-40. The Army initially assigned a No Action classification to SEAD-40. After a review of the site, NYSDEC disagreed with the No Action classification since data was not available and the presence of a leaching pit suggested a potential disposal area. NYSDEC and the Army agreed to conduct a limited soil sampling program to collect samples at the leaching area, providing data necessary for a final SWMU classification. If the results of the chemical analysis failed to detect the presence of hydrocarbons then NYSDEC would agree with the No Action classification.

Soil samples were collected from the blowdown leaching area shown on the site drawing and were analyzed for TRPH, a cost effective analysis typically indicative of other organic compounds.

The TRPH soil analysis results did indicate the presence of TRPH, causing the site to be considered a potential threat to human health, welfare, or the environment and not a No Action SWMU. By definition, all non-No Action SWMUs are Areas of Concern (AOCs). In accordance with the decision process outlined in the Federal Facilities Agreement (FFA), if an AOC is determined to potentially pose a threat to human health, welfare, or the environment, the Army can either perform a removal action to eliminate that threat, or it can conduct a CERCLA Remedial Investigation (RI).

The determination of whether a threat exists at an AOC is based upon the comparison of collected data with available State and Federal standards, guidelines, and criteria. Exceedences of those appropriate standards, guidelines, or criteria may show that a threat exists. Although NYSDEC does not have a TAGM value for TRPH in soil, the NYSDEC guidance document *Spill Technology and Remediation Series (STARS) Memo #1* states that any detection of petroleum hydrocarbons in soil requires a removal action.

A removal action has been proposed for SEAD-40 as the most cost effective alternative because the site is small and the location of the blowdown leaching area is well defined. The blowdown leaching area is a drainage ditch which received blowdown liquids from a discharge pipe. Part of the removal action will include sampling from the excavation walls to confirm all contaminated material has been removed. Although a volume of 12.5 CY of soil has been estimated for removal, the actual volume of soil to be removed will be based on the results of the confirmatory sampling as described in Section 6.7 of this report.

The quantity of samples at SEAD-40 does not provide enough data points to construct an accurate contaminant concentration map. A concentration contour map of this site would involve interpolation and could not accurately depict the actual zones of TRPH impacted soils.

Comment #14 Page 7-1, Section 7.2.1, 1LT Clemens - Site Description.

Details discussed in text do not appear on-site crude map.

Recommendations: Redraft site map at a larger scale and include details discussed in text.

Response #14 Agree. Figure 1 in Section 7 has been modified to better reflect the written description in Section 7.2.1.

Comment #15 Page 7-1, Section 7.2.2, 1LT Clemens - Site History.

Site chronology and past operations are too vague. When was the boiler built and how long did it operate? What is the estimated contaminant type and concentration in blowdown?

Recommendation: Determine dates of operation for the boiler. Estimate the contaminant type and concentration in blowdown.

Response #15 Agree. A review of existing engineering drawings and extensive discussions with SEDA personnel, indicated that the historic details of boiler installation, startup, operation, and blowdown chemistry are unavailable. Building 718 was built just prior to SEDAs opening in the fall of 1942. A conservative assumption is that the boiler was in operation 24 hours a day, 365 days per year, since that time up until 1980. The boiler was probably a low pressure steam boiler which burned No.5 fuel oil.

These types of boilers blowdown steam-line residue containing a variety of solid and dissolved constituents. Such constituents could include sodium, silica, iron, copper, sulfites, phosphates, and other chemicals added in varying concentrations to the water to facilitate boil operation. Boilers at SEDA typically contained tannis, caustic soda (sodium hydroxide), and sodium phosphate, as mentioned in Section 7.2.2.

Comment #16 Page 7-4, Section 7.5, 1LT Clemens - Recommendations.

Area sampled, site history, and estimated volume of disposed liquid does not support the estimate for removing only 15 cubic yards of contaminated soil. What is the extent of the contamination?

Recommendation: Determine where contamination drops below TAGM values. Support estimated volume of contaminated soil to be removed with a contaminant concentration map and more detailed site history. These steps will greatly reduce cost.

Response #16

Agree. An extensive amount of data and site history are not available for SEAD-41. The Army initially assigned a No Action classification to SEAD-41. After a review of the site, NYSDEC disagreed with the No Action classification since data was not available and the presence of a leaching pit suggested a potential disposal area. NYSDEC and the Army agreed to conduct a limited soil sampling program to collect samples at the leaching area, providing data necessary for a final SWMU classification. If the results of the chemical analysis failed to detect the presence of hydrocarbons then NYSDEC would agree with the No Action classification.

Soil samples were collected from the blowdown leaching area shown on the site drawing and were analyzed for TRPH, a cost effective analysis typically indicative of other organic compounds.

The TRPH soil analysis results did indicate the presence of TRPH, causing the site to be considered a potential threat to human health, welfare, or the environment and not a No Action SWMU. By definition, all non-No Action SWMUs are Areas of Concern (AOCs). In accordance with the decision process outlined in the Federal Facilities Agreement (FFA), if an AOC is determined to potentially pose a threat to human health, welfare, or the environment, the Army can either perform a removal action to eliminate that threat, or it can conduct a CERCLA Remedial Investigation (RI).

The determination of whether a threat exists at an AOC is based upon the comparison of collected data with available State and Federal standards, guidelines, and criteria. Exceedences of those appropriate standards, guidelines, or criteria may show that a threat exists. Although NYSDEC does not have a TAGM value for TRPH in soil, the NYSDEC guidance document *Spill Technology and Remediation Series (STARS) Memo #1* states that any detection of petroleum hydrocarbons in soil requires a removal action.

A removal action has been proposed for SEAD-41 as the most cost effective alternative because the site is small and the location of the blowdown leaching area is well defined. The blowdown leaching area is a drainage ditch which received blowdown liquids from a discharge pipe. Part of the removal action will include sampling from the excavation walls to confirm all contaminated material has been removed. Although a volume of 4.5 CY of soil has been estimated for removal, the actual volume of soil to be removed will be based on the results of the confirmatory sampling as described in Section 7.7 of this report.

The quantity of samples at SEAD-41 does not provide enough data points to construct an accurate contaminant concentration map. A concentration contour map of this site would involve interpolation and could not accurately depict the actual zones of TRPH impacted soils.

Comments BY: Healy/kwh

Comment #1 Section 2.5, Page 2-6.

Please delete the reference to "SEDA personnel". At this point in time, this is only one alternative being explored.

Response #1 Agree. The reference to "SEDA" personnel performing these tasks has been omitted in the most recent revision of the Decision Document.

Comment #2 Section 4.5, Page 4-5.

Please delete the reference to "SEDA personnel". At this point in time, this is only one alternative being explored.

Response #2 Agree. The reference to "SEDA" personnel performing these tasks has been omitted in the most recent revision of the Decision Document.

Comment #3 Section 4.7, Page 4-5.

It is stated that the soil from SEAD-38 will be treated as a portion of a larger batch of soil (presumably from another site). Please verify that this is appropriate according to RCRA. Also, please verify that disposing of the soil at a unit other than the soils' origination point is appropriate as well.

Response #3 Agree. Treating the impacted soil as a portion of a larger batch of soil from another site is an appropriate measure according to the Code of Federal Regulations (40 CFR 264.552) concerning corrective action management units (CAMUs). Disposing of soil at a unit other than its origin is also appropriate according to the same rule.

Comment #4 Section 5.5, Page 5-5.

Please delete the reference to "SEDA personnel". At this point in time, this is only one alternative being explored.

Response #4 Agree. The reference to "SEDA" personnel performing these tasks has been omitted in the most recent revision of the Decision Document.

Comment #5 Section 5.7, Page 5-5.

It is stated that the soil from SEAD-39 will be treated as a portion of a larger batch of soil (presumably from another site). Please verify that this is appropriate according to RCRA. Also, please verify that disposing of the soil at a unit other than the soils' origination point is appropriate as well.

Response #5 Agree. Treating the impacted soil as a portion of a larger batch of soil from another site is an appropriate measure according to the Code of Federal Regulations (40 CFR 264.552) concerning corrective action management units (CAMUs). Disposing of soil at a unit other than its origin is also appropriate according to the same rule.

Comment #6 Section 6.5, Page 6-5.

Please delete the reference to "SEDA personnel". At this point in time, this is only one alternative being explored.

Response #6 Agree. The reference to "SEDA" personnel performing these tasks has been omitted in the most recent revision of the Decision Document.

Comment #7 Section 6.7, Page 6-5.

It is stated that the soil from SEAD-40 will be treated as a portion of a larger batch of soil (presumably from another site). Please verify that this is appropriate according to RCRA. Also, please verify that disposing of the soil at a unit other than the soils' origination point is appropriate as well.

Response #7 Agree. Treating the impacted soil as a portion of a larger batch of soil from another site is an appropriate measure according to the Code of Federal Regulations (40 CFR 264.552) concerning corrective action management units (CAMUs). Disposing of soil at a unit other than its origin is also appropriate according to the same rule.

Comment #8 Section 7.5, Page 2-5.

Please delete the reference to "SEDA personnel". At this point in time, this is only one alternative being explored.

Response #8 Agree. The reference to "SEDA" personnel performing these tasks has been omitted in the most recent revision of the Decision Document.

Comment #9 Section 7.7, Page 7-5.

It is stated that the soil from SEAD-41 will be treated as a portion of a larger batch of soil (presumably from another site). Please verify that this is appropriate according to RCRA. Also, please verify that disposing of the soil at a unit other than the soils' origination point is appropriate as well.

Response #9 Agree. Treating the impacted soil as a portion of a larger batch of soil from another site is an appropriate measure according to Chapter 40 of the Code of Federal Regulations (40 CFR 264.552) concerning corrective action management units (CAMUs). Disposing of soil at a unit other than its origin is also appropriate according to this rule.

Comment #10 General.

The delivery order Statement of Work (Task 2) requires the preparation of informal plans by which the recommended removals shall be carried out. No specific plans were found during my review. Please verify.

Response #10 Agree. The preparation of plans specified in the Statement of Work have been included with the latest revision of the Decision Document.

D#13

DECISION DOCUMENT FOR REMOVAL ACTIONS AT SWMUs SEAD-11, SEAD-25, SEAD-26, SEAD-38 SEAD-39, SEAD-40 AND SEAD-41, SENECA ARMY DEPOT ACTIVITY

Prepared for:

Seneca Army Depot Activity
Romulus, New York

Prepared by:

Parsons Engineering Science, Inc.
Prudential Center
Boston, Massachusetts

727023

AUGUST 1995

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT)

TABLE OF CONTENTS
(CONT)

1.0 DECISION DOCUMENT FOR REMOVAL ACTION AT SEAD-11

1.1 EXECUTIVE SUMMARY

An Expanded Site Inspection performed at SEAD-11, The Old Construction Debris Landfill, at Seneca Army Depot Activity (SEDA) in Romulus, NY demonstrated that a release of hazardous constituents has occurred. Because the extent of the impacted soil is not clearly defined, it is recommended that no immediate action be taken to remediate the soil at SEAD-11. It is recommended instead that the soil be further investigated as part of a Remedial Investigation/Feasibility Study.

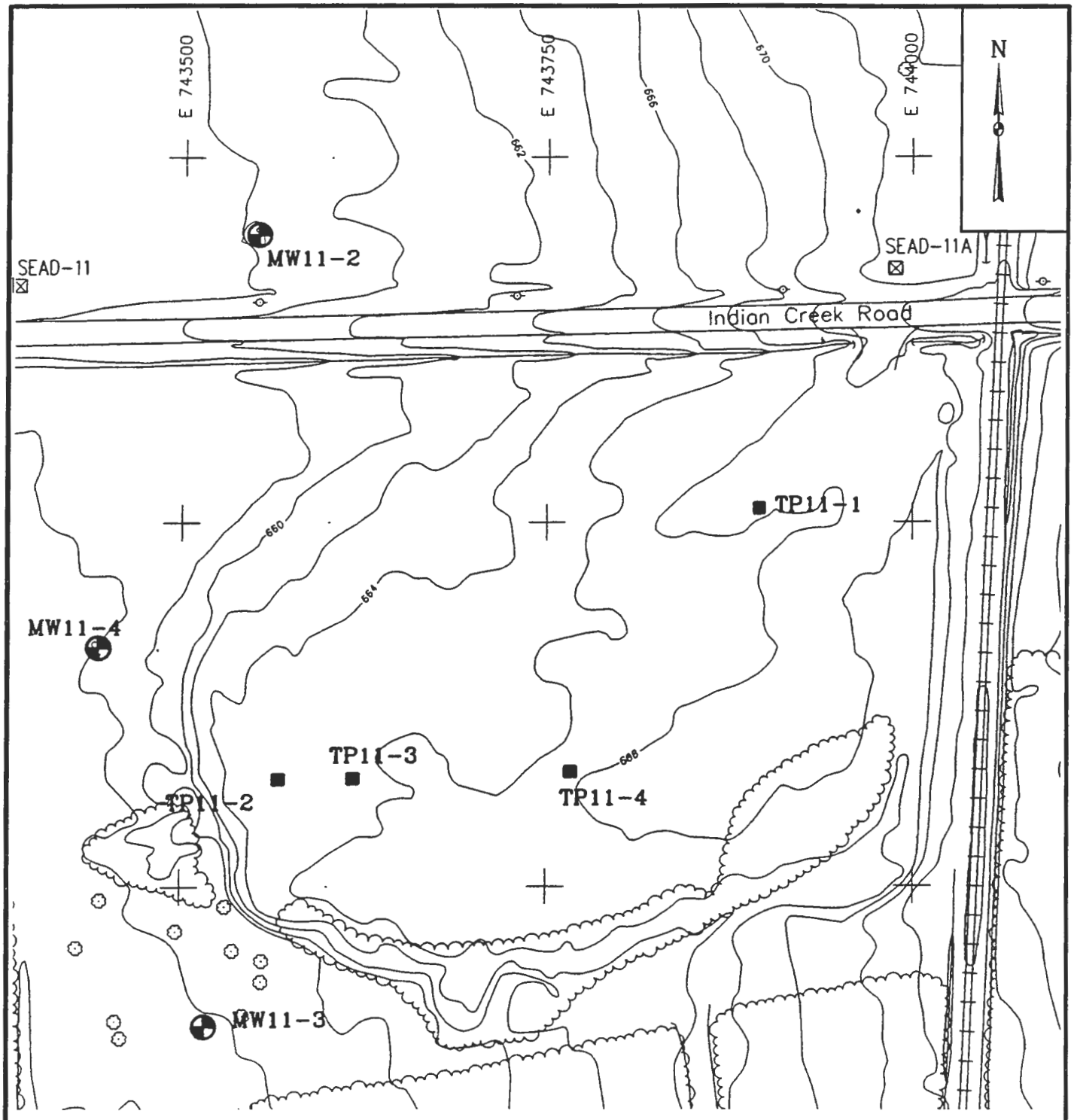
1.2 SITE BACKGROUND

1.2.1 Site Description

SEAD-11, the Old Construction Debris Landfill, is located in the southwestern portion of Seneca Army Depot Activity (SEDA) immediately southwest of the intersection of Indian Creek Road and the SEDA railroad tracks. There are no developed portions of the site. A topographic site map of SEAD-11 is shown in Figure 1.

