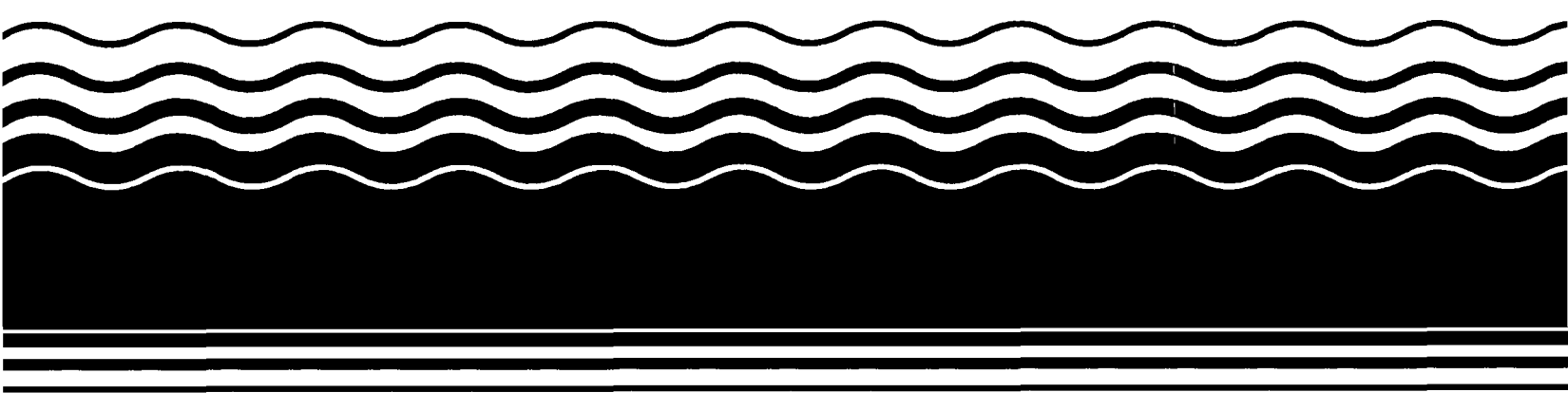




Superfund Record of Decision:

**Plattsburgh Air Force Base,
NY**



REPORT DOCUMENTATION PAGE		1. REPORT NO. EPA/ROD/R02-93/204	2.	3. Recipient's Accession No.																			
4. Title and Subtitle SUPERFUND RECORD OF DECISION Plattsburgh Air Force Base, NY Third Remedial Action				5. Report Date. 03/31/93																			
				6.																			
7. Author(s)				8. Performing Organization Rept. No.																			
9. Performing Organization Name and Address 				10. Project Task/Work Unit No.																			
				11. Contract(C) or Grant(G) No. (C) (G)																			
				13. Type of Report & Period Covered 800/800																			
12. Sponsoring Organization Name and Address U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460				14.																			
15. Supplementary Notes PB94-963812																							
16. Abstract (Limit: 200 words) The Plattsburgh Air Force Base site is located south of Plattsburgh, Clinton County, New York. Land use in the area is predominantly residential and light industrial. Ground water beneath the site is not used as a drinking water source. Plattsburgh Air Force Base (AFB) historically has been engaged in numerous operations that have required the use, handling, storage, and disposal of hazardous materials. The U.S. Department of Defense's Installation Restoration Program (IRP) identified 39 sites at Plattsburgh AFB with potential contamination by hazardous materials. One of these sites, the Defense Reutilization and Marketing Office (DRMO), or SS-011, is part of base industrial operations. This office handles Air Force-discarded materials that may have reclaimable components. Typical items handled at the DRMO include out-of-service transformers and used refrigerators. From 1970 to 1972, containers of pesticides containing DDT were stored at the site. During that time, the contents of one or more of the storage containers leaked, or was spilled, and was absorbed into the soil. In 1981, a transformer (PCB oil) spill occurred on a paved area of the site. As a result, the transformer fluids were cleaned off the pavement and the area was later excavated. In 1991, a removal action was initiated to facilitate rapid cleanup of DDT-contaminated soil at SS-011. In 1991, 400 feet of railroad track was removed and 600 yd ³ of (See Attached Page)																							
17. Document Analysis <table border="0"> <tr> <td>a. Descriptors</td> <td colspan="5">Record of Decision - Plattsburgh Air Force Base, NY Third Remedial Action Contaminated Media: None Key Contaminants: None</td> </tr> <tr> <td>b. Identifiers/Open-Ended Terms</td> <td colspan="5"></td> </tr> <tr> <td>c. COSATI Field/Group</td> <td colspan="5"></td> </tr> </table>						a. Descriptors	Record of Decision - Plattsburgh Air Force Base, NY Third Remedial Action Contaminated Media: None Key Contaminants: None					b. Identifiers/Open-Ended Terms						c. COSATI Field/Group					
a. Descriptors	Record of Decision - Plattsburgh Air Force Base, NY Third Remedial Action Contaminated Media: None Key Contaminants: None																						
b. Identifiers/Open-Ended Terms																							
c. COSATI Field/Group																							
18. Availability Statement		19. Security Class (This Report) None		21. No. of Pages 34																			
		20. Security Class (This Page) None		22. Price																			

Abstract (Continued)

contaminated soil was excavated and disposed of offsite in a RCRA landfill. Soil containing greater than or equal to 1,000 mg/kg DDT was incinerated offsite. Excavated areas were backfilled and regraded, and the original drainage patterns were restored. A 1992 ROD addressed contaminated soil, sediment, waste, and surface water at area LF-023, as OU1. A second 1992 ROD addressed contaminated soil and debris at area LF-022, as OU3. Future RODs will address other areas of contamination at the Air Force Base, including ground water contamination emanating from SS-017. This ROD addresses the contaminated soil at area SS-011, as OU4. Results of the Risk Assessment show that the previous removal action was effective in achieving protection of human health and the environment and no further action is proposed for area SS-011; therefore, there are no contaminants of concern affecting this site.

The selected remedial action for this site is no further action. EPA has determined that previous actions at the SS-011 area have been effective in achieving protection of human health and the environment. Five year inspections will be conducted to assess the general conditions at the site, including the process of revegetation of areas disturbed by the removal actions and potential effects of runoff from or onto the site. The first inspection was conducted in 1992. There are no present worth or O&M costs associated with this no action remedy.

PERFORMANCE STANDARDS OR GOALS:

Not applicable.

ROD FACT SHEET

SITE

Name : Plattsburgh Air Force Base
Location/State : Plattsburgh, New York
EPA Region : II
HRS Score (date): 30.34 - November 21, 1989

ROD

Date Signed: March 31, 1993
Remedy/ies: Removal Action: Soil Excavation / Offsite
Disposal. ROD: No further Action

Operating Unit Number: OU-4

Capital cost: \$ 0

Construction Completion: N/A

O & M in 1993: \$ 0

1994: \$ 0

1995: \$ 0

1996: \$ 0

Present worth: negligible

- * Removal Action completed in November 1991, site restoration completed in May 1992. Additional confirmatory samples were analyzed in November 1992. Remedial Decision is for No Further Action other than 5 year site inspections/evaluations, at negligible cost. First inspection was conducted in November 1992.

LEAD

PRP Enforcement

Primary contact EPA: Robert D. Morse, Remedial Project Manager
(212) 264-1841

Secondary contact EPA: Robert Wing, Federal Facilities Section
Chief - (212) 264-8670

PRP Contact Plattsburgh AFB: Mr. Michael Sorel, P.E., Chief
Environmental Management Flight -
(518) 565-6678;

- * Site is a Federal Facility. Facility is the lead. EPA provides oversight through Federal Facilities Agreement.

WASTE

Type: DDT

Medium: Soil

Origin : Spillage from pesticide containers stored at the site.

Est. quantity: 600 cu.yd. of soil removed. Spill quantity
unknown.

DEFENSE REUTILIZATION AND MARKETING OFFICE SITE (SS-011)

RECORD OF DECISION

Plattsburgh Air Force Base
Plattsburgh, New York

FINAL
MARCH 1993

**Plattsburgh Air Force Base
Installation Restoration Program**



Prepared by:
URS Consultants, Inc.
282 Delaware Avenue
Buffalo, New York 14202

**INSTALLATION RESTORATION PROGRAM
DEFENSE REUTILIZATION AND MARKETING OFFICE (SS-011)**

RECORD OF DECISION

PLATTSBURGH AIR FORCE BASE

PLATTSBURGH, NEW YORK

FINAL

Prepared By:

**URS Consultants, Inc.
282 Delaware Avenue
Buffalo, New York 14202**

March 1993

TABLE OF CONTENTS

	<u>Page No.</u>
DECLARATION FOR THE RECORD OF DECISION	iii
1.0 SITE NAME, LOCATION, AND DESCRIPTION	1-1
2.0 SITE HISTORY	2-1
2.1 Land Use and Response History	2-1
2.2 Federal Facilities Agreement History	2-2
3.0 COMMUNITY PARTICIPATION	3-1
4.0 SCOPE AND ROLE OF REMOVAL ACTION	4-1
5.0 SUMMARY OF SITE CHARACTERISTICS	5-1
6.0 SUMMARY OF SITE RISKS	6-1
6.1 Contaminated Media	6-1
6.2 Contaminants of Concern	6-1
6.3 Exposure Scenarios	6-1
6.4 Risks to Human Populations	6-2
6.5 Summary of Environmental Risks	6-2
7.0 DESCRIPTION OF THE NO FURTHER ACTION PREFERRED ALTERNATIVE	7-1
8.0 DOCUMENTATION OF NO SIGNIFICANT CHANGES	8-1
9.0 STATE ROLE	9-1
10.0 RESPONSIVENESS SUMMARY	10-1

REFERENCES

APPENDIX A - NYSDEC DECLARATION OF CONCURRENCE WITH PREFERRED
 ALTERNATIVE

LIST OF TABLES

	<u>Following Page No.</u>
2-1 Investigation Chronology: SS-011	2-1
5-1 Summary of Organic and Inorganic Chemicals Remaining On Site	5-1
6-1 Contaminants of Concern Utilized in Risk Assessment	6-1
6-2 Summary of Human Health Risks	6-2

LIST OF FIGURES

<u>Figure No.</u>	<u>Following Page No.</u>
1-1 Vicinity Location Map	1-1
1-2 Site Location Map: SS-011	1-1
1-3 Site Plan Map: SS-011	1-1
4-1 DRMO SS-011 Depth of Excavation	4-2
5-1 Interpretive Geologic Profile A-A'	5-1
5-2 Potentiometric Surface - January 1989	5-1
5-3 Summary of DDT Screening Data	5-1
5-4 Post-Excavation Residual DDT	5-2

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Plattsburgh Air Force Base (AFB),
Defense Reutilization and Marketing Office (SS-011)
Plattsburgh, New York

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents a selected remedial action for soils at Site SS-011 on Plattsburgh AFB in Plattsburgh, New York. This document was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for this site, a copy of which is located at Plattsburgh AFB.

The remedy has been selected by the U.S. Air Force (USAF) and the U.S. Environmental Protection Agency (USEPA) with the concurrence of the New York State Department of Environmental Conservation (NYSDEC) pursuant to a federal facilities agreement among the parties under Section 120 of CERCLA.

Groundwater contamination present in wells at Site SS-011 appears to be caused by an upgradient source. This upgradient source is currently under investigation as part of the Remedial Investigation at Site SS-017.

DESCRIPTION OF THE REMEDY

Inasmuch as prior removal actions taken to excavate and dispose of DDT (4,4'-dichlorodiphenyltrichloroethane) contaminated soils in 1991 have proven protective of human health and the environment, no further action has been determined necessary at Site SS-011 to reduce site contaminants beyond their current levels. Inspections will be conducted, once per five-year period, to assess the general condition of the site, including the progress of revegetation in areas disturbed by the 1991 removal action and the potential effects of runoff from or onto the site. After each inspection, an evaluation will be undertaken to insure the continued protection of human health and the environment.

DECLARATION

Target Cleanup Levels considered to be protective of ecological and human receptors were approved by NYSDEC and USEPA on July 23, 1990. The removal action undertaken in 1991 was considered, therefore, to be protective of human health and the environment, and to be ARAR-compliant. Sampling and analysis were conducted concurrently during the removal activities, both to determine the adequacy of the removal action, and for use in the baseline risk assessment (RA). Results of the RA show that the removal action was fully effective in achieving protection of human health and the environment. Therefore, no further action is necessary.

WILLIAM J. MUSZYNSKI P.E.
Acting Regional Administrator, USEPA Region II

Date



GARY D. VEST

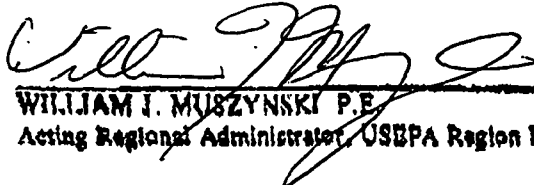
Deputy Assistant Secretary of the Air Force
(Environment, Safety, and Occupational Health)

3/31/93

Date

DECLARATION

Target Cleanup Levels considered to be protective of ecological and human receptors were approved by NYSDEC and USEPA on July 23, 1990. The removal action undertaken in 1991 was considered, therefore, to be protective of human health and the environment, and to be ARAR-compliant. Sampling and analysis were conducted concurrently during the removal activities, both to determine the adequacy of the removal action, and for use in the baseline risk assessment (RA). Results of the RA show that the removal action was fully effective in achieving protection of human health and the environment. Therefore, no further action is necessary.


WILLIAM J. MUSZYNSKI P.E.
Acting Regional Administrator, USEPA Region II

3/31/93
Date


GARY D. VEST
Deputy Assistant Secretary of the Air Force
(Environment, Safety, and Occupational Health)

3/31/93
Date

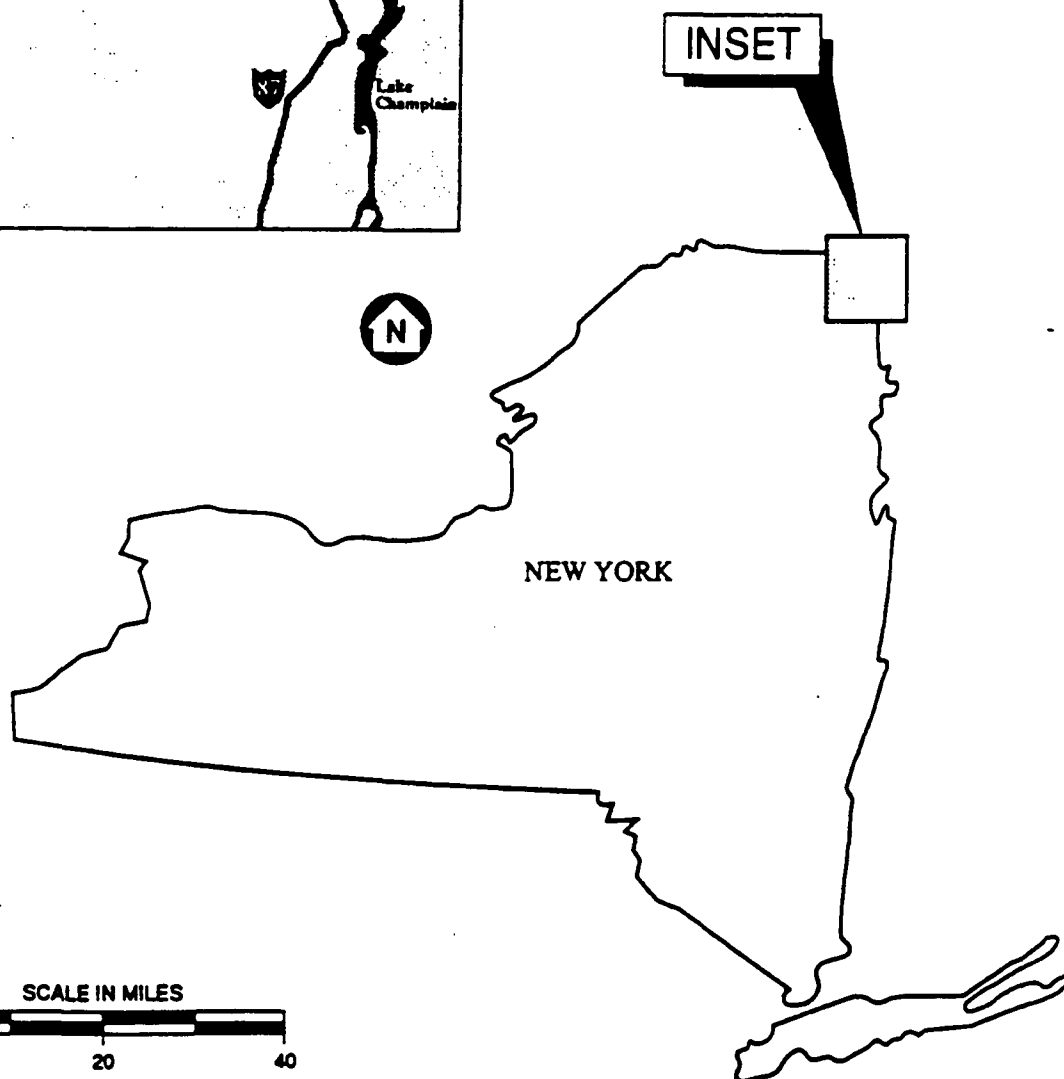
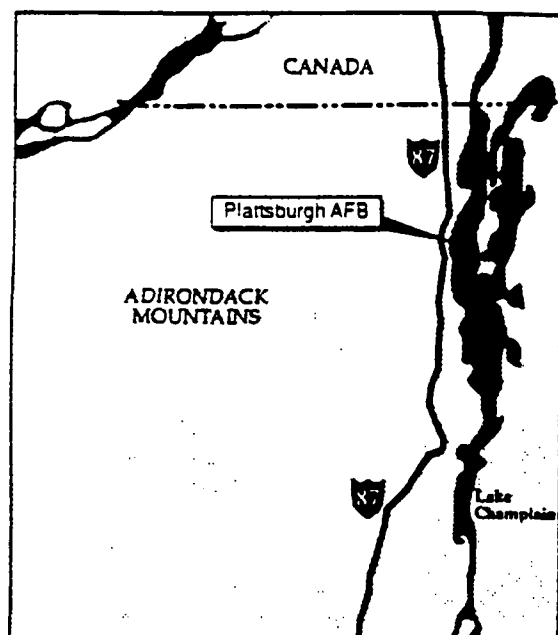
3391.00000
NYSDEC/USEPA