The site is bound to the east by SEDA railroad tracks beyond which is a steep upward scarp and a gently westward sloping field with grass and low brush. South of the site is dense low brush. West of the site is a grass field that ends at the fenced SEDA boundary located approximately 700 feet west of the "toe" of the landfill. The site is bound to the north by Indian Creek Road.

The relief of the landfill is well defined and mimics the generally west-sloping regional topography of the area. However, on the landfill surface, the topography slopes mostly to the northwest. The apparent thicker fill in the southern and western portions of the landfill results in steep scarps on the southern and southwestern sides of the landfill and more gently sloping hills on the northern and northwestern sides. While the majority of the landfill surface is grass-covered,the southern perimeter of the landfill is vegetated with deciduous trees. The southern and southwestern scarps of the landfill are characterized by assorted construction debris including metal and wood.



LEGEND

- TEST PIT
- MONITORING WELL
- RAILROAD TRACKS
- BRUSHLINE
- DECIDUOUS TREE
- SURVEY MONUMENT

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT

DECISION DOCUMENT FOR REMOVAL ACTION
SEAD-11

DEPT.	DWG NO.
ENVIRONMENTAL ENGINEERING	727023-01001

FIGURE 1

SITE MAP AND
EXPANDED SITE INSPECTION
SAMPLE LOCATIONS

SCALE	DATE
1" = 100'	AUGUST 1995

H:\ENG\SENECA\DECISION\VOLATILE\COMMENT\SEAD11.CDR

Access to the site is provided via a dirt road which enters the site approximately 50 feet west of the intersection of Indian Creek Road and the SEDA railroad tracks. Within SEDA, pedestrian and vehicular access to the site is restricted since the site is located within the ammunition storage area.

1.2.2 Site History

The Old Construction Debris Landfill (SEAD-11) was active from 1946 to 1949 although the operating practices are unknown. The landfill, which covers approximately 4 acres (590 feet by 300 feet), is currently abandoned and the surface is vegetated with grasses and weeds.

1.3 PREVIOUS INVESTIGATIONS

1.3.1 Description of Sampling Program

In 1993, an Expanded Site Inspection was performed at SEAD-11 to obtain evidence of a release of hazardous constituents. A seismic refraction survey was performed to determine the direction of groundwater flow. Electromagnetic and ground-penetrating radar surveys were conducted to delineate the limits of the landfill and to determine if any buried metallic objects were present within the landfill. A soil gas survey was performed on the fill area to determine if concentrations of volatile organic compounds (VOCs) were present in the fill soil gas. Soil gas samples were obtained from 31 locations across the landfill. One background soil boring was advanced and three soil samples from the boring were submitted for chemical analysis. Four test pits were excavated to the base of the landfill debris to observe the type of material present in the landfill and obtain soil samples. The four test pits were located at geophysical or soil gas anomalies. Three soil samples from each test pit (a total of 12 samples) were submitted for chemical analysis. Four monitoring wells were installed in the till and weathered shale aquifers. One monitoring well was installed upgradient of SEAD-11 to obtain background water quality data and three were installed downgradient of the landfill. One sample from each monitoring well was submitted for chemical analysis. The sample locations are shown in Figure 1.

All the samples were analyzed for the following: the Target Compound List (TCL) VOCs, semivolatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), and Target Analyte List (TAL) metals and cyanide according to the New York State Department of Environmental Conservation (NYSDEC) Contract Laboratory Program (CLP) Statement of Work (SOW). Explosive compounds were analyzed by Environmental Protection Agency (EPA) Method

8330, herbicides were analyzed by EPA Method 8150, nitrates were analyzed by EPA Method 352.2, and total recoverable petroleum hydrocarbons (TRPH) were analyzed by EPA Method 418.1. The thirty-one soil gas samples were collected from the fill area and analyzed for VOCs using a portable Photovac 10S50 gas chromatograph.

1.3.2 Results of Sampling Program

Soil at the site has been impacted primarily by SVOCs and metals. Although two areas on the landfill showed elevated concentrations of VOCs in soil gas, the significance of the VOC impacts has not been fully determined based on the investigations performed to date. Other constituents that were detected, but are considered to be of less significance, include pesticides, PCBs, herbicides, nitroaromatics, and nitrate/nitrite nitrogen. These constituents are not considered to be significant because they are either present at low concentrations and/or only a small number of samples exceed or slightly exceed their respective Technical and Administrative Guidance Memorandum (TAGM) values.

A total of 19 SVOCs were found at varying concentrations in the soil samples analyzed. With the exception of bis(2-ethylhexyl)phthlate, all of the SVOCs detected were polynuclear aromatic hydrocarbons (PAHs), which are derived from petroleum products. Eight soil samples exceeded the TAGM values for benzo(a)anthracene, chrysene, benzo(b)fluoranthene, and benzo(k)fluoranthene. Eleven soil samples exceeded the TAGM values for benzo(a)pyrene and dibenz(a,h)anthracene. The highest concentrations were found in soil samples collected from the test pits (TP11-2, TP11-3,and TP11-4) with almost all maximum concentrations found in soil sample TP11-2.2 which was collected on the west side of the landfill at a depth of approximately 8 feet.

Of the 22 metals reported in soil, 17 of these were found in one or more samples at concentrations above their TAGM values. Several metals were identified at highly elevated concentrations at or above the TAGM value. Of particular note are the metals copper and zinc, where a large percentage of the samples exceed the TAGM values and where the concentrations of the exceedances are generally an order of magnitude or greater above the TAGM value. The maximum concentration of copper, 1,090 mg/kg, was identified in the soil sample TP11-3.1 which was collected in the center of the landfill at a depth of approximately 1 foot. This sample

also had an elevated concentration of zinc (1,250 mg/kg). The maximum concentration of zinc, 7,980 mg/kg, was identified in soil sample TP11-1.2 which was collected on the east side of the landfill at a depth of approximately 3 feet.

Groundwater at the site appears to have been impacted by metals. No VOCs, SVOCs, pesticides and PCBs, herbicides, nitrate/nitrite, and nitroaromatics were detected in any of the wells.

Four metals, iron, lead, magnesium, and sodium were found in one or more of the groundwater samples at concentrations above the criteria value. Other than lead, the three remaining metals are not considered to represent a significant health risk. Lead was detected in one well, MW11-3, at a concentration of 33.7 μg/L, which is over the NYSDEC Class GA groundwater standard of 25 μg/L.

The most noteworthy result of the soil gas survey was the presence of two areas on the landfill where elevated concentrations of VOCs in soil gas were found. Although the areas impacted by VOCs appear to be limited according to the soil gas survey, the landfill has not been investigated to the extent that the significance of the impacts can be fully determined.

1.4 DISCUSSION OF REMOVAL ALTERNATIVES

A number of removal alternatives/technologies are available for the treatment of petroleum and metals-impacted soils at SEAD-11. These are:

1. land treatment
2. bioventing
3. vapor extraction
4. off-site disposal
5. soil washing
6. low temperature thermal desorption

Of these six, the technology that best addresses the situation at SEAD-11 is soil washing. Soil washing is a treatment option applicable to soil contaminated with metals and SVOCs.

In the process, soil is slurried with water and subjected to intense scrubbings. To improve the efficiency of soil washing, the process may include the use of surfactants, detergents, chelating agents or pH adjustment. After contaminants are removed from the soil, the washing solutions

can be treated in a wastewater treatment system. The washing fluid can then be recycled, continuing the soil washing process.

Certain site factors can limit the success of soil washing:

1. Highly variable soil conditions,
2. High silt or clay content which will reduce percolation and leaching, and inhibit the solid-liquid separations following the soil washing,
3. Chemical reactions with soil cation exchange and pH effects may decrease contaminant mobility and,
4. If performed in-situ, the groundwater flow must be well defined in order to recapture washing solutions.

Because it has been demonstrated that the groundwater at SEAD-11 has been impacted by the release of metals fromthe landfill, a Remedial Investigation/Feasibility Study (RI/FS) Workplan (a Pre-draft) is currently being prepared to address this probelm, as well as toher potential impacts tot he site media. If soil washing can be demonstrated to be a cost-effective mthod of remediating the impacted soil at SEAD-11, then this would be the preferred method of remediation. If it is not cost-effective, then there willbe no imediate action and the remediato of the soil, as well as the groundwater, will be addresses in the RI/FS Workplan.

1.5 RECOMMENDATIONS

Continue to implement the RI/FS.

Do not perform the removal action at this time.

1.6 JUSTIFICATIONS

The total volume of soil that would need to be removed from SEAD-11 to sufficiently remediate the source of the constituents of concern would be approximately 36,000 CY. An area 500 by 300 would need to be excavated to an average depth of nine feet across the landfill.

A large number of vendors provide soil washing services. The treatment processes used vary according to the scale of the operation, particle size being treated, and extraction agent used. Because the operation is unique for each sit, it is difficult to arrive at a cost estimate. However,

in an evaluation of fourteen companies offering soil washing treatment services, a general price range of $50 to $205 per ton was noted in EPA Engineering Bulletin EPA/540/2-90/017, September 1990.

Because the lateral and vertical extent of the PAH and metal impacts is not completely understood, and the significance of the VOC impacts have not been not fully determined, implementing a remedial program of this magnitude would be premature. The health and safety considerations involved in excavating a landfill also contribute to the recommendation not to remediate the soil by soil washing.

1.7 POST-REMOVAL VERIFICATION SAMPLING

No post-removal verification sampling is proposed at this time.

A Remedial Investigation will be performed at SEAD-11 to further characterize the nature and extent of impacts to the soil and groundwater at SEAD-11.

2.0 DECISION DOCUMENT FOR REMOVAL ACTION AT SEAD-25

2.1 EXECUTIVE SUMMARY

An Expanded Site Inspection performed at SEAD-25, the Fire Training and Demonstration Pad, at Seneca Army Depot Activity (SEDA) in Romulus, NY demonstrated that a release of petroleum hydrocarbons (aromatic and aliphatic compounds) has occurred. It is recommended that 2,200 cubic yards of soil be removed from the Demonstration Pad and then treated at the rotary kiln incinerator currently being operated at the Ash Landfill at SEDA.

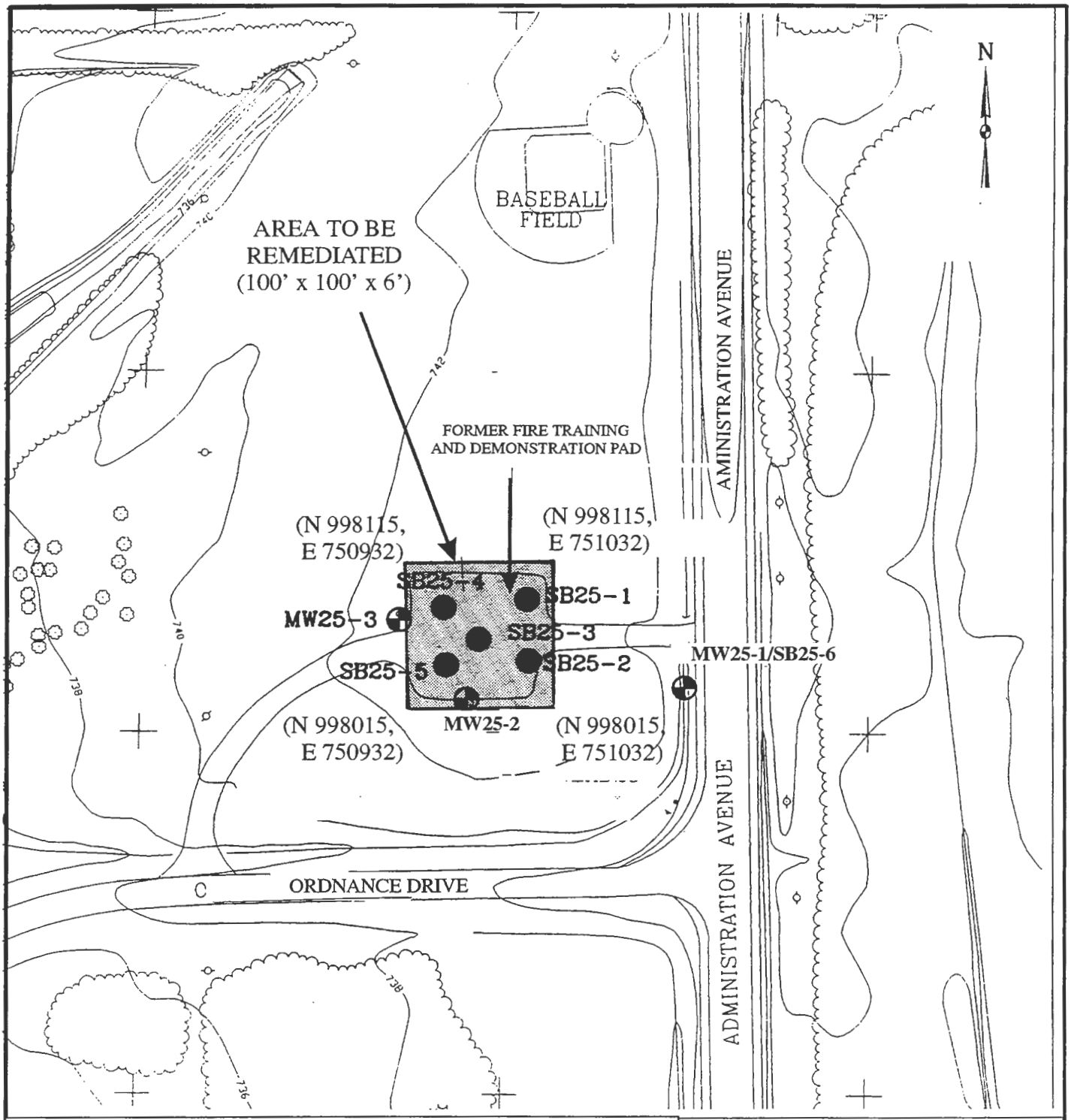
2.2 SITE BACKGROUND

2.2.1 Site Description

SEAD-25, the Fire Training and Demonstration Pad, is located in the east-central portion of SEDA. It is characterized by a small (50 by 50 feet) sparsely vegetated square pad, the surface of which is mostly composed of crushed shale; most of the vegetation on the pad appeared to be stressed.