14

1.0 SITE NAME, LOCATION, AND DESCRIPTION

Plattsburgh AFB is located in Clinton County in northeastern New York State, bordered on the north by the city of Plattsburgh and on the east by Lake Champlain (Figure 1-1). It lies approximately 26 miles south of the Canadian border and 167 miles north of Albany. Site SS-011, the Defense Reutilization and Marketing Office (DRMO), is part of base industrial operations. It is located along the eastern side of Idaho Avenue, with an unused railroad track running the length of the site's southeast border (Figure 1-2). This office handles Air Force-discarded materials that may have reclaimable components. Typical items handled at the DRMO include out-of-service transformers and used refrigerators. The facility consists of several small buildings that serve as both covered storage and administrative offices, and a large adjacent paved area used as open storage (Figure 1-3). For security, the entire facility is enclosed by a chain-link fence that is locked during nonworking hours. Northeast of the site are approximately 90 wooded acres with recreational trails used by base personnel. The base golf course is to the south and within several hundred feet of SS-011.

A more complete description of SS-011 may be found in the Defense Reutilization and Marketing Office (SS-011) Remedial Investigation Report, Section 3.0 - Physical Site Characteristics.

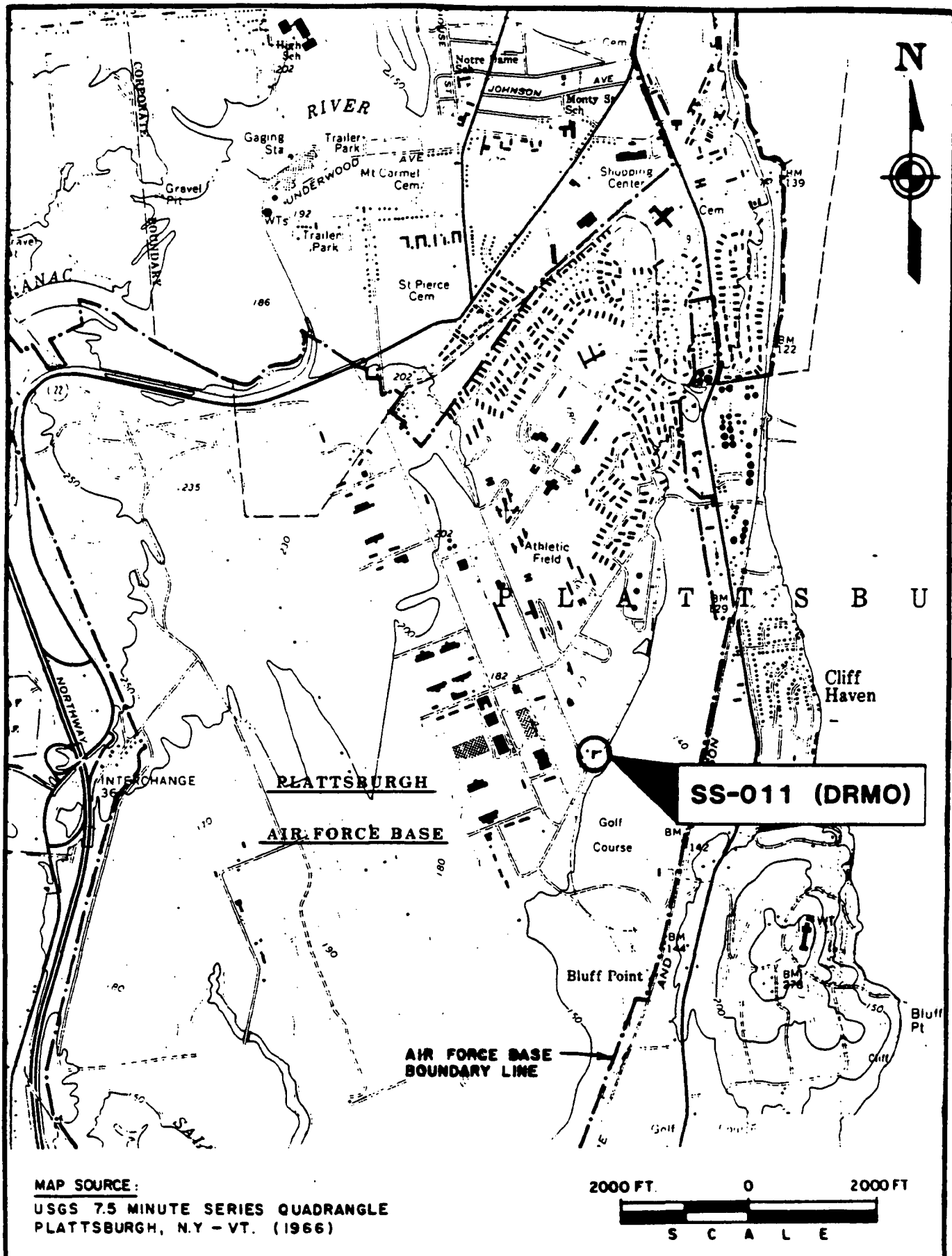


SOURCES

- 1) NORTH AMERICAN ROAD ATLAS,
H.M. GOUSHA CO.; 1982
- 2) E.C. JORDAN CO.; REMEDIAL
INVESTIGATION REPORT

FIGURE 1-1

VICINITY LOCATION MAP



A-4707

URS
 CONSULTANTS, INC.

SITE LOCATION MAP: SS-011

FIGURE 1-2

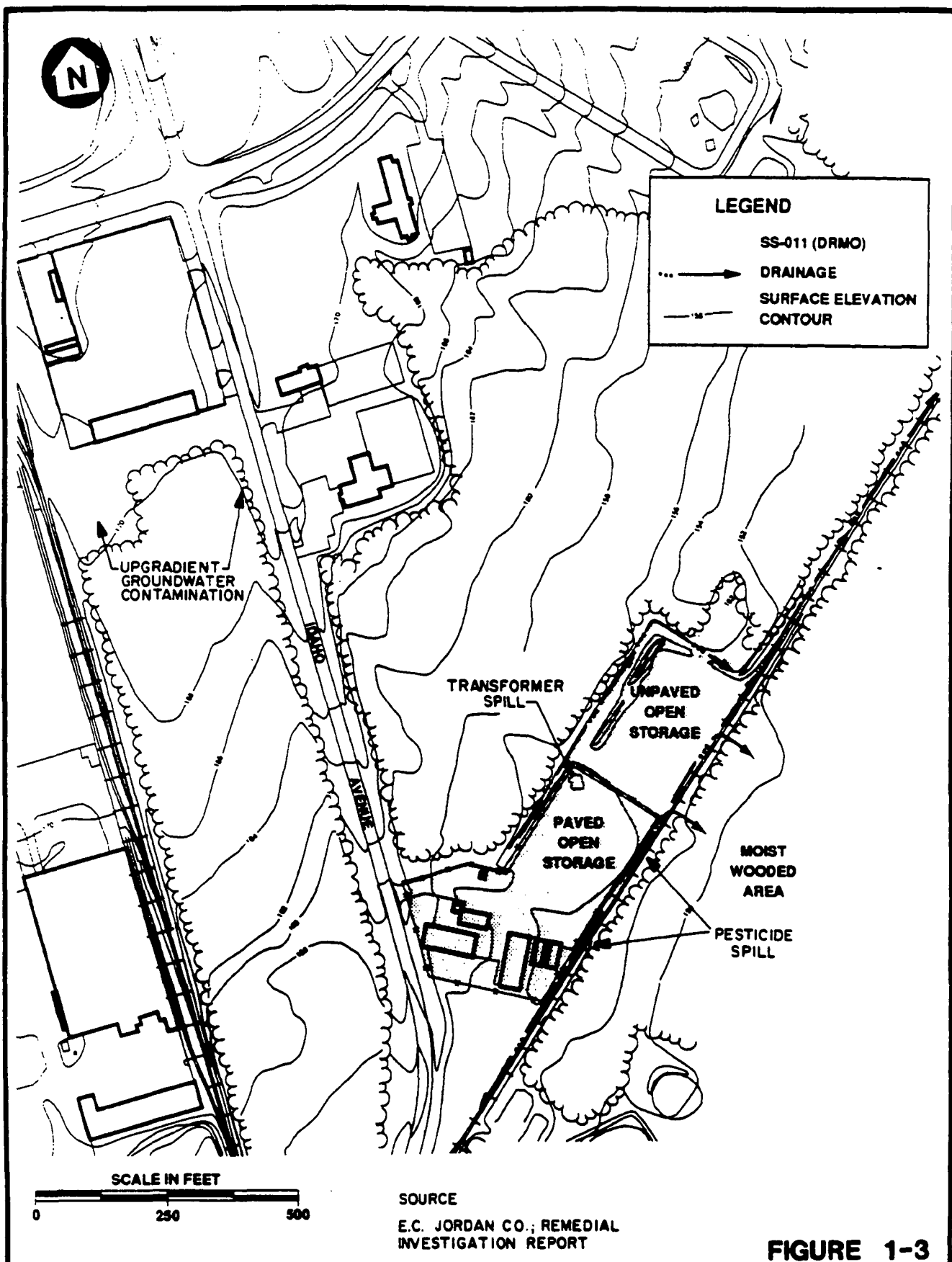


FIGURE 1-3

SITE PLAN MAP: SS-011

A-4676

2.0 SITE HISTORY

In accordance with Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Plattsburgh AFB is publishing this Record of Decision (ROD) to address public review and comment on the selected alternative. Plattsburgh AFB, in conjunction with USEPA and NYSDEC, have considered public comments in selecting the remedy for SS-011. This ROD summarizes the results and conclusions of the Remedial Investigation (RI), Risk Assessment (RA), and Proposed Plan and addresses any public comments received.

2.1 Land Use and Response History

SS-011 is located on the eastern side of the base along Idaho Avenue (See Figure 1-2). Containers of pesticides containing DDT (4,4'-dichlorodiphenyltrichloroethane) were stored at the site from 1970 to 1972. During that time, the contents of one or more of the storage containers leaked or was spilled. Spillage ran off the paved open storage area and into soils along the railroad tracks on the yard's eastern side. Because pesticides in general are only slightly soluble in water, it is common practice to dissolve them in a petroleum-based carrier (i.e., kerosene).

In December 1981, a transformer (PCB oil) spill occurred in the northwest corner of the paved area. The transformer fluids were cleaned off the frozen pavement surface and the area was excavated the following spring.

Several site investigations have been conducted at SS-011 as part of the Installation Restoration Program (IRP) at Plattsburgh AFB. A Preliminary Assessment evaluated whether the site was potentially contaminated and required further investigation. The Preliminary Assessment prompted a Site Inspection (SI) to confirm the presence of contamination. SI activities included a Soil Organic Vapor (SOV) survey, surface soil sampling, soil borings, monitoring well installation, and an associated analytical program. Because SI results indicated the presence of contaminants, an RI was conducted to characterize the nature and extent of contamination at SS-011. RI activities included the installation of additional monitoring wells, the sampling and analysis of surface and subsurface soils, and the implementation of an extensive field screening program to determine the areal and subsurface distribution of DDT.

On January 18, 1990, USEPA and NYSDEC concurred that a non-time-critical removal action was warranted to facilitate rapid cleanup of DDT-contaminated soils at SS-011. A comparative analysis of the alternatives was performed in 1990 as part of an Engineering Evaluation/Cost Analysis, and a remedial alternative that was protective of human health and the environment, ARAR-compliant, readily implementable, and cost-effective was selected. Details are provided in Section 4.0 of this document. In summary, approximately 400 feet of railroad track was removed and 600 cubic yards of contaminated soil were excavated and removed from the site.

Subsequent to the removal action, additional soil samples were taken to confirm the extent of DDT in soils. A risk assessment (RA) was then completed to determine the impact of remaining site contaminants upon human health and the environment. A summary of field investigations undertaken at SS-011 is given in Table 2-1.

TABLE 2-1
INVESTIGATION CHRONOLOGY
SS-011 RI
PLATTSBURGH AFB

PROGRAM	DATES CONDUCTED	CONSULTANT
Preliminary Assessment	Spring 1984 - Spring 1985	Radian
Site Inspection	Fall 1987 - Summer 1988	Jordan Co.
Remedial Investigation (Phase I)	Fall 1988	E.C. Jordan Co.
Supplemental Groundwater Sampling	Summer 1989	E.C. Jordan Co.
Remedial Investigation (Phase II)	Fall 1989	E.C. Jordan Co.
Removal Action	Fall 1991	E.C. Jordan Co.
Supplemental Sampling Event	November 1992	URS Consultants, Inc.

2.2 Federal Facilities Agreement History

Activities at SS-011 have been conducted as part of the Defense Environmental Restoration Program (DERP), which was established to clean up hazardous waste disposal and spill sites at Department of Defense facilities nationwide. The Installation Restoration Program (IRP) is the U.S. Air Force subcomponent of the DERP. The IRP operates under the scope of CERCLA, as amended by the 1986 Superfund Amendments and Reauthorization Act.

The IRP at Plattsburgh AFB has included (1) a Preliminary Assessment to evaluate which sites are potentially contaminated, (2) SIs to confirm the presence or absence of contamination at identified sites, and (3) an ongoing RI program at sites confirmed to have contamination. On November 21, 1989, Plattsburgh AFB was included on the National Priorities List (NPL) of hazardous waste sites and will be remediated according to the federal facilities agreement entered into among the U.S. Air Force, USEPA, and NYSDEC on July 10, 1991.

3.0 COMMUNITY PARTICIPATION

Plattsburgh AFB has kept the community and other interested parties apprised of activities at SS-011 through informational meetings, fact sheets, press releases and public meetings. On August 1, 1989, Plattsburgh AFB held its first Technical Review Committee (TRC) meeting to involve residents of Clinton County and state and federal regulatory agencies in decisions concerning IRP environmental response activities. The TRC currently meets quarterly to discuss plans and results of the RI/FS activities. In December 1990, Plattsburgh AFB released a community relations plan outlining a program to address community concerns and keep citizens informed about and involved in activities during remedial activities.

The Plattsburgh AFB Site SS-011 Administrative Record has been available for public review at Plattsburgh AFB in Plattsburgh, New York since October 20, 1990 and has been advertized several times during the removal action and RI/FS process. Plattsburgh AFB published a notice and brief analysis of the Proposed Plan in the Press-Republican on February 24, 1993 and made the Proposed Plan available to the public at the Plattsburgh Public library on the same date.

On March 9, 1993, Plattsburgh AFB held a public informational meeting to discuss the results of the RI and the No Further Action alternative, present the Proposed Plan, and answer questions from the public. No one from the community attended the meeting. On February 24, 1993, Plattsburgh AFB opened a 30-day public comment period to accept public comment on the alternative presented in the Proposed Plan and on any other documents previously released to the public. The written comments received during the public comment period and Plattsburgh AFB's response to comments are included in the attached Responsiveness Summary (See Section 10.0 of this document).

4.0 SCOPE AND ROLE OF REMOVAL ACTION

On January 18, 1990, USEPA and NYSDEC Project Managers for Plattsburgh AFB concurred that a non-time-critical removal action was warranted to facilitate rapid cleanup of DDT-contaminated soils detected during the 1988 sampling for the RI (Phase I) at Site SS-011. The objectives of the removal action were to reduce risk to human health and the environment posed by direct contact with and/or ingestion of DDT-contaminated site soil.

To identify the level to which soils would require removal, a Target Cleanup Level evaluation was performed (E.C. Jordan, 1990a). Following evaluation of human health and ecological risks, it was determined that of the two receptors, the non-human (i.e., ecological) receptors were at greater risk from DDT. Using ecological risk assessment techniques, three environmental Target Cleanup Levels for DDT were evaluated to assess their impact on the environment: 1 mg/kg, 10 mg/kg, and 100 mg/kg. Based on the results of this evaluation, a final Target Cleanup Level of 10 mg/kg was selected. This level was further evaluated to assess the residual risk to human health associated with this concentration of DDT in site soils. This Target Cleanup Level, which was considered to be protective of ecological and human receptors, was approved by NYSDEC and USEPA on July 23, 1990.

An Engineering Evaluation/Cost Analysis (E.C. Jordan, 1990c) was prepared to document removal action objectives, Target Cleanup Level evaluation, and removal action alternatives. Because DDT is listed as U061 (a hazardous waste according to 40 CFR Part 261), placement of excavated DDT-contaminated soil is regulated under the RCRA Land Disposal Restrictions (LDRs), 40 CFR Part 268. Alternatives for treatment and disposal of the excavated soil were developed with regard to LDR treatment standards and schedules. Each of the alternatives included excavation of all soil above the 10 mg/kg Target Cleanup Level. The selected action, involved excavation, offsite land disposal of soil containing less than 1,000 mg/kg of DDT (in a RCRA landfill), and offsite incineration of soil containing greater than or equal to 1,000 mg/kg DDT. This alternative was selected because it would be protective of human health and the environment, ARAR-compliant, readily implementable, and cost-effective.