The site is bound 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 and conifers, and to the north by grassland and a baseball field. Figure 1 depicts the locations of soil borings and monitoring wells at SEAD-25.

Locally, the topography on-site slopes gently in all directions away from the center of the pad. Regionally, the topography slopes to the south-southwest. West of SEAD-25 the topography slopes to the west toward a small drainage ditch located approximately 325 feet from the site. A drainage swale parallels Administration Drive and divides in the southeastern portion of the site where part of it continues under Ordnance Drive via a conduit and part is directed west into another drainage ditch which parallels Ordnance Drive. Surface water run-off flows off-site via the drainage swales that are present approximately 100 feet to the east and south along roads, and approximately 325 feet to northwest of the pad.



LEGEND

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- (N 998115, E 750932) NEW YORK STATE PLANE N/E COORDINATES

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY

DECISION DOCUMENT FOR REMOVAL ACTION SEAD-25

DEPT.	DWG NO.
ENVIRONMENTAL ENGINEERING	727023-01001

FIGURE 1

SAMPLE LOCATIONS AND APPROXIMATE AREA TO BE REMEDIATED

SCALE	DATE
1" = 100'	AUGUST 1995

H:\ENG\SENECA\DECISION\VOLATILE\COMMENT\SEAD25.CDR

A crushed shale road provides access to the site from the east on Administration Avenue; the road continues west of the pad and loops south to intersect with Ordnance Drive. Within SEDA, vehicular and pedestrian access to the site is not restricted.

2.2.2 Site History

The Fire Training and Demonstration Pad (SEAD-25) has been in use since the late 1960s. In the past, the pad was used for fire control training. Currently, the pad is used once or twice a year for fire fighting demonstrations.

2.3 PREVIOUS INVESTIGATIONS

2.3.1 Description of Sampling Program

In 1993, an Expanded Site Inspection was performed at SEAD-25 to determine if a release had occurred. A geophysical survey involving seismic refraction profiles was performed to determine the direction of groundwater flow. A total of six soil borings were advanced, five within the area of the pad and one to the east of the pad to obtain background soil quality data. Two to three samples from each boring (a total of 17 samples) were submitted for chemical analysis. A total of three monitoring wells were installed in the till/weathered shale aquifer. One monitoring well was installed in a presumed upgradient location relative to the pad to obtain background water quality data, while the remaining two wells were installed adjacent to and downgradient of the pad to determine if hazardous constituents have migrated from SEAD-25. One sample from each of the wells (a total of 3 samples) was submitted for chemical analysis. The sample locations are shown in Figure 1.

All the samples were analyzed for the following: the Target Compound List (TCL) volatile organic compounds (VOCs) [including methyl tertiary butyl ether (MTBE)], semivolatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs) and Target Analyte List (TAL) metals and cyanide according to the New York State Department of Environmental Conservation (NYSDEC) Contract Laboratory Program (CLP) Statement of Work (SOW). Herbicides were analyzed by Environmental Protection Agency (EPA) Method 8150, nitrates by EPA Method 352.2, and total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1.

2.3.2 Results of Sampling Program

There is evidence that surface and subsurface soils on the burning pad have been impacted by a variety of constituents. VOCs, primarily benzene, toluene, ethylbenzene and xylenes (BTEX) with lesser amounts of chlorinated compounds, are present in both surface and subsurface soils in the western half of the burning pad. The soil samples collected from SB25-3 and SB25-5 contained the greatest concentration of contaminants. Five samples had xylene concentrations in excess of the Technical and Administrative Guidance Manual (TAGM) value, 3 samples had acetone concentrations in excess of the TAGM value, and 2 samples had methylene chloride concentrations in excess of the TAGM value. In addition, benzene, toluene, and ethylbenzene were each present in one sample that exceeded the TAGM value. Three polynuclear aromatic hydrocarbons (PAHs) were found in 1 sample at concentrations exceeding the TAGM value. While a variety of samples were found to contain metals at concentrations that exceed the associated TAGM or site background values, most of the concentrations exceeded the TAGM value only slightly. Lead, the only exception, exceeded the TAGM concentration in samples that also contained elevated concentrations of BTEX and PAHs suggesting that leaded petroleum may have been used. Elevated TRPH concentrations correspond with the presence of BTEX and PAHs. Pesticides, herbicides and one PCB compound were detected in a small percentage of the soil samples, but none exceeded any of the respective TAGM values.

There is evidence that groundwater in the western portion of the pad has been impacted by similar constituents as the soil from this area. A total of 9 VOCs (BTEX and chlorinated compounds) and SVOCs were detected in groundwater immediately west and south of the pad at concentrations that exceeded the NYSDEC class GA groundwater standard; the highest concentrations were detected on the southern side. No pesticide, PCB or herbicide compounds were detected. Metals released as a result of site activities are not believed to have adversely impacted groundwater. Only iron, magnesium, manganese and sodium were detected at concentrations exceeding the standards. These metals are not considered to represent a health threat. TRPH was detected in groundwater samples collected from wells on the western and southern sides of the pad. NYSDEC does not currently have a TRPH groundwater guidance value, however, TRPH is considered to be an indicator of petroleum impacts.

2.4 DISCUSSION OF REMOVAL ALTERNATIVES

A number of removal alternatives/technologies are available for the treatment of petroleum-impacted soils at SEAD-25. These are:

1. land treatment
2. bioventing
3. vapor extraction
4. off-site disposal
5. soil washing
6. low temperature thermal desorption

However, low temperature thermal desorption has been chosen as the technology to treat petroleum-impacted soils at SEAD-25 for several reasons. First, low temperature thermal desorption has been demonstrated to be an effective method for remediating petroleum-contaminated soil and is widely used for this purpose. Secondly, an on-site rotary kiln thermal desorption treatment unit is currently processing contaminated soil at the Ash Landfill at SEDA (Contract DACW45-90-D9002, Omaha District Army Corps of Engineers). The estimated cost of the treatment of 24,000 cubic yards (CY) of contaminated soil of the Ash Landfill using low temperature thermal desorption is $6,000,000. Roughly, this converts into a unit cost of $250/CY for the removal, transportation, treatment and disposal of the contaminated soil

In considering the use of this treatment technology for soils at SEAD-25, the unit cost of $250/CY would be expected to be significantly lower. The reasons for this are the rotary kiln thermal desorption treatment unit is already operating at SEDA, and it has been permitted and approved by the necessary regulatory agencies. However, for the purpose of evaluating the economic costs of this alternative, and to justify the recommendation provided in Section 2.5, a conservative unit cost of $250/CY was used.

Because the groundwater has been demonstrated to have been impacted by the petroleum impacted soil, a Remedial Investigation/Feasibility Study (RI/FS) Workplan (a pre-draft) has been prepared to address the problem. The low temperature thermal desorption treatment of the soil at SEAD-25 will not remediate the groundwater but will remove the source of petroleum hydrocarbons in soil that contributes to the groundwater problem. If low temperature thermal desorption can be demonstrated to be a cost-effective method of remediating the petroleum-impacted soil at SEAD-25, then this would be the preferred method of remediation. If it is not cost-effective, then there will be no immediate action and the remediation of the soils as well as the groundwater will be addressed in the RI/FS Workplan.

2.5 RECOMMENDATIONS

To remove the contaminated soil at SEAD-25, a 100 by 100 foot area, outlined in Figure 1,

should be excavated down to bedrock. Based on the soil borings drilled at the site it is expected that bedrock will be encountered at an average of 6 feet below grade. The soil can be excavated with a backhoe and transported by truck to the rotary kiln incinerator at the Ash Landfill to be remediated. Once the treated soil has been demonstrated to comply with the NYSDEC Petroleum-Contaminated Soil Guidance Policy, the treated soil can be transported by truck back to SEAD-25 and replaced in the excavated pit.

2.6 JUSTIFICATIONS

The total volume of soil that is being recommended for remediation from SEAD-25 is approximately 2,200 CY. Using a conservative estimated unit cost of $250/CY for the treatment of the soil, the total cost of remediating the soil at the rotary kiln incinerator at the Ash Landfill would be $550,000. The lateral and vertical extent of the petroleum-impacted soil is believed to be defined by the outline of square the pad, however, this has not been shown thorugh chemical testing of soil. Thus, the soil that comprises the pad can be adequately removed by this method of remediation, and if the cost is not prohibitive, low temperature thermal desorption appears to be an effective and immediate way to remediate the soil at SEAD-25. The remediation of the groundwater will be addressed in the RI/FS Workplan currently being prepared for the site.

2.7 POST-REMOVAL VERIFICATION SAMPLING

Each 150 CY batch that is processed through the rotary kiln incinerator is sampled to verify that the soil has been sufficiently treated, and each 150 CY batch processed from SEAD-25 will be sampled in the same way. The soil will be processed through the rotary kiln until it satisfies conditions stated in the NYSDEC Petroleum-Contaminated Soil Guidance Policy, and then will be transported by truck back to SEAD-25 to be replaced in the excavated pit.

To determine whether the 2,200 CY of soil excavated from SEAD-25 is a sufficient volume to remove the petroleum-impacted soil, a total of five samples will be collected from the excavated pit. Each of these samples will be analyzed for volatile organic compounds and semivolatile organic compounds by EPA Methods 8021 and 8270, respectively. One composite sample will be collected from each of the side walls of the pit and one composite sample will be collected from the floor of the pit.

If these samples demonstrate that the concentrations of the contaminants are below the guidance values for the 1) protection of groundwater, 2) protection of human health, 3) protection of fish and wildlife, and 4) protection against objectionable nuisance characteristics, as stated in the NYSDEC Petroleum-Contaminated Soil Guidance Policy, then SEAD-25 will be considered to have been acceptably remediated.

3.0 DECISION DOCUMENT FOR REMOVAL ACTION AT SEAD-26

3.1 EXECUTIVE SUMMARY

An Expanded Site Inspection performed at SEAD-26, the Fire Training Pit and Area, at Seneca Army Depot Activity (SEDA) in Romulus, NY demonstrated that a release of hazardous constituents has occurred. Because the extent of the adverse impacts to soil is not clearly defined, it is recommended that no immediate action be taken to remediate the soil at SEAD-26. It is recommended instead that the soil be further investigated as part of a Remedial Investigation/Feasibility Study.

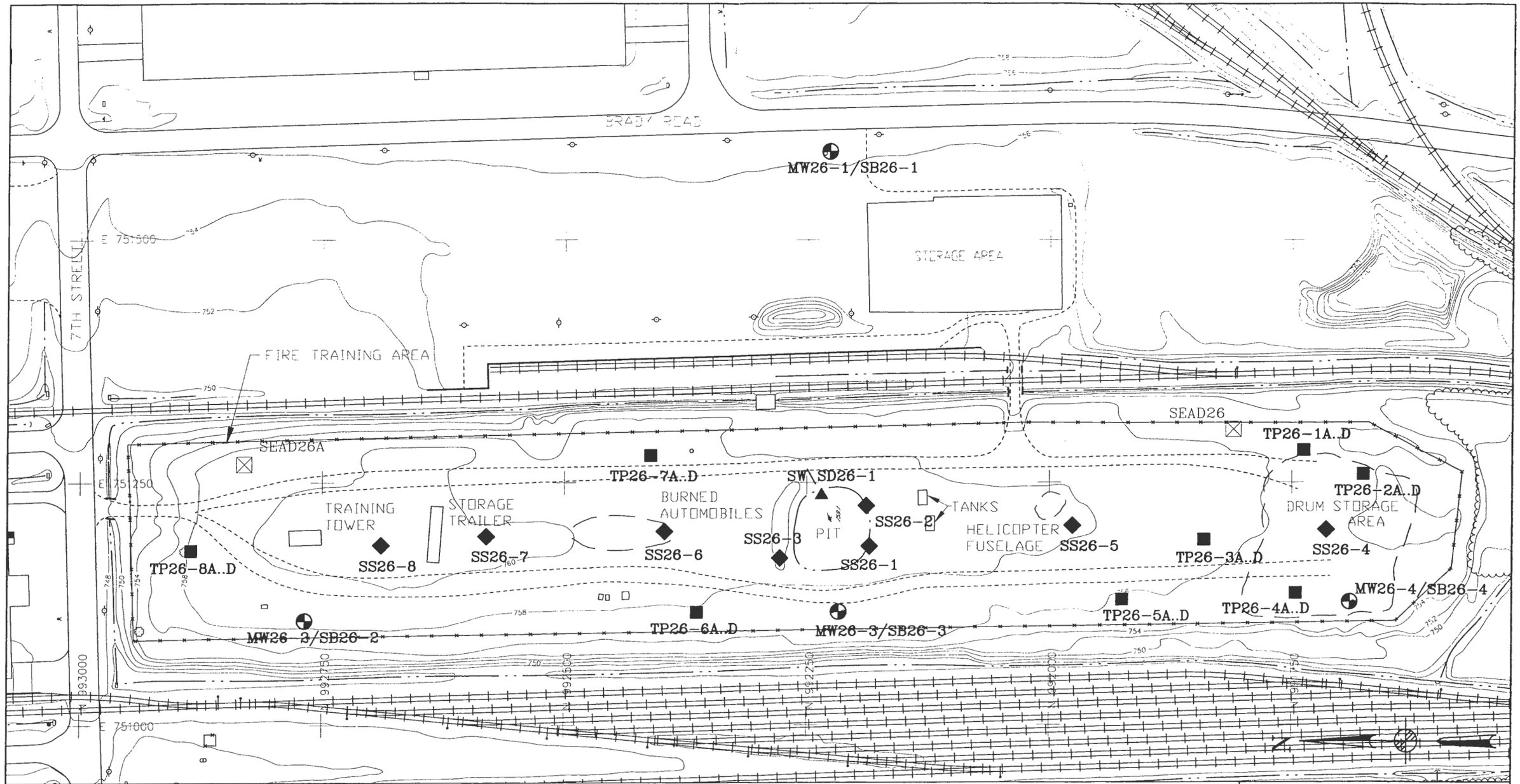
3.2 SITE BACKGROUND

3.2.1 Site Description

SEAD-26, the Fire Training Pit and Area is located in the southeastern portion of Seneca Army Depot Activity (SEDA). It is characterized by an elevated and grass-covered, 1,400-foot long rectangular pad that contains a fire training tower, a storage trailer, a circular burning pond, and several disposal areas (Figure 1).