The removal action was initiated in August 1991 by TRICIL Environmental Response of Chattanooga, Tennessee. Approximately 400 feet of railroad track was removed and 600 cubic yards of soil were excavated.

Railroad ties, ballast, grubbed materials, and excavated soils containing less than 1,000 mg/kg of DDT were transported off site by a licensed hazardous waste hauler to the GSX Services Landfill in Pinewood, South Carolina. Soils containing DDT at 1,000 mg/kg or greater (45 cubic yards) were transported to the Trade Waste, Inc. incinerator in Sauget, Illinois. Transportation vehicles were decontaminated before leaving the site.

Sampling and analysis were conducted concurrently during excavation activities by TRICIL to confirm that all soils exceeding the 10 mg/kg target level had been excavated and to determine which excavated soils contained greater than or less than 1,000 mg/kg of DDT. Ninety-eight (98) samples were collected by TRICIL and analyzed by quick laboratory turnaround for DDT, DDE, and DDD. Twenty (20) percent of the samples were collected in duplicate and shipped to a USEPA-approved laboratory for analysis. Twenty (20) sample locations within the

excavated area (SS-11-028 through SS-11-047) were randomly selected and soil samples were collected by ABB-ES for: (1) laboratory analysis; (2) final Level D confirmation of the adequacy of the removal action; and (3) use in the baseline risk assessment. These samples were collected at the bottom of the excavation. Six of the samples (SS-11-028, SS-11-032, SS-11-037, SS-11-042, SS-11-044, and SS-11-046) were split with NYSDEC. No statistical variation was identified between the split-sample data sets. Results of the first round of random sampling indicated that six of the sample locations continued to exceed the 10 mg/kg DDT cleanup target.

Locations where DDT levels exceeded 10 mg/kg were excavated further and resampled by TRICIL. Six additional samples were collected by Plattsburgh AFB and NYSDEC at the locations where the level of DDT had been greater than 10 mg/kg in the random sampling round. These data were used for final confirmation of the adequacy of the removal action.

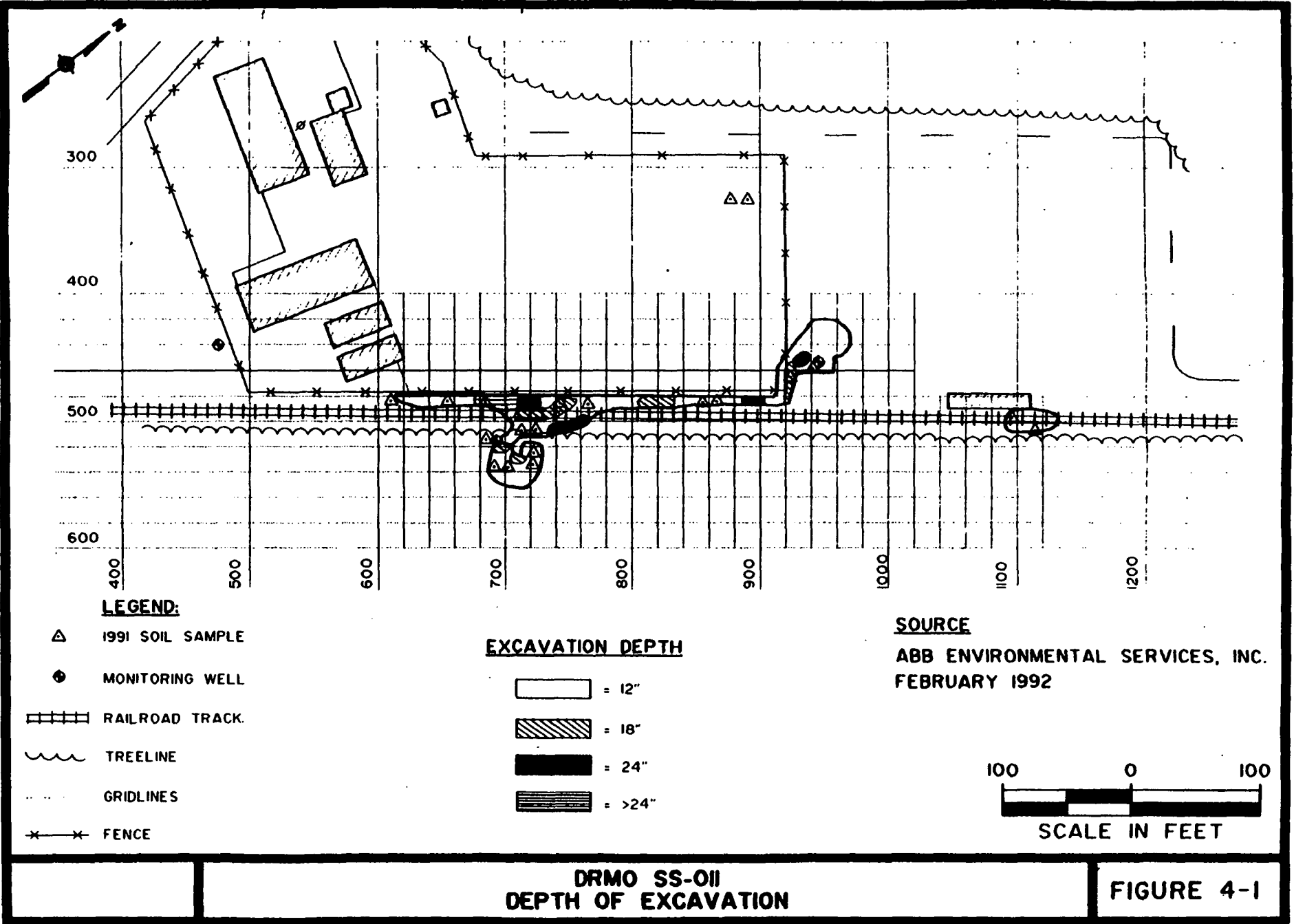
Aroclor 1260 (a PCB) was detected in two of the samples (at 8.1 and 0.34 ppm) collected during the random sampling, both occurring at locations outside the excavation. Two additional soil samples (SS-11-048 and SS-11-049) were collected in the center of the reported PCB spill. No PCBs were detected in either of these samples.

The depth and extent of the excavation is presented in Figure 4-1.

Excavation and removal of soil and debris from the site was completed in November 1991. Site restoration began immediately upon the completion of the removal action. Excavated areas were backfilled with clean fill similar to the original soil removed and the areas were regraded to restore original drainage patterns as indicated by the topographic survey. Regraded areas were then replanted with native plants. The railroad tracks were replaced using the original (decontaminated) rails and new ties and ballast, and the fence surrounding the DRMO was repaired. Site restoration was completed during the spring of 1992.

Ongoing post-closure activities at the site consist of inspections to assess the general condition of the site, including the progress of revegetation and potential effects of runoff from or onto the site. One inspection was completed in 1992 and future inspections are planned at five-year intervals.

Site SS-011 is one of a number of individual areas at the PAFB, a National Priorities List Site, being investigated for potential remediation activities. Remediation of other areas at PAFB has or will be addressed in separate studies/Records of Decision.



5.0 SUMMARY OF SITE CHARACTERISTICS

To define the nature and distribution of contaminants detected during the SI, a two-phased RI was conducted. The data quality objectives for the RI were to: (1) define the distribution of DDT-contaminated soils to support a removal action and baseline risk assessment; (2) confirm cleanup of a transformer (PCB oil) spill that had occurred at the site; and (3) confirm the upgradient origin of halogenated organic chemicals in groundwater. During the RI, the site was physically and chemically characterized in order to reach the data quality objectives.

The site is underlain by Pleistocene marine deposits consisting of poorly-graded, medium-to-fine sand deposits changing to silt and fine sand down to a depth of 30 feet on the west side and 4 feet on the east side. This deposit is underlain by a layer of firm clay approximately 7 feet thick. The clay is in turn underlain by approximately 16 feet of glacial till, with carbonate bedrock below. A geologic cross-section is presented in Figure 5-1. The water table was encountered approximately 2 to 7 feet below ground surface. Groundwater flow is to the southeast, as shown in Figure 5-2, with a horizontal gradient of about 0.02 ft/ft. The seepage velocity was calculated to be about 73 feet per year.

Potential migration of contaminants from surficial soil was identified to be through groundwater, surface water/sediments, fugitive dust, and vapors. Potential receptors included humans (area and on-base personnel), and biota (terrestrial and aquatic). Potential exposure routes included ingestion, direct contact, and inhalation. It was determined, however, that migration of contaminants off site via groundwater or in eroded surface sediments does not appear to be occurring.

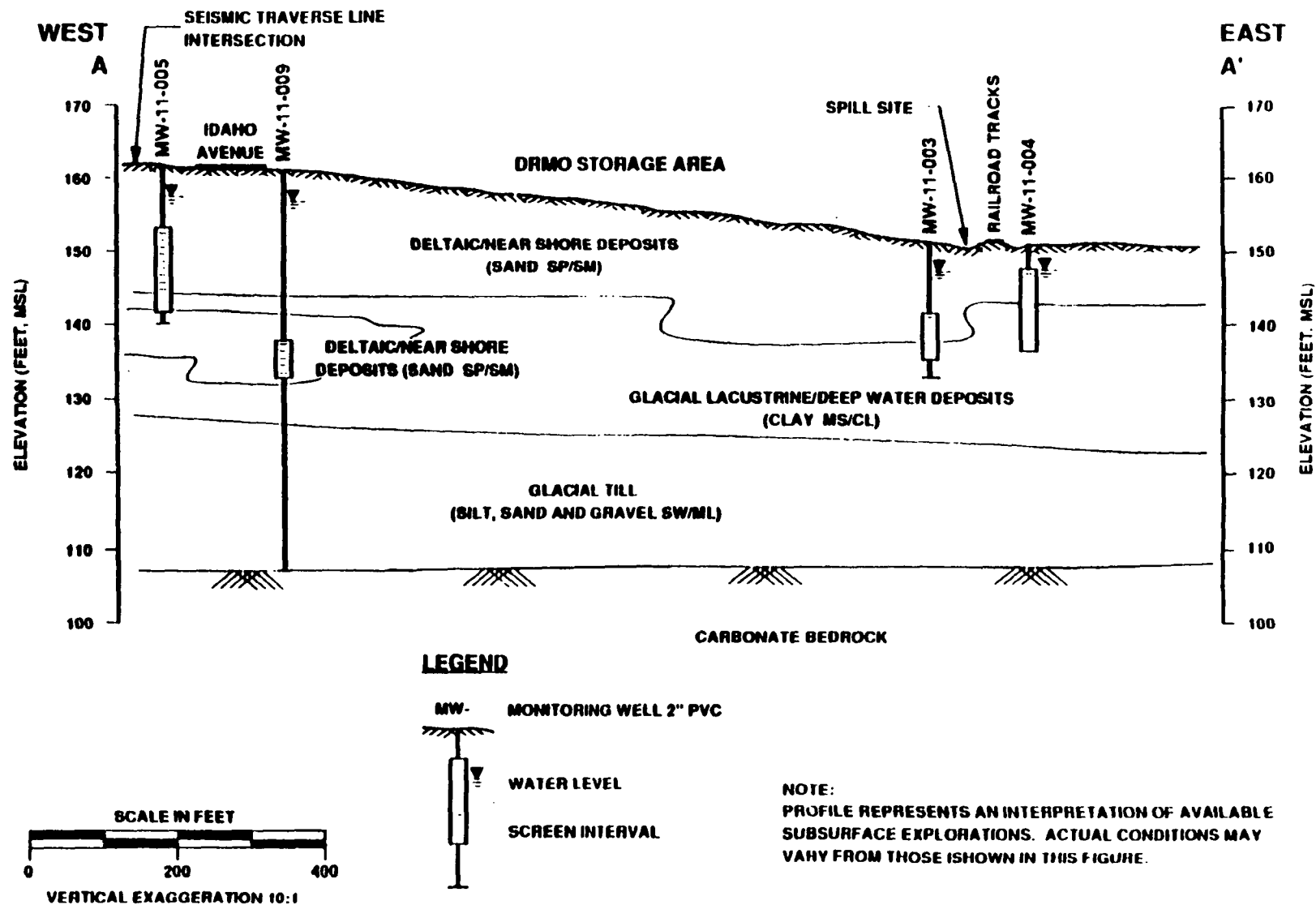
Investigation of site characteristics has included the installation of a monitoring well network on site and upgradient of the DRMO, a Soil Organic Vapor (SOV) survey, surface soil sampling, the advancement of subsurface soil borings, and chemical analysis of samples in field and offsite laboratories.

In the fall of 1989, an extensive field screening program was implemented to determine the areal and subsurface distribution of DDT. The purpose of this field screening was to support a Target Cleanup Level (TCL) determination to address human health and ecological risks. An Engineering Evaluation/Cost Analysis (EE/CA) for a DDT soil removal action was conducted based on the TCL. USEPA and NYSDEC concurred that a non-time-critical removal action would be warranted to facilitate rapid cleanup. A field screening sampling plan was designed using a grid with 20-foot node spacing. The grid was extended, as data from field screening became available, to encompass depressions and drainage pathways containing detectable concentrations of pesticides. Approximately 150 samples were collected and analyzed in the field to provide real-time data and to further direct the sampling program. Three small areas of relatively high (greater than 100 ppm) DDT concentrations were identified during the field screening investigation. Results of the field screening are shown in Figure 5-3. Data from this investigation were used to develop the plan for the 1991 removal action (see Section 4.0).

A summary of organic and inorganic chemicals remaining in the soil and the groundwater matrices following the 1991 removal action is given as Table 5-1. Remaining pesticide contamination is confined to the surface and near-surface soils.

A-4709

FIGURE 5-1 Interpretive Geologic Profile A-A'