An oval unpaved road parallels the fenced boundaries within the training area. The fire training tower, storage trailer and seven burned automobiles are located in the northern portion of the site. Small oil-stained areas were noted on the ground surface near the automobiles. The circular burning pit (i.e., pond) has a diameter of approximately 75 feet and is located in the central portion of the site. The bermed perimeter of the pond is characterized by blackened soil and is void of vegetation. Approximately 30 feet south of the pond are two large cylindrical steel tanks, which are believed to be empty. Approximately 120 feet south of these tanks is the fuselage of a burned helicopter. In the far southern end of the site is a drum storage area where tens of 55-gallon drums were stacked as well as other sizes and types of drums. These drums are believed to be empty. Several 55-gallon drums were observed to be at the base of the western scarp of the site (outside the fenced portion), although these are believed to be empty.

Based on recent correspondence from SEDA, in August 1994 all of the drums in the southern area of the site, which is labelled "zone of numerous anomalies" in the draft ESI Report (Parsons ES, June 1994), were removed. In addition, 24 tanks were removed from this drum storage area after being cleaned of any petroleum residue in October 1994. These tanks were underground



LEGEND

- MINOR WATERWAY
- MAJOR WATERWAY
- FENCE
- UNPAVED ROAD
- BRUSH LINE
- LANDFILL EXTENTS
- RAILROAD
- 760 GROUND SURFACE ELEVATION CONTOUR

- SURVEY MONUMENT
- ROAD SIGN
- DECIDOUS TREE
- FIRE HYDRANT
- MANHOLE
- GUIDE POST
- POLE
- UTILITY BOX
- CORDINATE GRID (250' GRID)
- OVERHEAD UTILITY POLE
- MAILBOX/RR SIGNAL

- MONITORING WELL
- SOIL BORING
- SEDIMENT SAMPLE
- SURFACE SOIL SAMPLE
- SURFACE WATER/SEDIMENT SAMPLE
- TEST PIT

50 0 50 100
(feet)

ACAD\SENECA\DECISION\SD26SP.DWG

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT
DECISION DOCUMENT FOR REMOVAL ACTION
SEAD-26

DEPT ENVIRONMENTAL ENGINEERING
D=g No 727023-01001

FIGURE 1
SITE MAP AND EXPANDED SITE INSPECTION SAMPLE LOCATIONS

SCALE 1" = 100'
DATE AUGUST 1995
REV C

storage tanks (USTs) collected from a variety of places within SEDA because of a tank removal program or because the tank failed a tightness test. In all, one 1,000-gallon steel, three 2,000-gallon steel, seven 500-gallon steel, seven 275-gallon steel, three 200-gallon steel, one 100-gallon steel and two 2,000-gallon fiberglass tanks were removed from this area.

SEAD-26 is bound to the east and west by SEDA railroad tracks, on the south by grassland and low brush to the south and on the north by 7th Street. The topography within the fenced portion of the site is flat, and outside the fence it slopes down approximately ten feet on all sides.

Vehicular and pedestrian access to SEAD-26 is restricted by a chain-link fence which surrounds the entire elevated portion of the fire training pit. Restricted access is provided from the northern end of the site from 7th Street via an unpaved road.

3.2.2 Site History

The Fire Training Pit and Area has been in use from 1977 to the present. The pit is approximately 75 feet in diameter and approximately 2 to 3 feet deep and is located in the fire training area which is 1,300 feet by 200 feet and is a grass field. A bentonite liner was installed in the pit in 1982 or 1983. The pit is used one to four times a year for fire fighting training during which time various flammable materials are floated on water, ignited and extinguished. Prior to 1977, the fire training area surrounding the pit may have also been used for fire demonstrations.

3.3 PREVIOUS INVESTIGATIONS

3.3.1 DESCRIPTION OF SAMPLING PROGRAM

In 1993, an Expanded Site Inspection was performed at SEAD-26 to obtain evidence of a release of hazardous constituents. A seismic refraction survey was performed to determine the direction of groundwater flow and a ground penetrating radar (GPR) survey was performed to detect anomalies and characterize the extent of disturbed soils at SEAD-26. A total of four soil borings were advanced. Two to three soil samples from each boring (a total of 11 samples) were submitted for chemical analysis. A monitoring was installed in the till/overburden aquifer in each of these completed borings. One downgradient monitoring well was found to be dry and was not sampled, however, one sample from the three remaining wells was submitted for chemical analysis. Eight test pits were excavated at anomalies detected during the GPR survey. Two soil

samples (a total of 16 samples) were collected from each test pit. Eight surface soil samples (0-2") were collected within the fence of the fire training area. Two samples were obtained from the fire training pit: one of the surface water and one of the sediment at the bottom of the pit. The sample locations are shown in Figure 1.

A total of 35 soil samples, three groundwater samples, one sediment sample, and one surface water sample were collected from SEAD-26 for chemical testing. All these samples were analyzed for the following: the Target Compound List (TCL) volatile organic compounds (VOCs) [including methyl tertiary butyl ether (MTBE)], semi-volatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs) and Target Analyte List (TAL) metals and cyanide according to the New York State Department of Environmental Conservation (NYSDEC) Contract Laboratory Program (CLP) Statement of Work (SOW). Herbicides were analyzed by Environmental Protection Agency (EPA) Method 8150, nitrates were analyzed by EPA Method 352.2, and total recoverable petroleum hydrocarbons (TRPH) were analyzed by EPA Method 418.1.

3.3.2 Results of Sampling Program

While a number of organic compounds (VOCs, herbicides, nitroaromatics, SVOCs, and pesticide/PCBs) were detected in the soil samples, only SVOCs were detected in concentrations exceeding the Technical and Administrative Guidance Memorandum (TAGM) values.

All of the SVOCs which exceeded TAGM values were polynuclear aromatic hydrocarbons (PAHs), which are derived from petroleum products. The four soil samples SS26-4, SS26-6, TP26-7.1, and TP26-8.1, exceeded the 210 μg/kg TAGM for benzo(a)anthracene. Three of these four samples, SS26-4, SS26-6, and TP26-8.1 had concentrations exceeding the 400 μg/kg TAGM for chrysene and the 14 μg/kg TAGM for dibenz(a,h)anthracene. Samples SS26-6 and TP26-8.1 also exceeded the TAGM concentrations for benzo(b)fluoranthene and benzo(k)fluoranthene. The TAGM for benzo(a)pyrene, which is 61 μg/kg, was exceeded in the four samples described above, and four additional samples, including SS26-8, TP26-2.1, TP26-6.1, and TP26-8.2, though the highest concentrations were found in samples SS26-6 and TP26-8.1.

As described above, samples that exceeded the TAGM values were mostly surface soil samples. The only subsurface sample to exceed a TAGM value was TP26-8.2, though the concentration of benzo(a)pyrene (62 μg/kg) just barely exceeded the TAGM value of 61 μg/kg. In general, few PAHs were found in samples collected at depth.

Also of note in the soil was the herbicide MCPA which was detected in sample SB26-4.2 at an elevated concentration of 29,000 μg/kg. No TAGM value currently exists for this compound.

The metals of note in the soils at SEAD-26 are arsenic, copper, lead, magnesium, manganese, and zinc. Arsenic concentrations exceeded the TAGM value of 7.5 mg/kg in fifteen samples. Copper concentrations exceeded the TAGM value of 25 mg/kg in four samples. Lead concentrations exceeded the TAGM value of 30 mg/kg in three samples. Magnesium concentrations exceeded the TAGM value of 12,308 mg/kg in eight samples. Manganese concentrations exceeded the TAGM value of 759 mg/kg in two samples. Zinc concentrations exceeded the TAGM value of 90 mg/kg in seven samples. In general, while there were a number of metals which exceeded the TAGMs, there were no samples that consistently exceeded the standards for different metals that would define a possible source area for the elevated metals concentrations.

No VOCs, pesticides, PCBs, herbicides, and nitroaromatic compounds were detected in the groundwater samples. Diethylphthalate was the only SVOC detected, and only at concentrations well below the NYSDEC Class GA groundwater standards. Several metals concentrations exceeded their standards, including arsenic, beryllium, lead, and zinc, but these concentrations were likely due to high turbidity of the groundwater samples (5,000 nephelometric turbidity units). The well downgradient of the fire training pit contained a detectable concentration of TRPH (0.41 mg/L).

The surface water in the fire training pit contained one pesticide compound, one herbicide compound, eleven metals, one nitroaromatic compound, cyanide and TRPH. Only iron and cyanide were present in concentrations exceeding EPA Ambient Water Quality Criteria (AWQC). The corresponding sediment sample contained PAHs, pesticides, an herbicide compound, metals and TRPH. Four of the pesticide compounds and arsenic were detected at concentrations exceeding the standards. Compounds detected in the surface water sample generally corresponded to compounds detected in the sediment sample.

3.4 DISCUSSION OF REMOVAL ALTERNATIVES

A number of removal alternatives/technologies are available for the treatment of petroleum-impacted soils at SEAD-26. These are:

1. land treatment

2. bioventing
3. vapor extraction
4. off-site disposal
5. soil washing
6. low temperature thermal desorption

However, low temperature thermal desorption has been chosen as the technology to treat petroleum-impacted soils at SEAD-26 for several reasons. First, low temperature thermal desorption has been demonstrated to be an effective method for remediating petroleum-contaminated soil and is widely used for this purpose. Secondly, an on-site rotary kiln thermal desorption treatment unit is currently processing contaminated soil at the Ash Landfill at SEDA (Contract DACW45-90-D9002, Omaha District Army Corps of Engineers). The estimated cost of the treatment of 24,000 cubic yards (CY) of contaminated soil of the Ash Landfill using low temperature thermal desorption is $6,000,000. Roughly, this converts into a unit cost of $250/CY for the removal, transportation, treatment and disposal of the contaminated soil

In considering the use of this treatment technology for soils at SEAD-26, the unit cost of $250/CY would be expected to be significantly lower. The reasons for this are the rotary kiln thermal desorption treatment unit is already operating at SEDA, and it has been permitted and approved by the necessary regulatory agencies. However, for the purpose of evaluating the economic costs of this alternative, and to justify the recommendation provided in Section 3.5, a conservative unit cost of $250/CY was used.

A Remedial Investigation/Feasibility Study (RI/FS) Workplan (a Pre-draft) has been prepared to further investigate the ground water and the metals impacts at SEAD-26. If low temperature thermal desorption can be demonstrated to be a cost-effective method of remediating the PAH impacted surface soil at SEAD-26, then this would immediately be implemented. If it is not cost-effective, then there will be no immediate action and the remediation of the PAH impacted surface soil will be addressed in the RI/FS Workplan.

3.5 RECOMMENDATIONS

Continue to implement the RI/FS.

Do not perform the removal action at this time.

3.6 JUSTIFICATIONS

The approximate volume of soil that would need to be remediated in order to remove the identified PAH contamination is approximately 10,000 CY. Because PAH compounds were detected in samples collected all across SEAD-26, the area to be remediated should include the entire Fire Training Area which measures 1,400 by 200 feet. The sub-surface samples did not indicate that petroleum-impacted soils persisted with depth, so the soil would be excavated to only one foot. Using a conservative estimated unit cost of $250/CY for the treatment of the soil, the total cost of remediating this volume of soil at the rotary kiln incinerator at the Ash Landfill would be $2,500,000. Because the extent of the petroleum impacted soil is not clearly defined, implementing a remedial program of this magnitude would be premature. In light of the RI/FS Workplan (a Pre-draft) that has been prepared, any remedial action should be postponed until this investigation is performed.

3.7 POST-REMOVAL VERIFICATION SAMPLING

No post-removal verification sampling is proposed at this time.

A Remedial Investigation will be performed at SEAD-26 to further characterize the nature and extent of impacts to various media at SEAD-26.

4.0 DECISION DOCUMENT FOR REMOVAL ACTION AT SEAD-38

4.1 EXECUTIVE SUMMARY

A limited sampling program performed at SEAD-38, the Building 2079 Boiler Blowdown Leach Pit, at Seneca Army Depot Activity (SEDA) in Romulus, NY demonstrated that a release of petroleum hydrocarbons has occurred. It is recommended that 15 cubic yards of soil be removed from the ditch and the field where blowdown liquids were discharged and then treated at the rotary kiln incinerator currently being operated at the Ash Landfill at SEDA.

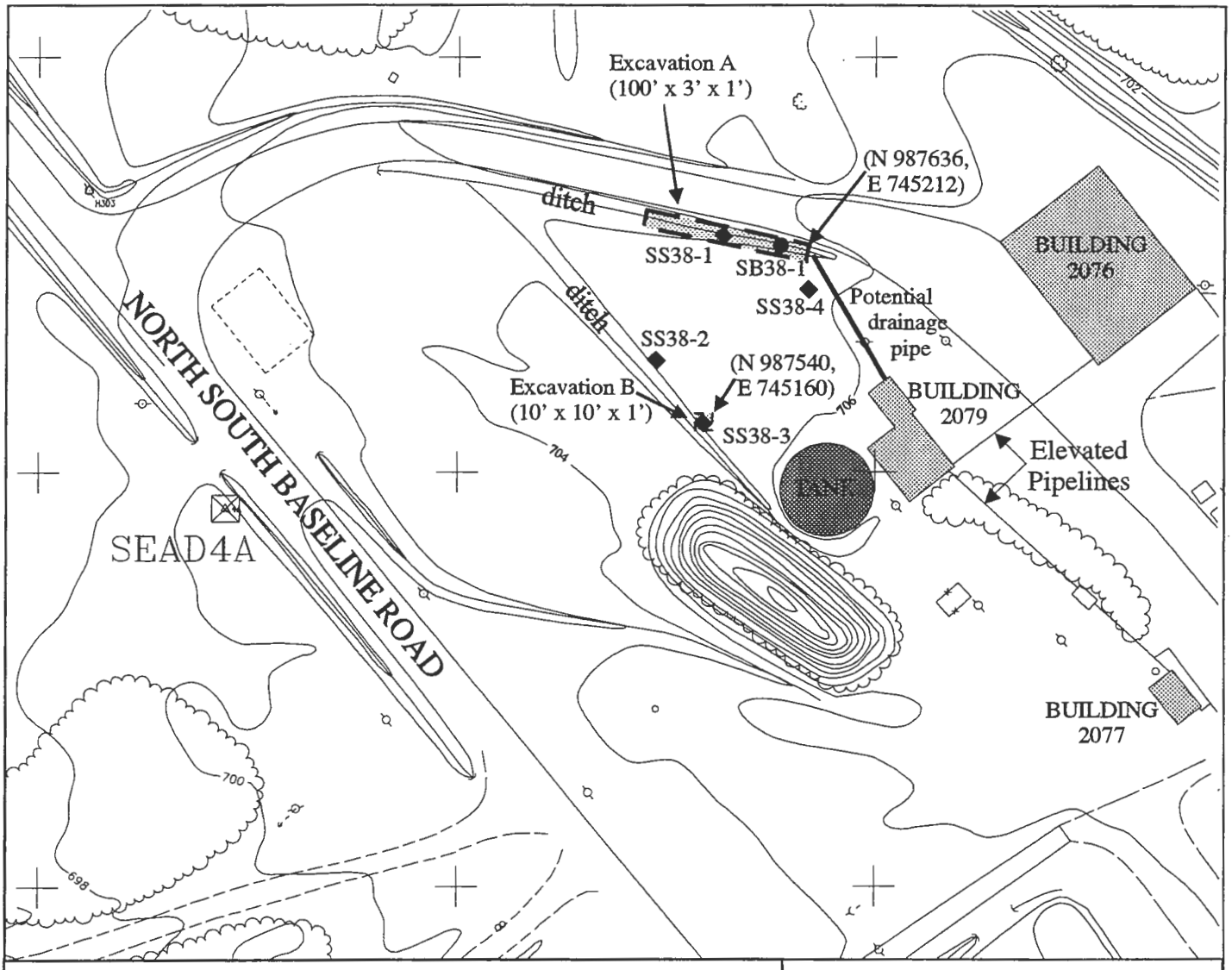
4.2 SITE BACKGROUND

4.2.1 Site Description

Building 2079 is an abandoned boiler plant located in the southwest portion of SEDA. The blowdown leaching area that comprises SEAD-38 is located to the northwest of Building 2079 (Figure 1). Currently, a leach pit is not visible. A drainage pipe that originates in Building 2079 is suspected to have carried blowdown liquids from the boiler plant to a roadside drainage ditch that is located approximately 100 feet to the northwest of Building 2079 and drains to the west. A smaller drainage ditch originates approximately 50 feet west of Building 2079 and drains to the northwest into the larger roadside drainage ditch. The area between the boiler plant and the drainage ditches is a relatively level, grassy field.