320.0000

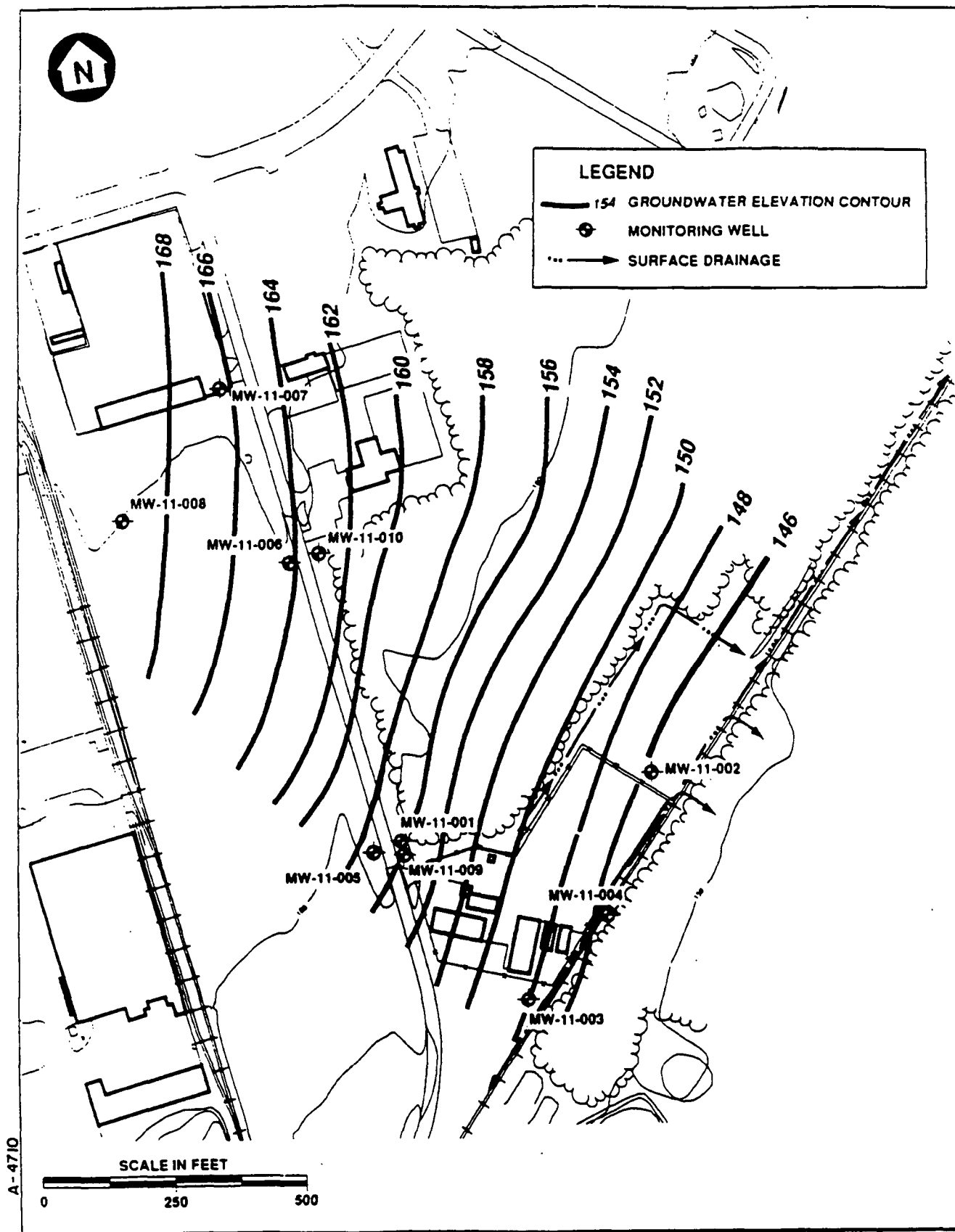


FIGURE 5-2 Potentiometric Surface - January 1989

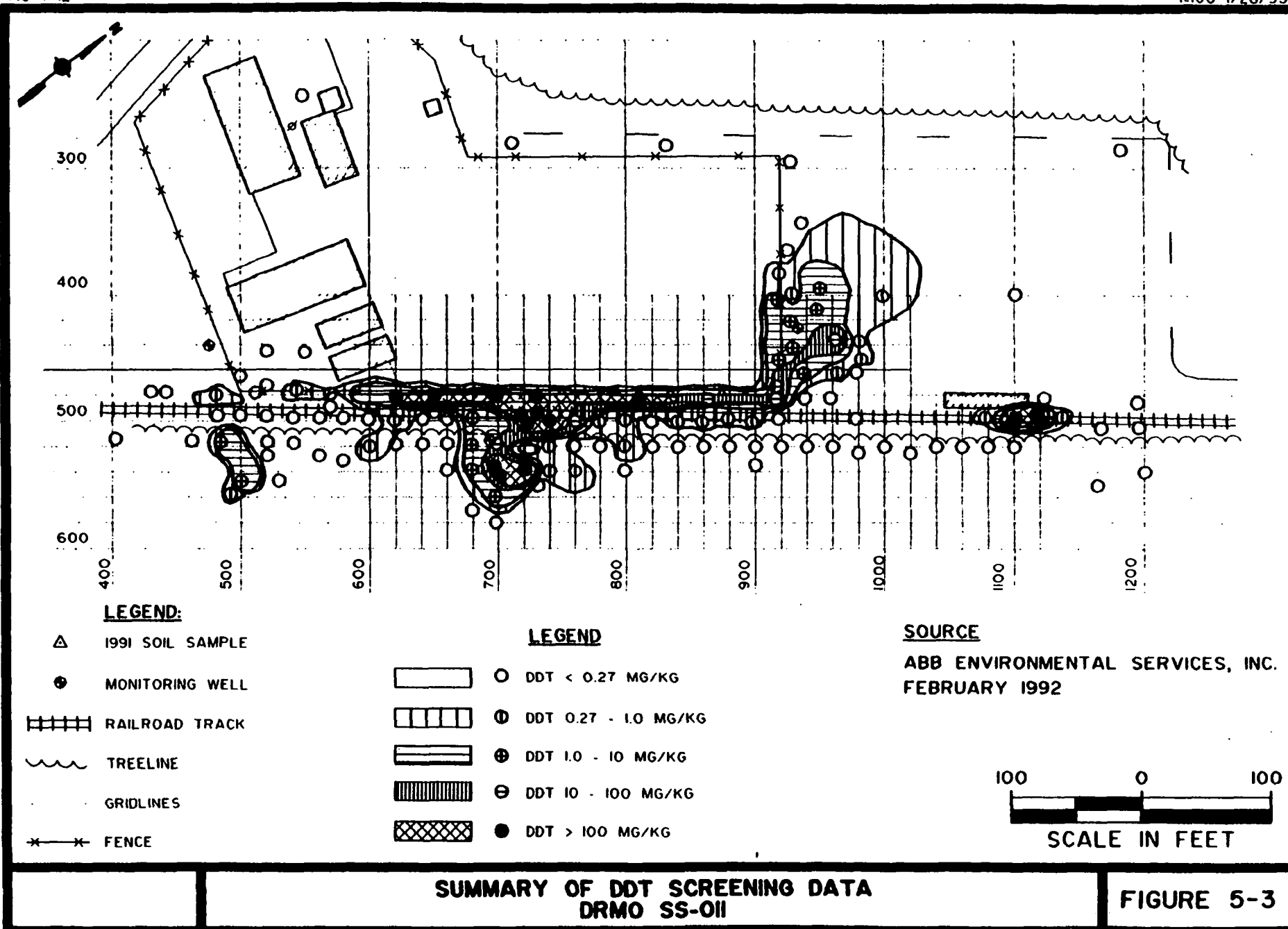


TABLE 5-1

SUMMARY OF ORGANIC AND INORGANIC CHEMICALS REMAINING ON SITE

MATRIX	CHEMICAL	MAXIMUM DETECTED CONCENTRATION (ppm)
Soil (1)	Tetrachloroethene	0.014
	Xylene (Total)	0.009
	bis(2-ethylhexyl)phthalate	0.530
	DDD	4.200
	DDE	0.670
	DDT	13.00
	alpha-Chlordane	0.220
	gamma-Chlordane	0.330
	Methoxychlor	0.065
	beta-BHC	0.029
	Dieldrin	0.078
	Heptachlor	0.060
	Aroclor-1260	8.100
	Heptachlor Epoxide	0.076
	Aluminum	10,900
	Barium	100
	Beryllium	2.600
	Cadmium	9.200
	Calcium	15,900
	Chromium	61
	Copper	40
	Iron	79,200
	Lead	75
	Magnesium	10,300
	Manganese	570
	Mercury	0.630
	Nickel	16
	Potassium	2,740
	Vanadium	109
	Zinc	135
Groundwater (2)	2-Butanone*	0.026
	1,2-Dichloroethene (total)*	0.0015
	Benzene*	0.001
	Naphthalene*	0.0045
	bis(2-ethylhexyl)phthalate*	0.0075

(1) Includes surface and subsurface soils.

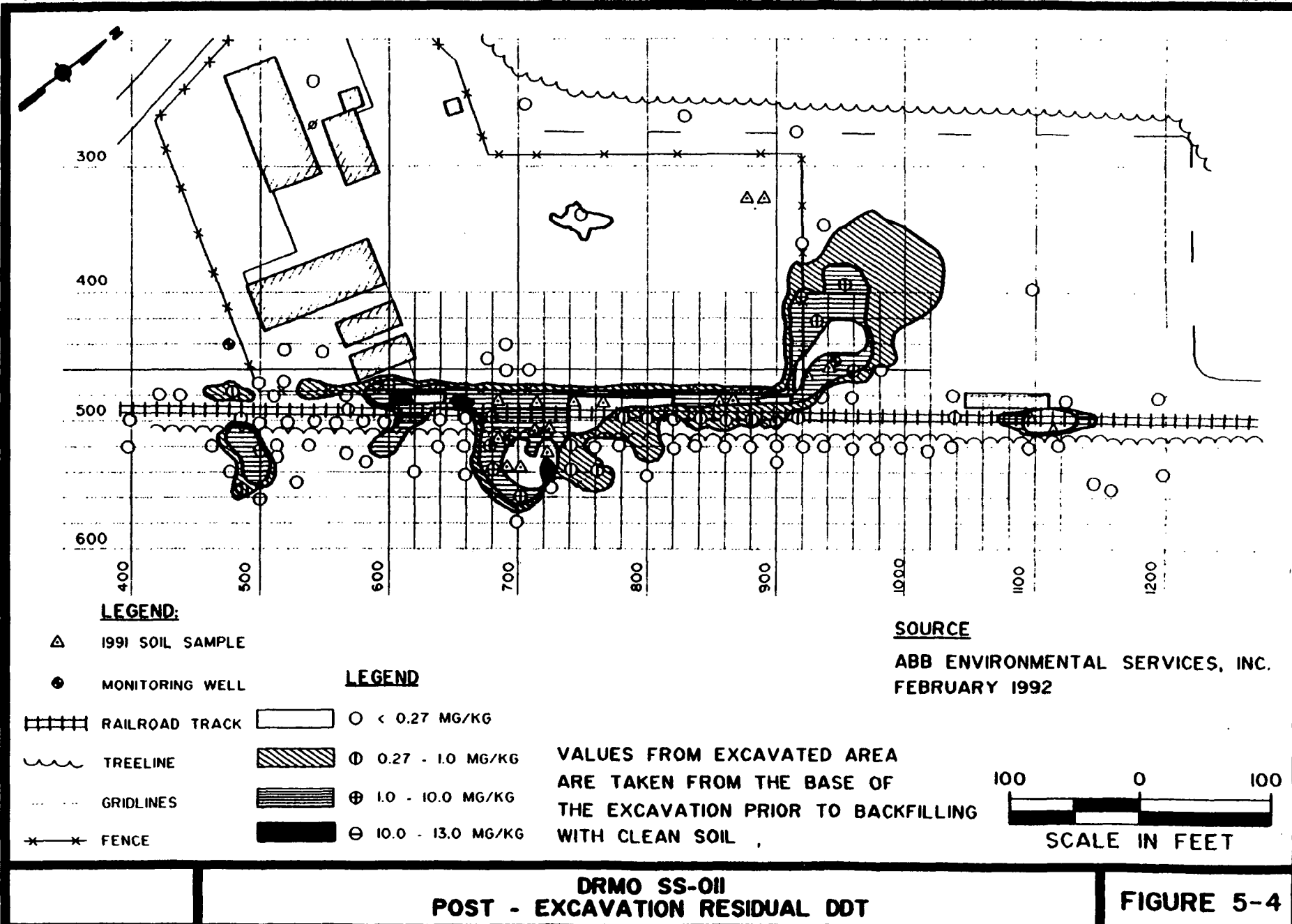
(2) Onsite wells only (MW-11-002; MW-11-003; MW-11-004)

* Analyte detected in one or more upgradient well.