4.2.2 Site History

From the time the boilers were installed in the fall of 1942, until 1979 or 1980, when all blowdown points were connected to the sanitary sewer system, the boilers discharged a total of 400 to 800 gallons per day. The flow drained partly into nearby drainage ditches and partly into the ground. The boiler blowdown probably contained tannins, caustic soda (sodium hydroxide), and sodium phosphate.



LEGEND

- ● SOIL BORING LOCATION
- ◆ SURFACE SOIL SAMPLE
- (N 987636, E 745212) NEW YORK STATE PLANE N/E COORDINATES
- SURVEY MONUMENT
- TELEPHONE POLE

N

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA army DEPOT ACTIVITY

DECISION DOCUMENT FOR REMOVAL ACTION
SEAD-38

DEPT. ENVIRONMENTAL ENGINEERING | DWG NO. 727023-01001

FIGURE 1

SAMPLE LOCATIONS AND APPROXIMATE AREA TO BE REMEDIATED

SCALE 1" = 100' | DATE AUGUST 1995

H:\ENG\SENECA\DECISION\VOLATILE\COMMENT\SEAD38A.CDR

4.3 PREVIOUS INVESTIGATIONS

4.3.1 Description of Sampling Program

A limited sampling program was performed in 1993 and 1994 to obtain evidence of a release. One soil boring was advanced in the roadside drainage ditch north-northeast of the northeast corner of Building 2079. The soil boring was located at the mouth of a drainage pipe that originates in Building 2079 and is suspected to have transmitted blowdown liquids. The boring was terminated in weathered bedrock at 6.3 feet below grade at spoon refusal. The water table was not encountered. No volatiles were detected with the field screening instrument, and no staining of the soil was observed, so the deepest sample with sufficient volume (2-4') was submitted to the lab for chemical analysis. One surface soil sample (0-2") was collected from the roadside drainage ditch downstream of the soil boring location and three surface soil samples were collected from the grassy field between Building 2079 and the roadside drainage ditch. Chemical analyses consisted of pH analyzed by Environmental Protection Agency (EPA) Method 9045 and total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1. The sample locations are shown in Figure 1.

4.3.2 Results of Sampling Program

Petroleum hydrocarbons were detected in the subsurface soil sample and all four of the surface soil samples. Surface soil samples SS38-2 and SS38-4 contained 104 and 110 ppm of TRPH, respectively, and surface soil samples SS38-1 and SS38-3 contained significantly higher concentrations of 1840 and 1940 ppm, respectively. The subsurface soil sample SB38-1 taken in the two to four foot depth range, contained 85 ppm TRPH. The pH of the soil samples ranged from 7.35 to 7.47 in the surface soil samples and was 8.93 in the subsurface soil sample.

The detection of petroleum hydrocarbons in all of the samples show that a release did occur. The low concentration of petroleum hydrocarbons in the subsurface sample suggests that the petroleum hydrocarbon impacts diminish with depth.

4.4 DISCUSSION OF REMOVAL ALTERNATIVES

A number of removal alternatives/technologies are available for the treatment of petroleum-impacted soils at SEAD-38. These are:

1. land treatment

2. bioventing
3. vapor extraction
4. off-site disposal
5. soil washing
6. low temperature thermal desorption

However, low temperature thermal desorption has been chosen as the technology to treat petroleum-impacted soils at SEAD-38 for several reasons. First, low temperature thermal desorption has been demonstrated to be an effective method for remediating petroleum-contaminated soil and is widely used for this purpose. Secondly, an on-site rotary kiln termal desorption treatment unit is currently processing contaminated soil at the Ash Landfill at SEDA (Contract DACW45-90-D9002, Omaha District Army Corps of Engineers). The estimated cost of the treatment of 24,000 cubic yards (CY) of contaminated soil of the Ash Landfill using low temperature thermal desorption is $6,000,000. Roughly, this converts into a unit cost of $250/CY for the removal, transportation, treatment and disposal of the contaminated soil

In considering the use of this treatment technology for soils at SEAD-38, the unit cost of $250/CY would be expected to be significantly lower. The reasons for this are the rotary kiln thermal desorption treatment unit is already operating at SEDA, and it has been permitted and approved by the necessary regulatory agencies. However, for the purpose of evaluating the economic costs of this alternative, and to justify the recommendation provided in Section 4.5, a conservative unit cost of $250/CY was used.

If low temperature thermal desorption can be demonstrated to be a cost-effective method of remediating the petroleum hydrocarbon-impacted soil at SEAD-38, then this would be the preferred method of remediation. If it is not cost-effective, then there will be no immediate action and SEAD-38 will proceed through the Remedial Investigation/Feasibility Study (RI/FS) process.

4.5 RECOMMENDATIONS

Removal of petroleum hydrocarbon-impacted soil is recommended in the roadside drainage ditch and in a small area between the boiler plant and the drainage ditch. Because the blowdown liquids are believed to have been drained directly into the roadside drainage ditch, the soil that would require remediation would primarily be the soil in the drainage ditch. Starting at the mouth of the pipe where soil boring SB38-1 was advanced, an area 3 feet across the ditch, and

100 feet in the downstream flow direction should be excavated. The subsurface soil sample that was collected at the mouth of the drainage pipe shows that there is little vertical extent of the impacted soil, so the ditch should only be excavated to a depth of 1 foot. The surface sample SS38-3 indicates that some of the soil in the field between the boiler plant and the drainage ditch needs to be remediated as well. Of the three samples collected in the field, sample SS38-3 was the only sample where a high petroleum hydrocarbon concentration was detected. Because the extent of the elevated petroleum hydrocarbon-impacted soil appears to be localized, a 10-foot square area around the SS38-3 sample location should be excavated to a depth of 1 foot. The locations of the areas to be remediated are shown in Figure 1.

The soil from the drainage ditch area and the soil from the SS38-3 sample location can be excavated with a backhoe and transported by truck to the rotary kiln incinerator at the Ash Landfill. Because of the low volume of soil to be remediated, clean fill from SEDA can be used to backfill the excavated area once the area has been demonstrated to comply with the New York State Department of Environmental Conservation (NYSDEC) Petroleum-Contaminated Soil Guidance Policy.

4.6 JUSTIFICATIONS

The total volume of soil that is being recommended for removal from SEAD-38 is approximately 15 CY. Using a conservative estimated unit cost of $250/CY for the treatment of the soil, the total cost of remediating the soil at the rotary kiln incinerator at the Ash Landfill would be $3,750. Because the lateral and vertical extent of the petroleum hydrocarbon-impacted soil can be sufficiently removed by this method of remediation, and the cost is not prohibitive, low temperature thermal desorption appears to be the most effective and immediate way to remediate the soil at SEAD-38.

4.7 POST-REMOVAL VERIFICATION SAMPLING

Each 150 CY batch that is processed through the rotary kiln incinerator is sampled to verify that the soil has been sufficiently treated, and the 15 CY from SEAD-38 will be processed as a portion of one of these larger batches. The soil will be processed through the rotary kiln until it satisfies conditions stated in the NYSDEC Petroleum-Contaminated Soil Guidance Policy, and then will be disposed of at the Ash Landfill.

To determine whether the 15 CY of soil excavated from SEAD-38 is a sufficient volume to remove the petroleum-impacted soil a total of six samples will be collected from the trench excavated at the ditch and a total of five samples will be collected from the pit excavated at sample location SS38-3. Each of these samples will be analyzed for volative organic compounds and semivolatile organic compounds by EPA Methods 8021 and 8270, respectively. In the trench, one composite sample will be collected from each of the side walls of the trench and one composite sample will be collected from each end of the floor of the trench. In the smaller pit, one composite sample will collected from each of the side walls of the pit and one composite sample will be collected from the floor of the pit.

If these samples demonstrate that the concentrations of the contaminants are below the guidance values for the 1) protection of groundwater, 2) protection of human health, 3) protection of fish and wildlife, and 4) protection against objectionable nuisance characteristics, as stated in the NYSDEC Petroleum-Contaminated Soil Guidance Policy, then SEAD-38 will be considered to have been acceptably remediated.

5.0 DECISION DOCUMENT FOR REMOVAL ACTION AT SEAD-39

5.1 EXECUTIVE SUMMARY

A limited sampling program performed at SEAD-39, the Building 121 Boiler Blowdown Leach Pit, at Seneca Army Depot Activity (SEDA) in Romulus NY, demonstrated that a release of petroleum hydrocarbons has occurred. It is recommended that 18.5 cubic yards of soil be removed from the yard where the blowdown liquids were discharged and then treated at the rotary kiln incinerator currently being operated at the Ash Landfill at SEDA.

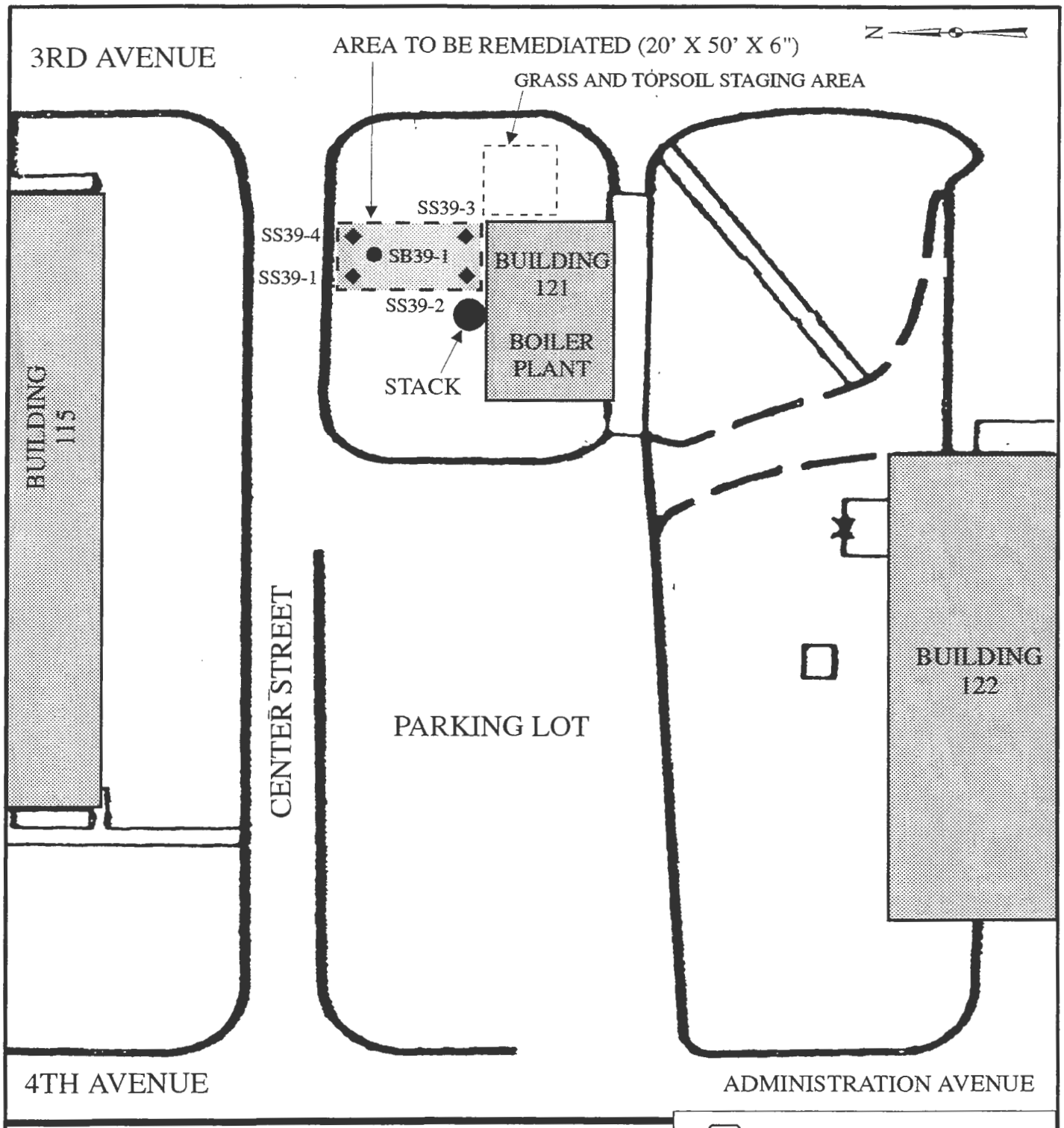
5.2 SITE BACKGROUND

5.2.1 Site Description

Building 121 is an active boiler plant located in the administrative area of the Seneca Army Depot Activity (SEDA). The blowdown leaching area that comprises SEAD-39 is located immediately to the north of Building 121 (Figure 1). Currently, a leach pit is not visible. Fifty feet to the north of Building 121 is Center Street which runs east-west. The land surface to the north of the building is grass covered and is slightly mounded between the building and the street. There are no depressions on the lawn where the blowdown liquid would accumulate.