Soil containing DDT at levels exceeding 10 mg/kg was excavated and removed from the site during the removal action (Section 4.0). Three confirmatory soil sample concentrations were found to marginally exceed the target cleanup level. In November 1992, additional borings were advanced and soil samples taken to further define the post-removal action distribution of DDT. As a result of the supplemental sampling data, NYSDEC and USEPA accepted the soil removal action as removing all soil contaminated above the 10 ppm cleanup level. The distribution of post-excavation residual DDT is depicted on Figure 5-4. Because hydrocarbons found at the DRMO are associated with the DDT, this removal action based on DDT level has removed most of the PHC-contaminated soil as well. No PCBs were detected in any soil sample taken in the vicinity of the transformer spill area. However, PCBs were detected near the pesticide spill, including one subsurface detection outside the excavated area and one at the base of the excavation.

Halogenated organic chemicals, especially TCE and DCE, are present at detectable concentrations in groundwater samples collected from wells upgradient of the DRMO. All analytes detected in onsite wells were also detected in the upgradient well network. The analytes were also found to be at higher concentrations in the upgradient wells compared to the concentrations observed in the onsite wells. Therefore, groundwater contamination present in wells on site is likely due to an upgradient source. This upgradient contaminant source is currently under investigation as part of the Remedial Investigation at SS-017.

A more detailed description of the site's physical and chemical characteristics may be found in the Administrative Record.



6.0 SUMMARY OF SITE RISKS

A baseline risk assessment (RA) was conducted as part of the RI to evaluate whether site contaminants pose an unacceptable risk to public health or the environment.

6.1 Contaminated Media

Contaminated media evaluated in the RA for SS-011 include soils, both surface and shallow subsurface, and groundwater. Soil contamination at SS-011, attributable to reported spillage of containerized pesticides in a petroleum-based carrier, occurred along the eastern edge of the DRMO yard from 1970 through 1972. A removal action undertaken in August 1991 included excavation of soils contaminated with greater than 10 mg/kg of DDT and subsequent offsite disposal or incineration of the contaminated soil. In addition, a transformer (PCB oil) spill occurred during the winter of 1981 in the northwest corner of the paved yard. The spilled fluids were immediately cleaned off the frozen pavement surface and the area was excavated the following spring. The extent of PCB occurrence at the DRMO has been demonstrated by extensive surface and subsurface soil and groundwater sampling during the Remedial Investigation.

Some organic contaminants were detected in groundwater samples collected from the 3 monitoring wells located on site. A larger suite of chemicals, including all the contaminants detected at SS-011, has been detected in monitoring wells immediately upgradient from the DRMO. This suggests an upgradient source for some or all of the contaminants detected in groundwater at SS-011.

6.2 Contaminants of Concern

In order to make a comprehensive assessment of the human health risk posed by the contaminated media at SS-011, all analytes detected in non-excavated soil and groundwater at the site are considered to be contaminants of concern. These analytes are listed by matrix in Table 6-1.

6.3 Exposure Scenarios

Three human exposure scenarios were evaluated as part of the RA, including:

- 1) Present Use - Potentially exposed populations include base workers at the DRMO and youth trespassers (ages 6-18). The routes of exposure are limited to dermal contact with and incidental ingestion of contaminated surface soils.
- 2) Future Residential Construction - In this scenario, the base is considered closed and residential development of the SS-011 site is in the construction stage. Construction workers are the exposed population. Exposure would result from incidental ingestion, dermal contact, or inhalation of fugitive dust.

TABLE 6-1
CONTAMINANTS OF CONCERN
UTILIZED IN RISK ASSESSMENT
DRMO SS-011

MATRIX	CONTAMINANTS OF CONCERN	
Surface Soils	DDD DDE DDT alpha-Chlordane gamma-Chlordane Methoxychlor Aluminum Barium Beryllium Cadmium	Calcium Chromium Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium Vanadium Zinc
All Soils (Surface and Subsurface)	Tetrachloroethene Xylene (Total) bis(2-ethylhexyl)phthalate DDD DDE DDT alpha-Chlordane gamma-Chlordane Methoxychlor beta-BHC Dieldrin Heptachlor Aroclor-1260 Heptachlor Epoxide	Aluminum Barium Beryllium Cadmium Chromium Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium Vanadium Zinc
Groundwater	2-Butanone 1,2-Dichloroethene (total) Benzene Naphthalene bis(2-Ethylhexyl)phthalate	

- 3) Completed Future Residential Development - In this scenario, the base is considered closed, residential development of SS-011 has been completed, and the development has been occupied. The exposed populations include children and adults exposed via dermal contact with or incidental ingestion of contaminated surface soils or subsurface soils that have been disturbed by construction activities. Ingestion of contaminated groundwater and inhalation of vapor-phase chemicals while showering (adults only) is also considered in this scenario.

6.4 Risks to Human Populations

Based upon the results of the RA, no threat to public health is posed by contaminants present at SS-011. No unacceptable carcinogenic or chronic risk based upon USEPA guidelines is evident given the Present Use and Future Residential Construction scenarios.

Analysis of risk given the Completed Future Residential Development scenario yields a hazard index (chronic risk) of less than one, which indicates that the noncarcinogenic risk is acceptable. The cancer risk is 2×10^{-5} . This indicates that 20 additional persons out of one million are at risk of developing cancer if no further action is taken and the site is developed according to this scenario as outlined in the RA. This risk is within the acceptable range (1×10^{-6} to 1×10^{-4}) established for remedial action by the National Contingency Plan.

A summary of calculated carcinogenic and chronic risks for each exposure scenario is presented in Table 6-2.

6.5 Summary of Environmental Risks

An ecological exposure assessment, hazard identification, and risk assessment were undertaken to evaluate the potential for exposure of terrestrial receptors to chemicals at SS-011, and to quantify any adverse effects. Based upon this analysis, minimal individual effects and no significant population-level effects to ecological receptors are expected.

TABLE 6-2

SUMMARY OF HUMAN HEALTH RISKS

SCENARIO	PATHWAY	RECEPTOR	CANCER RISK	HAZARD QUOTIENT
Present Use	Dermal Contact with Soil	Worker	NV	5×10^{-4}
		Youth	NV	2×10^{-2}
	Ingestion of Soil	Worker	3×10^{-8}	7×10^{-4}
		Youth	8×10^{-7}	4×10^{-2}
Future Residential Construction	Dermal Contact with Soil	Worker	1×10^{-7}	NV
	Ingestion of Soil	Worker	3×10^{-7}	3×10^{-2}
	Inhalation of Fugitive Dust	Worker	5×10^{-9}	2×10^{-2}
Completed Future Residential Development	Dermal Contact with Soil	Child/Adult	1×10^{-5}	2×10^{-2}
	Ingestion of Soil	Child/Adult	1×10^{-5}	2×10^{-1}
	Ingestion of Groundwater	Child/Adult	2×10^{-6}	3×10^{-2}
	Inhalation of Vapor While Showering	Child/Adult	2×10^{-13}	3×10^{-3}

NV = No value calculated since USEPA - approved dermal absorption factors were unavailable for contaminants of concern.

7.0 DESCRIPTION OF THE NO FURTHER ACTION PREFERRED ALTERNATIVE

The removal action undertaken in 1991 was considered to be protective of human health and the environment, and to be ARAR-compliant by NYSDEC and USEPA who approved the Target Cleanup Level on July 23, 1990. Sampling and analysis were conducted concurrently during removal activities, to determine the adequacy of the removal action, and for use in the baseline risk assessment (RA). Results of the RA show that the removal action was fully effective in achieving protection of human health and the environment. Therefore, no alternatives other than a No Further Action alternative were considered. No Further Action is the single and the preferred alternative. This alternative includes the following elements:

- 1) No further action will be undertaken at SS-011 to reduce site contaminants beyond their current levels.
- 2) Inspections will be conducted to assess the general condition of the site, including the progress of revegetation in areas disturbed by the removal action and the potential effects of runoff from or onto the site. The first inspection was completed in 1992. Future inspections are planned at 5-year intervals. After each inspection, an evaluation will be undertaken to insure the continued protection of human health and the environment.

The upgradient groundwater contamination that was detected during investigations at Site SS-011 will be dealt with in a separate remedial investigation as part of the IRP.

9.0 STATE ROLE

NYSDEC, on behalf of the State of New York, has reviewed the RI, RA, and the preferred alternative, both from the viewpoint of health and environmental risk, and from the viewpoint of compliance with ARARs. NYSDEC concurs with the selection of the preferred alternative. A copy of NYSDEC's declaration of concurrence may be found in Appendix A.

8.0 DOCUMENTATION OF NO SIGNIFICANT CHANGES

The chosen remedial action for SS-011 is No Further Action. This action does not differ from the preferred alternative presented in the Proposed Plan.