5.2.2 Site History

From the time the boilers were installed in the fall of 1942, until 1979 or 1980, when all blowdown points were connected to the sanitary sewer system, the boilers discharged three times every 24 hour period for a total of 400 to 800 gallons per day. The flow drained partly into drainage systems in the street and partly into the ground. The boiler blowdown probably contained tannins, caustic soda (sodium hydroxide), and sodium phosphate.



PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY
DECISION DOCUMENT FOR REMOVAL ACTION
SEAD-39

DEPT. ENVIRONMENTAL ENGINEERING | DWG NO 727023-01001

LEGEND
- ◆ SURFACE SOIL SAMPLE
- ● SOIL BORING LOCATION

FIGURE 1

SAMPLE LOCATIONS AND APPROXIMATE AREA TO BE REMEDIATED

SCALE 1" = 50' | DATE AUGUST 1995

H:\ENG\SENECA\DECISION\VOLAT\SEAD39.CDR

5.3 PREVIOUS INVESTIGATIONS

5.3.1 Description of Sampling Program

A limited sampling program was performed in 1993 and 1994 to obtain evidence of a release. One soil boring was advanced midway between the building and the street directly to the north of the northeast corner of Building 121. The boring was terminated in weathered bedrock at split-spoon refusal, 5.7 feet below grade. The water table was encountered 5.2 feet below grade. No volatiles were detected with the field screening instrument, and no stained soil was observed, so the sample collected above the water table (3-5') was submitted to the lab for chemical analysis. The top six inches of the ground is filled topsoil which accounts for the mounding of the ground surface between the building and Center Street. Because of the mounding, surface soil samples would not be representative of impacts caused by the blowdown liquids because the ground surface is at a higher elevation than the discharge point for the blowdown liquid. Instead of collecting surface soil samples, soil samples were collected from driving a split-spoon from 0-2' at four locations surrounding the soil boring. One sample was collected from each split-spoon sample. Chemical analyses consisted of pH analyzed by Environmental Protection Agency (EPA) Method 9045 and total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1. The sample locations are shown in Figure 1.

5.3.2 Results of Sampling Program

Petroleum hydrocarbons were detected in all of the soil samples collected from SEAD-39. All of the soil samples, with the exception of SS39-1 contained TRPH concentrations less than 100 ppm. SS39-1 contained 118 ppm TRPH. The pH of the soil samples ranged from 7.9 to 8.9.

The detection of petroleum hydrocarbons in all of the samples show that a release did occur, however, the concentrations detected in the samples were low. The approximate area of soil that appears to be impacted is 20 feet by 50 feet. This area is outlined in Figure 1.

5.4 DISCUSSION OF REMOVAL ALTERNATIVES

A number of removal alternatives/technologies are available for the treatment of petroleum-impacted soils at SEAD-39. These are:

1. land treatment
2. bioventing
3. vapor extraction
4. off-site disposal
5. soil washing
6. low temperature thermal desorption

However, low temperature thermal desorption has been chosen as the technology to treat petroleum-impacted soils at SEAD-39 for several reasons. First, low temperature thermal desorption has been demonstrated to be an effective method for remediating petroleum-contaminated soil and is widely used for this purpose. Secondly, an on-site rotary kiln thermal desorption treatment unit is currently processing contaminated soil at the Ash Landfill at SEDA (Contract DACW45-90-D9002, Omaha District Army Corps of Engineers). The estimated cost of the treatment of 24,000 cubic yards (CY) of contaminated soil of the Ash Landfill using low temperature thermal desorption is $6,000,000. Roughly, this converts into a unit cost of $250/CY for the removal, transportation, treatment and disposal of the contaminated soil

In considering the use of this treatment technology for soils at SEAD-39, the unit cost of $250/CY would be expected to be significantly lower. The reasons for this are the rotary kiln thermal desorption treatment unit is already operating at SEDA, and it has been permitted and approved by the necessary regulatory agencies. However, for the purpose of evaluating the economic costs of this alternative, and to justify the recommendation provided in Section 5.5, a conservative unit cost of $250/CY was used.

If low temperature thermal desorption can be demonstrated to be a cost-effective method of remediating the soil at SEAD-39, then this would be the preferred method of remediation. If it is not cost-effective, then there will be no immediate action and SEAD-39 will proceed through the Remedial Investigation/Feasibility Study (RI/FS) process.

5.5 RECOMMENDATIONS

To remove the petroleum-impacted soil at SEAD-39, a 20 by 50 foot area should be excavated down to one foot, as outlined in Figure 1. Because the fill that lies above the blowdown liquid discharge level is not likely to be contaminated, the top six inches of the topsoil need not be remediated.

The soil can be excavated with a backhoe and the soil from six inches to one foot can be transported by truck to the rotary kiln incinerator at the Ash Landfill to be remediated. Because of the low volume of soil to be remediated, clean fill from SEDA can be used to backfill the excavated area once the area has been demonstrated to comply with the New York State Department of Environmental Conservation (NYSDEC) Petroleum-Contaminated Soil Guidance Policy. The untreated topsoil and sod can then be replaced.

5.6 JUSTIFICATIONS

The total volume of soil that is being recommended for remediation from SEAD-39 is approximately 18.5 CY. Using a conservative estimated unit cost of $250/CY for the treatment of the soil, the total cost of remediating the soil at the rotary kiln incinerator at the Ash Landfill would be $4,625. Because the lateral and vertical extent of the petroleum-impacted soil can be sufficiently removed by this method of remediation, and the cost is not prohibitive, low temperature thermal desorption appears to be the most effective and immediate way to remediate the soil at SEAD-39.

5.7 POST-REMOVAL VERIFICATION SAMPLING

Each 150 CY batch that is processed through the rotary kiln incinerator is sampled to verify that the soil has been sufficiently treated, and the 18.5 CY from SEAD-39 will be processed as a portion of one of these larger batches. The soil will be processed through the rotary kiln until it satisfies conditions stated in the NYSDEC Petroleum-Contaminated Soil Guidance Policy, and then will be disposed of at the Ash Landfill.

To determine whether the 18.5 CY of soil excavated from SEAD-39 is a sufficient volume to remove the petroleum-impacted soil, a total of six samples will be collected from the excavated hole. Each of these samples will be analyzed for volatile organic compounds and semivolatile organic compounds by EPA Methods 8021 and 8270, respectively. One composite sample will be collected from each of the side walls of the hole and one composite sample will be collected from the floor of the hole. A composite sample will also be collected from the six inches of topsoil that will not be treated to verify that it is not sufficiently contaminated to require treatment.

If these samples demonstrate that the concentrations of the contaminants are below the guidance values for the 1) protection of groundwater, 2) protection of human health, 3) protection of fish

and wildlife, and 4) protection against objectionable nuisance characteristics, as stated in the NYSDEC Petroleum-Contaminated Soil Guidance Policy, then SEAD-39 will be considered to have been acceptably remediated.

6.0 DECISION DOCUMENT FOR REMOVAL ACTION AT SEAD-40

6.1 EXECUTIVE SUMMARY

A limited sampling program performed at SEAD-40, the Building 319 Boiler Blowdown Leach Pit, at Seneca Army Depot Activity (SEDA) in Romulus, NY demonstrated that a release of petroleum hydrocarbons has occurred. It is recommended that 12.5 cubic yards be removed from the ditch where the blowdown liquids were discharged and then treated at the rotary kiln incinerator currently being operated by IT Corporation at the Ash Landfill at SEDA.

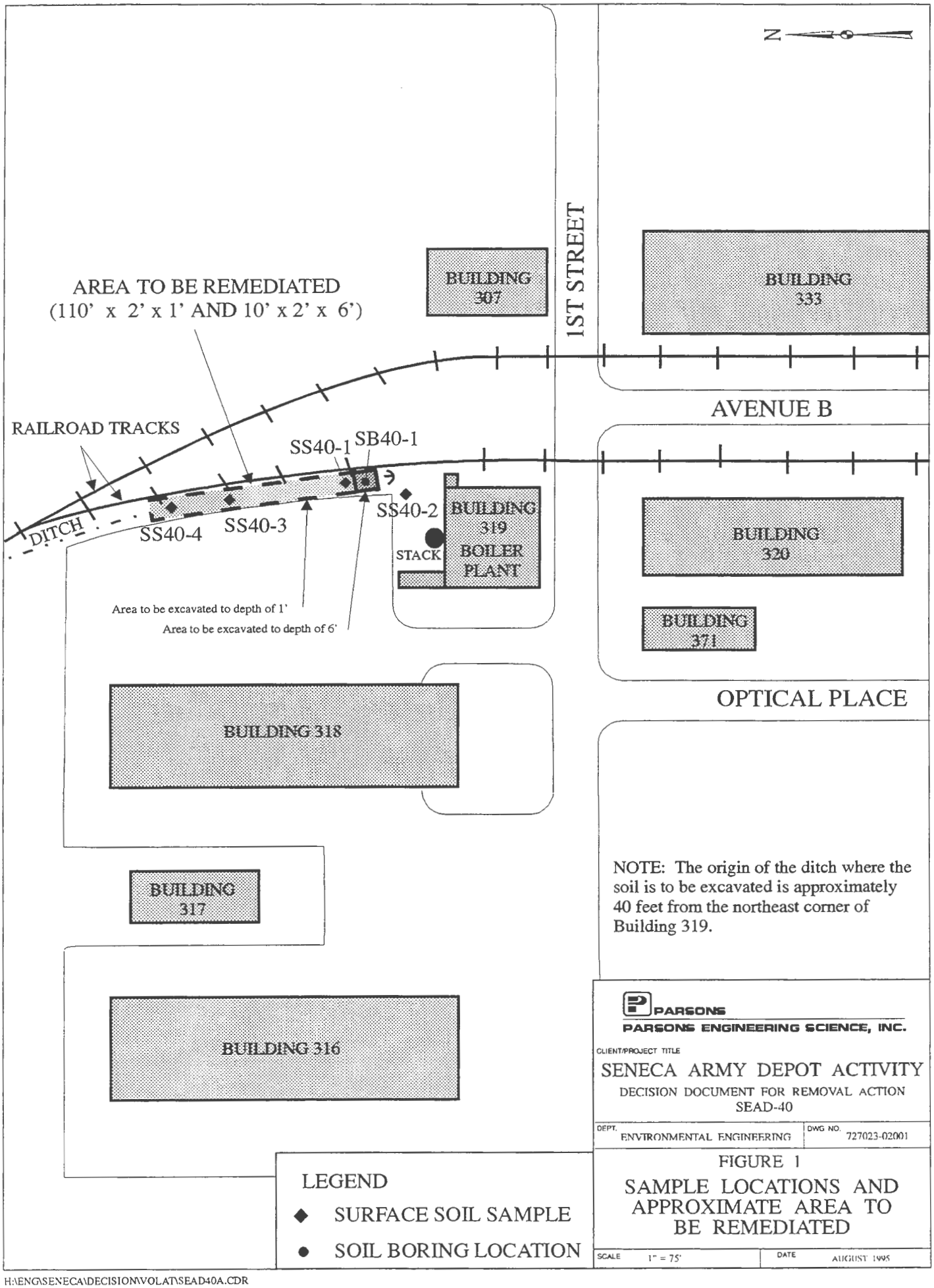
6.2 SITE BACKGROUND

6.2.1 Site Description

Building 319 is an active boiler plant located on 1st Street at the Seneca Army Depot Activity (SEDA). The blowdown leaching area that comprises SEAD-40 is located in a drainage ditch next to the railroad tracks to the north of Building 319 (Figure 1). Currently, a leach pit is not visible. A drainage pipe originating in Building 319 is suspected to have carried blowdown liquids into the drainage ditch. The drainage ditch originates at the mouth of the pipe approximately thirty feet northeast of Building 319. The drainage ditch continues for approximately 400 feet and eventually levels into a grassy field. The ground surface to the north of Building 319 and to the south of the drainage ditch is covered with asphalt.

6.2.2 Site History

From the time the boilers were installed in the fall of 1942, until 1979 or 1980, when all blowdown points were connected to the sanitary sewer system, the boilers discharged three times every 24 hour period for a total of 400 to 800 gallons per day. The flow drained partly into drainage systems in the street and partly into the ground. The boiler blowdown probably contained tannins, caustic soda (sodium hydroxide), and sodium phosphate.



H:\ENG\SENECA\DECISION\VOLAT\SEAD40A.CDR

6.3 PREVIOUS INVESTIGATION

6.3.1 Description of sampling program

A limited sampling program was performed in 1993 and 1994 to obtain evidence of a release. One soil boring was advanced in the ditch at the mouth of the drainage pipe. The boring was terminated in weathered bedrock at spoon-spoon refusal, 5.8 feet below grade. The water table was not encountered. No volatiles were detected with the field screening instrument, and no stained soil was observed, so the deepest sample collected (4-6') was submitted to the lab for chemical analysis. Four surface samples (0-2") were also collected. One surface sample was collected at the mouth of the drainage pipe near SB40-1, another was collected between Building 319 and the drainage ditch, and the remaining two were collected in the drainage ditch approximately 50 an 100 feet downstream of the origin of the ditch. Chemical analyses consisted of pH analyzed by Environmental Protection Agency (EPA) Method 9045 and total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1. The sample locations are shown in Figure 1.

6.3.2 Results of Sampling Program

Petroleum hydrocarbons were detected in all of the soil samples collected from SEAD-40. The subsurface sample SB40-1.1 and the surface soil sample SS40-3 contained 1270 and 1640 ppm petroleum hydrocarbons, respectively. The surface soil samples SS40-1, SS40-2, and SS40-4 contained 300, 420 and 680 ppm petroleum hydrocarbons, respectively. The pH of the soil samples ranged from 7.29 to 7.86.

The detection of petroleum hydrocarbons in all of the samples show that a release did occur. The subsurface soil sample demonstrates that at the mouth of the drainage pipe, the petroleum impacts have penetrated to six feet. The surface soil samples collected show that the petroleum impacts persists downstream of the point at which the blowdown liquids were discharged.

6.4 DISCUSSION OF REMOVAL ALTERNATIVES

A number of removal alternatives/technologies are available for the treatment of petroleum-impacted soils at SEAD-40. These are:

1. land treatment
2. bioventing
3. vapor extraction
4. off-site disposal
5. soil washing
6. low temperature thermal desorption

However, low temperature thermal desorption has been chosen as the technology to treat petroleum-impacted soils at SEAD-40 for several reasons. First, low temperature thermal desorption has been demonstrated to be an effective method for remediating petroleum-contaminated soil and is widely used for this purpose. Secondly, an on-site rotary kiln thermal desorption treatment unit is currently processing contaminated soil at the Ash Landfill at SEDA (Contract DACW45-90-D9002, Omaha District Army Corps of Engineers). The estimated cost of the treatment of 24,000 cubic yards (CY) of contaminated soil of the Ash Landfill using low temperature thermal desorption is $6,000,000. Roughly, this converts into a unit cost of $250/CY for the removal, transportation, treatment and disposal of the contaminated soil

In considering the use of this treatment technology for soils at SEAD-40, the unit cost of $250/CY would be expected to be significantly lower. The reasons for this are the rotary kiln thermal desorption treatment unit is already operating at SEDA, and it has been permitted and approved by the necessary regulatory agencies. However, for the purpose of evaluating the economic costs of this alternative, and to justify the recommendation provided in Section 6.5, a conservative unit cost of $250/CY was used.

If low temperature thermal desorption can be demonstrated to be a cost-effective method of remediating the soil at SEAD-40, then this would be the preferred method of remediation. If it is not a cost effective method of remediation, then there will be no immediate action and SEAD-40 will proceed through the Remedial Investigation/Feasibility Study (RI/FS) process.

6.5 RECOMMENDATIONS

To remove the petroleum-impacted soil at SEAD-40, the ditch where the blowdown liquids were discharged should be excavated two feet across beginning at its origin pipe (to the south) to 120 feet downstream (to the north), as outlined in Figure 1. Two portions of the 120 foot length of ditch will be excavated to different depths. From the mouth of the drainage pipe to 10 feet

downstream, the ditch should be excavated to a depth of 6 feet; the remainder of the ditch should be excavated to a depth of one foot.

The soil can be excavated with a backhoe and transported by truck to the rotary kiln incinerator at the Ash Landfill to be remediated. Because of the low volume of soil to be remediated, clean fill from SEDA can be used to backfill the excavated area once it has been demonstrated to comply with the New York State Department of Environmental Conservation (NYSDEC) Petroleum-Contaminated Soil Guidance Policy.

6.6 JUSTIFICATIONS

The total volume of soil that is being recommended for remediation from SEAD-40 is approximately 12.5 CY. Using a conservative estimated unit cost of $250/CY for the treatment of the soil, the total cost of remediating the soil at the rotary kiln incinerator would be $3,125. Because the lateral and vertical extent of the petroleum-impacted soil can be sufficiently removed by this method of remediation, and the cost is not prohibitive, low temperature thermal desorption appears to be the most effective and immediate way to remediate the soil at SEAD-40.

6.7 POST-REMOVAL VERIFICATION SAMPLING

Each 150 CY batch that is processed through the rotary kiln incinerator is sampled to verify that the soil has been sufficiently treated, and the 12.5 CY from SEAD-40 will be processed as a portion of one of these larger batches. The soil will be processed through the rotary kiln until it satisfies conditions stated in the NYSDEC Petroleum-Contaminated Soil Guidance Policy, and then it will be disposed of at the Ash Landfill.

To determine whether the 12.5 CY of soil excavated from SEAD-40 is a sufficient volume to remove the impacted soil, a total of six samples will be collected from the excavated trench. Each of these samples will be analyzed for volatile organic compounds and semivolatile organic compounds by EPA Methods 8021 and 8270, respectively. One composite sample will be collected from each of the side walls of the trench and two composite samples will be collected from the floor of the trench, one from each end.

If these samples demonstrate that the concentrations of the contaminants are below the guidance values for the 1) protection of groundwater, 2) protection of human health, 3) protection of fish and wildlife, and 4) protection against objectionable nuisance characteristics, as stated in the

NYSDEC Petroleum-Contaminated Soil Guidance Policy, then SEAD-40 will be considered to have been acceptably remediated.

7.0 DECISION DOCUMENT FOR REMOVAL ACTION AT SEAD-41

7.1 EXECUTIVE SUMMARY

A limited sampling program performed at SEAD-41, the Building 718 Boiler Blowdown Leach Pit, at Seneca Army Depot Activity (SEDA) in Romulus, NY demonstrated that a release of petroleum hydrocarbons has occurred. It is recommended that 4.5 cubic yards of soil be removed from the ditch where the blowdown liquids were discharged and then treated at the rotary kiln incinerator currently being operated at the Ash Landfill at SEDA.

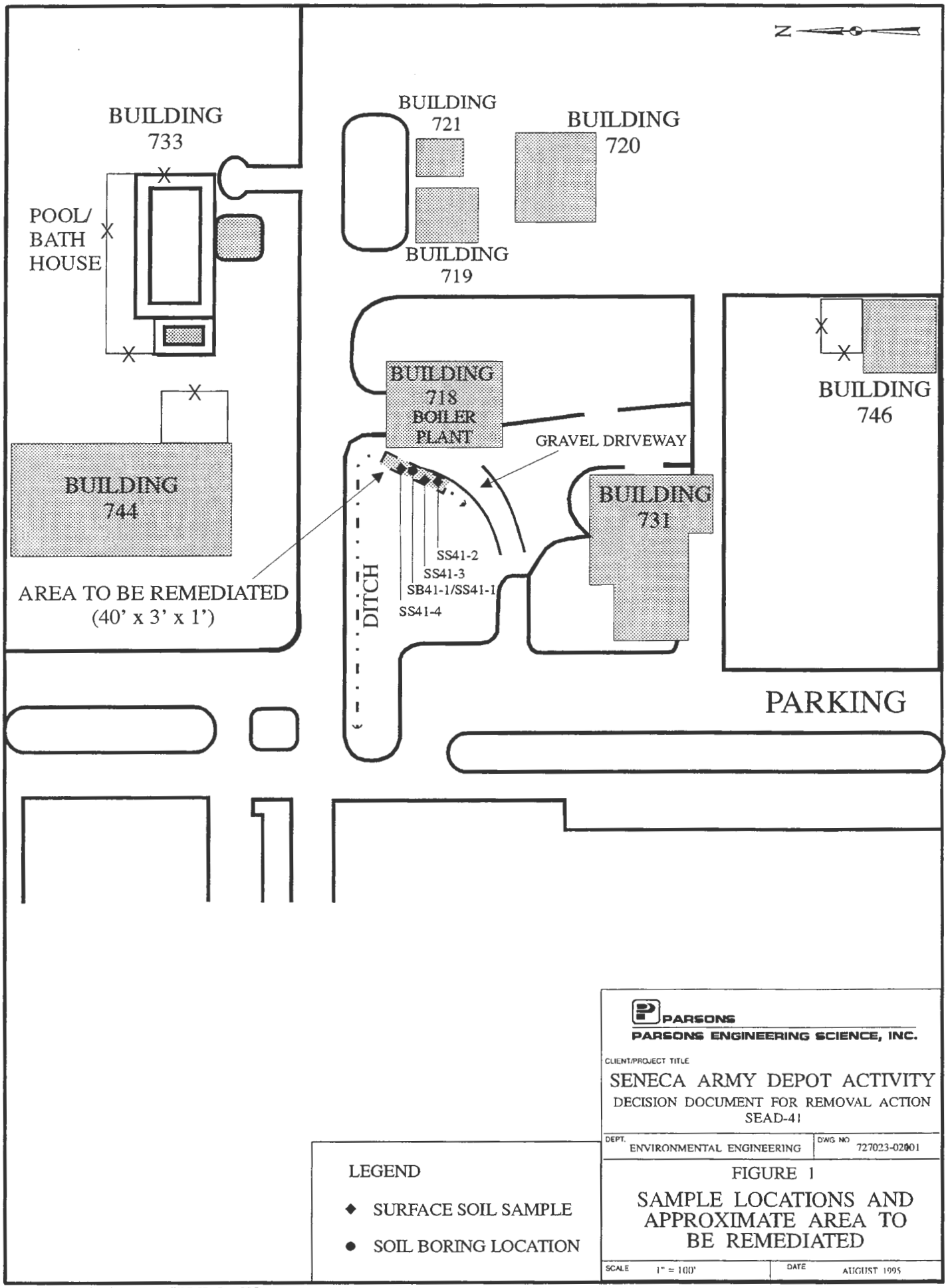
7.2 SITE BACKGROUND

7.2.1 Site Description

Building 718 is an abandoned boiler plant located in the northern end of the Seneca Army Depot Activity (SEDA). The blowdown leaching area that comprises SEAD-41 is suspected to be a drainage ditch located approximately 40 feet west of Building 718 (Figure 1). All surface discharge from the west side of the building would flow into this ditch. The drainage ditch is relatively steep-sided near the building and primarily drains to the north where it joins a roadside drainage ditch. Some runoff in the ditch would flow to the southwest where the drainage ditch is cut off by a crushed gravel road leading southwest away from Building 718.

7.2.2 Site History

From the time the boilers were installed in the fall of 1942, until 1979 or 1980, when all blowdown points were connected to the sanitary sewer system, the boilers discharged three times every 24 hour period for a total of 400 to 800 gallons per day. The flow drained partly into drainage systems through the ditches and partly into the ground. It is unknown whether the blowdown liquid was discharged directly into the ditch to the west of Building 718, or whether it was discharged next to the building and flowed into the ditch. The boiler blowdown probably contained tannins, caustic soda (sodium hydroxide), and sodium phosphate.



LEGEND

- ◆ SURFACE SOIL SAMPLE
- ● SOIL BORING LOCATION

PARSONS

PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT ACTIVITY

DECISION DOCUMENT FOR REMOVAL ACTION SEAD-41

DEPT.	DWG NO
ENVIRONMENTAL ENGINEERING	727023-02001

FIGURE 1

SAMPLE LOCATIONS AND APPROXIMATE AREA TO BE REMEDIATED

SCALE	DATE
1" = 100'	AUGUST 1995

H:\ENG\SENECA\DECISION\VOLATILE\SEAD41.CDR

7.3 PREVIOUS INVESTIGATIONS

7.3.1 Description of Sampling Program

A limited sampling program was performed in 1993 and 1994 to obtain evidence of a release. One soil boring was advanced in the drainage ditch immediately to the west of where the blowdown liquids were suspected to have been discharged from Building 718. The boring was terminated in weathered bedrock at split-spoon refusal, 6.3 feet below grade. The water table was encountered 4.0 feet below grade. No volatiles were detected with the field screening instrument, and no stained soil was observed, so the sample collected above the water table (2-4') was submitted to the lab for chemical analysis. Another soil sample was submitted from the 0-2' interval. Because of the steep sides of the drainage ditch, surface soil samples collected near the ditch would not be representative of impacts caused by the blowdown liquids because the ground surface is at a higher elevation than the elevation at which the blowdown liquids were probably being discharged. Instead of collecting surface soil samples, soil samples were collected from driving a split-spoon from 0-2' at three locations surrounding the soil boring. One sample was collected from each split-spoon sample. Chemical analyses consisted of pH analyzed by Environmental Protection Agency (EPA) Method 9045 and total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1. The sample locations are shown in Figure 1.

7.3.2 Results of Sampling Program

Petroleum hydrocarbons were detected in all of the soil samples collected from SEAD-41. The surface soil samples SS41-1 and SS41-3 contained 144 and 300 ppm of TRPH, respectively. The surface soil samples SS41-2 and SS41-4 contained significantly less at 40 and 70 ppm TRPH, respectively. The subsurface soil sample SB41-1 contained 66 ppm TRPH. The pH of the soil samples ranged from 8.19 to 8.74.

The detection of petroleum hydrocarbons in all of the samples show that a release did occur. The surface samples collected nearest the point that the blowdown liquids were suspected of being discharged contained the greatest concentration of petroleum hydrocarbons. The subsurface sample collected in this area and the surface samples collected in the ditch in the two directions of flow in the ditch contained relatively low concentrations of petroleum hydrocarbons. From these results, it appears that the extent petroleum-impacted soil is localized in the ditch at the suspected point of release of the blowdown liquids. This area is outlined in Figure 1.

7.4 DISCUSSION OF REMOVAL ALTERNATIVES

A number of removal alternatives/technologies are available for the treatment of petroleum-impacted soils at SEAD-41. These are:

1. land treatment
2. bioventing
3. vapor extraction
4. off-site disposal
5. soil washing
6. low temperature thermal desorption

However, low temperature thermal desorption has been chosen as the technology to treat petroleum-impacted soils at SEAD-41 for several reasons. First, low temperature thermal desorption has been demonstrated to be an effective method for remediating petroleum-contaminated soil and is widely used for this purpose. Secondly, an on-site rotary kiln thermal desorption treatment unit is currently processing contaminated soil at the Ash Landfill at SEDA (Contract DACW45-90-D9002, Omaha District Army Corps of Engineers). The estimated cost of the treatment of 24,000 cubic yards (CY) of contaminated soil of the Ash Landfill using low temperature thermal desorption is $6,000,000. Roughly, this converts into a unit cost of $250/CY for the removal, transportation, treatment and disposal of the contaminated soil

In considering the use of this treatment technology for soils at SEAD-41, the unit cost of $250/CY would be expected to be significantly lower. The reasons for this are the rotary kiln thermal desorption treatment unit is already operating at SEDA, and it has been permitted and approved by the necessary regulatory agencies. However, for the purpose of evaluating the economic costs of this alternative, and to justify the recommendation provided in Section 7.5, a conservative unit cost of $250/CY was used.

If low temperature thermal desorption can be demonstrated to be a cost-effective method of remediating the soil at SEAD-41, then this would be the preferred method of remediation. If it is not cost-effective, then there will be no immediate action and SEAD-41 will proceed through the Remedial Investigation/Feasibility Study (RI/FS) process.

7.5 RECOMMENDATIONS

To remove the petroleum-impacted soil at SEAD-41, the ditch where the blowdown liquids were discharged should be excavated 3 feet across and 20 feet in each direction of flow from the suspected point of discharge (located approximately by sample location SB41-1).This area, as outlined in Figure 1, should be excavated down to a depth of one foot.

The soil can be excavated with a backhoe and transported by truck to the rotary kiln incinerator at the Ash Landfill to be remediated. Because of the low volume of soil to be remediated, clean fill from SEDA can be used to backfill the excavated area once the area has been demonstrated to comply with the New York State Department of Environmental Conservation (NYSDEC) Petroleum-Contaminated Soil Guidance Policy.

7.6 JUSTIFICATIONS

The total volume of soil that is being recommended for remediation from SEAD-41 is approximately 4.5 CY. Using a conservative estimated unit cost of $250/CY for the treatment of the soil, the total cost of remediating the soil at the rotary kiln incinerator at the Ash Landfill would be $1125. Because the lateral and vertical extent of the petroleum-impacted soil can be sufficiently removed by this method of remediation, and the cost is not prohibitive, low temperature thermal desorption appears to be the most effective and immediate way to remediate the soil at SEAD-41.

7.7 POST-REMOVAL VERIFICATION SAMPLING

Each 150 CY batch that is processed through the rotary kiln incinerator is sampled to verify that the soil has been sufficiently treated, and the 4.5 CY from SEAD-41 will be processed as a portion of one of these larger batches. The soil will be processed through the rotary kiln until it satisfies conditions stated in the NYSDEC Petroleum-Contaminated Soil Guidance Policy, and then will be disposed of at the Ash Landfill.

To determine whether the 4.5 CY of soil excavated from SEAD-41 is a sufficient volume to remove the impacted soil, a total of six samples will be collected from the excavated trench. Each of these samples will be analyzed for volatile organic compounds and semivolatile organic

compounds by EPA Methods 8021 and 8270, respectively. One composite sample will be collected from each of the side walls of the trench and two composite samples will be collected from the floor of the trench, one from each end.

If these samples demonstrate that the concentrations of the contaminants are below the guidance values for the 1) protection of groundwater, 2) protection of human health, 3) protection of fish and wildlife, and 4) protection against objectionable nuisance characteristics, as stated in the NYSDEC Petroleum-Contaminated Soil Guidance Policy, then SEAD-41 will be considered to have been acceptably remediated.

8.0 PREPARATION OF PLANS FOR REMOVAL ACTION AT SEDA SWMUs

The following section contains individual informal plans for removal actions at four low priority and one high priority area of concern (AOCs) at Seneca Army Depot Activity (SEDA). The plans are general and do not constitute the final details of remediation for these sites.

8.1 SEAD-25

The plan for SEAD-25 consists of an informal map of the area of concern (Figure 1 of Section 2) and a description of the logistics involved in carrying out the removal action. The removal action consists of the excavation of soil at SEAD-25, transportation to and treatment of the low temperature thermal desorption (LTTD) incinerator at the Ash Landfill. The logistics are listed below.

DESCRIPTION OF LOGISTICS

1) Excavation Process: An area 100 feet by 100 feet (shown in shaded area) will be excavated to bedrock which is expected to be at an average depth of 6 feet based on drilling performed at SEAD-25 during the ESI. the 100 foot by 100 foot area will be located at the former Fire Training and Demonstration Pad. The soil will be excavated with a backhoe and immediately loaded into trucks waiting adjacent to the excavation area. The amount of soil requiring removal will be approximately 2222 CY. After the soil has been loaded into the trucks, the trucks will be covered by a tarpaulin and will transport the soil to the Ash Landfill for treatment.

2) Directions to Incinerator: From SEAD-25, go south on Administration Avenue - Turn right onto 3rd Street - Proceed through Post 5 - Go straight through the first intersection and go all the way to the end of the road - Turn right then left onto Smith Farm Road. The Ash Landfill is approximately 300 yards down on the right.

3) Decon Procedures: Before the truck leaves the site, the outside of the truck will be inspected for loose soil and will be brushed down if soil is found. After the truck transporting the impacted soil has left the site, the area where the truck was parked during loading will be policed for loose soil. After the impacted soil has been loaded onto the truck, the backhoe will be brushed down to remove any impacted soil.

4) Post-Removal Verification Sampling: A total of 6 samples will be collected following the excavation. One grab sample will be collected from each of the four walls of the trench and two grab samples will be collected from the floor of the trench, one from each end. Each of the samples will be analyzed for VOCs and SVOCs by EPA Methods 8021 and 8270.

5) Air Monitoring: During the excavation operation, both air and particulate monitoring will be performed. The air monitoring will be performed according to the NYSDOH Community Air Monitoring Plan and the NYSDEC TAGM HWR-89-4031 of October 27, 1989. VOCs will be monitored with a photoionization detector (PID) and particulates will be monitored with a MiniRam. One VOC monitoring station will be placed 20 feet downwind of the excavation. Three particulate monitoring stations will be set up: one 20 feet upwind, one 20 feet downwind, and one will be placed within the work area.

6) Restoration: After the soil has been treated to acceptable levels, the soil will be returned to SEAD-25 and the hole will be backfilled into the treated soil.

8.2 SEAD-38

The plan for SEAD-38 consists of an informal map of the area of concern (Figure 1 of Section 4) with a description of the logistics involved in carrying out the removal action. The logistics are listed below.

DESCRIPTION OF LOGISTICS

1) Excavation Process: Two portoins of the blowdown area will be excavated (shown in shaded areas). From the origination of the drainage ditch to the north of Building 2709 where the blowdown liquids are suspected to have been released to 100 feet downstream, the ditch will be escavated three feet across and to a depth of 1 foot. At the approximate locaton where soil sample SS38-3 was collected

2) Soil Staging Area: The first 6 inches of soil that is excavated and set aside will be staged on a tarpaulin adjacent to the hole. No additional soil staging areas will be necessary because the impacted soil that is removed will immediately by loaded onto the trucks for transportation.

3) Directions to Incinerator: From Center Street take left onto Administration Avenue - Take right onto 3rd Street - Proceed through Post 5 - Go Straight across the first intersection and all the way to the end of the road - Turn right then left onto Smith Farm Road. The Ash Landfill is approximately 300 yards down on the right.

4) Decon Procedures: Before the trucks leave the site, the outside of the truck will be inspected for loose soil and will be brushed down if soil is found. After the trucks transporting the impacted soil has left the site, the area where the truck was parked will be policed for loose soil. After the last load of impacted soil has been loaded onto the trucks, the backhoe will be brushed down to remove any impacted soil.

5) Groundwater and Surface Water Controls: Because the excavation will only reach a depth of 1 foot, groundwater is not expected to be encountered. The operation will not be conducted in rainy weather, so no run-off/run-on controls will be necessary.

6) Post-Removal Verification Sampling: A total of 6 samples will be collected following the excavation. Samples will confirm that all impacted soil has been removed. A grab sample will be collected from each of the four walls of the hole between the 6-inch and 1-foot depth interval, one composite sample will be collected from the floor of the hole, and one sample will be collected from the 6 inches of topsoil that will not be treated to verify that it does not require treatment.

7) Air Monitoring: During the excavation operation, both air and particulate monitoring will be performed. The air monitoring will be performed according to the NYSDOH Community Air Monitoring Plan and the NYSDEC TAGM HWR-89-4031 of October 27, 1989. Volatile organic compounds (VOCs) will be monitored with a photoionization detector (PID) and particulates will be monitored with a MiniRam. One VOC monitoring station will be placed 20 feet upwind, one 20 feet downwind, and one will be placed within the work area.

8) Restoration: After the excavation has been completed, clean fill from SEDA will be trucked in and the hole will be backfilled.

8.3 SEAD-39

The plan consists of an informal map of the area of concern (Figure 1 of Section 5) with a description of the logistics involved in carrying out the removal action. The logistics are listed below.

DESCRIPTION OF LOGISTICS

1) Excavation Process: A 20 foot by 50 foot area will be excavated with a backhoe to a depth of 6 inches (shown in shaded area). This soil (mostly grass and topsoil) will be set aside and another 6 inches of soil will be excavated from the hole and placed in a truck waiting on Center Street adjacent to the excavation area. The amount of soil requiring removal will be approximately 18.5 CY. After the soil has been loaded into the trucks, the trucks will be covered will transport the soil to the Ash Landfill to be treated.

2) Soil Staging Area: The first 6 inches of soil that is excavated and set aside will be staged on a tarpaulin adjacent to the hole. No additional soil staging areas will be necessary because the impacted soil that is removed will immediately by loaded onto the trucks for transportation.

3) Directions to Incinerator: From Center Street take left onto Administration Avenue - Take right onto 3rd Street - Proceed through Post 5 - Go Straight across the first intersection and all the way to the end of the road - Turn right then left onto Smith Farm Road. The Ash Landfill is approximately 300 yards down on the right.

4) Decon Procedures: Before the trucks leave the site, the outside of the truck will be inspected for loose soil and will be brushed down if soil is found. After the trucks transporting the impacted soil has left the site, the area where the truck was parked will be policed for loose soil. After the last load of impacted soil has been loaded onto the trucks, the backhoe will be brushed down to remove any impacted soil.

5) Groundwater and Surface Water Controls: Because the excavation will only reach a depth of 1 foot, groundwater is not expected to be encountered. The operation will not be conducted in rainy weather, so no run-off/run-on controls will be necessary.

6) Post-Removal Verification Sampling: A total of 6 samples will be collected following the excavation. Samples will confirm that all impacted soil has been removed. A grab sample will be collected from each of the four walls of the hole between the 6-inch and 1-foot depth interval, one composite sample will be collected from the floor of the hole, and one sample will be collected from the 6 inches of topsoil that will not be treated to verify that it does not require treatment.

7) Air Monitoring: During the excavation operation, both air and particulate monitoring will be performed. The air monitoring will be performed according to the NYSDOH Community Air Monitoring Plan and the NYSDEC TAGM HWR-89-4031 of October 27, 1989. Volatile organic compounds (VOCs) will be monitored with a photoionization detector (PID) and particulates will be monitored with a MiniRam. One VOC monitoring station will be placed 20 feet upwind, one 20 feet downwind, and one will be placed within the work area.

8) Restoration: After the excavation has been completed, clean fill from SEDA will be trucked in and the hole will be backfilled.

8.4 SEAD-40

The plan for SEAD-40 consists of an informal map of the area of concern (Figure 1 of Section 6) with a description of the logistics involved in carrying out the removal action. The logistics are listed below.

DESCRIPTION OF LOGISTICS

1) Excavation Process: Two portions of the ditch alongside the railroad tracks will be excavated (shown in shaded areas). From the origination of the drainage ditch, an area 2 feet across the ditch and 10 feet down the length of the ditch will be excavated to a depth of 6 feet. From 10 feet from the origin of the ditch to 120 feet from the origin of the ditch, an area 2 feet across the ditch will be excavated to a depth of 1 foot. This soil will be excavated with a backhoe and immediately loaded into trucks waiting on the asphalt driveway area adjacent to the excavation area. The amount of soil requiring removal will be approximately 1.25 CY. After the soil has been loaded onto the trucks, the trucks will be covered by a tarpaulin and will transport the soil to the Ash Landfill for treatment.

2) Directions to Incinerator: From SEAD-40, turn left onto 1st Street - Turn right onto Avenue B - Turn right onto 3rd Street - Proceed through Post 5 - Go straight through the first intersection all the way to the end of the road - Turn right, then first left onto Smith Farm Road. The Ash Landfill is approximately 300 yards down on the right hand side.

3) Decon Procedures: Before the truck leaves the site, the outside of the truck will be inspected for loose soil and will be brushed down if soil is found. After the trucks transporting the impacted soil have left the site, the area where the trucks were parked during loading will be policed for loose soil. After the last load of impacted soil has been loaded onto the trucks, the backhoe will be brushed down to remove any impacted soil.

4) Post-Removal Verification Sampling: A total of 6 samples will be collected following the excavation. Samples will confirm that all impacted soil has been removed. One grab sample will be collected from each of the four walls of the trench and two grab samples will be collected from the floor of the trench, one from each end. Each of the samples will be analyzed for VOCs and SVOCs by EPA methods 8021 and 8270.

5) Groundwater and Surface Water Controls: Because the excavation will only reach a depth of 6 feet, and previous drilling to a depth of 6 feet at this site did not encounter groundwater, groundwater is not expected to be encountered. The operation will not be conducted in rainy weather, so no run-off/run-on controls will be necessary.

6) Air Monitoring: During the excavation operation, both air and particulate monitoring will be performed. The air monitoring will be performed according to the NYSDOH Community Air Monitoring Plan and the NYSDEC TAGM HWR-89-4031 of October 27, 1989. VOCs will be monitored with a photoionization detector (PID) and particulates will be monitored with a MiniRam. One VOC monitoring station will be placed 20 feet downwind of the excavation. Three particulate monitoring stations will be set up: one 20 feet upwind, one 20 feet downwind, and one will be placed within the work area.

7) Restoration: After the excavation has been completed, clean fill from SEDA will be trucked in and the hole will be backfilled.

8.5 SEAD-41

The plan for SEAD-41 consists of an informal map of the area of concern (Figure 1 of Section 7) with a description of the logistics involved in carrying out the removal action. The logistics are listed below.

DESCRIPTION OF LOGISTICS

1) Excavation Process: An area 40 feet along the length of a ditch and 3 feet across the ditch will be excavated to a depth of 1 foot (shown in shaded area). The approximate location of soil sample SS41-1 is the suspected discharge point for the blowdown liquids, so the excavation will extend 20 feet in each direction of flow from SS41-1. This soil will be excavated with a backhoe and immediately loaded into a truck waiting on the asphalt driveway area adjacent to the excavation area. The amount of soil requiring removal will be approximately 4.5 CY. After the soil has been loaded onto the truck, the trucks will be covered by a tarpaulin and will transport the soil to the Ash Landfill for treatment.

2) Directions to Incinerator: From SEAD-41, proceed west to the gate adjacent to Post 3 - Turn left onto North-South Baseline Road - Turn right onto Smith Farm Road. The Ash Landfill is approximately 300 yards down on the right.

3) Decon Procedures: Before the truck leaves the site, the outside of the truck will be inspected for loose soil and will be brushed down if soil is found. After the truck transporting the impacted soil has left the site, the area where the trucks were parked during loading will be policed for loose soil. After impacted soil has been loaded onto the trucks, the backhoe will be brushed down to remove any impacted soil.

4) Post-Removal Verification Sampling: A total of 6 samples will be collected following the excavation. One grab sample will be collected from each of the four walls of the trench and two grab samples will be collected from the floor of the trench, one from each end. Each of the samples will be analyzed for VOCs and SVOCs by EPA methods 8021 and 8270.

5) Groundwater and Surface Water Controls: Because the excavation will only reach a depth of 1 foot, groundwater is not expected to be encountered. The operation will not

be conducted in rainy weather, so no run-off/run-on controls will be necessary.

6) Air Monitoring: During the excavation operation, both air and particulate monitoring will be performed. The air monitoring will be performed according to the NYSDOH Community Air Monitoring Plan and the NYSDEC TAGM HWR-89-4031 of October 27, 1989. VOCs will be monitored with a photoionization detector (PID) and particulates will be monitored with a MiniRam. One VOC monitoring station will be placed 20 feet downwind of the excavation. Three particulate monitoring stations will be set up: one 20 feet upwind, one 20 feet downwind, and one will be placed within the work area.

7) Restoration: After the excavation has been completed, clean fill from SEDA will be trucked in and the hole will be backfilled.