
**BUILDING 508 OPEN STORAGE
AREA (SS-028)
ACTION MEMORANDUM**

***Plattsburgh Air Force Base
Installation Restoration
Program***



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Division of Environmental Remediation
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MEMORANDUM

TO: Daniel Steenberge, RHWRE, Region 5 - Ray Brook

FROM: Marsden Chen, Bureau of Eastern Remedial Action, DER

SUBJECT: Plattsburgh Air Force Base ID No. 510003

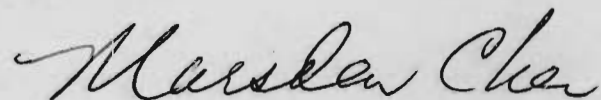
DATE: October 30, 1998

Attached is a copy of the Action Memorandum for Building 508 Open Storage Area (SS-028) at the Plattsburgh site.

Please have staff review this document and provide your comments to Jim Quinn by November 23, 1998.

If you have any questions, please contact him at (518) 457-3976.

Attachment



**ACTION MEMORANDUM
BUILDING 508 OPEN STORAGE AREA (SS-028)**

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Remedial Action

**PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK**

**AFCEE CONTRACT NO. F41624-94-D-8054
DELIVERY ORDER 57**

PREPARED FOR:

**AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE, TEXAS
AND THE
AIR FORCE BASE CONVERSION AGENCY
PLATTSBURGH AIR FORCE BASE, NEW YORK**

PREPARED BY:

URS CONSULTANTS, INC.

OCTOBER 1998



TABLE OF CONTENTS

	<u>Page No.</u>
ACRONYMS	
DECLARATION STATEMENT	
1.0 INTRODUCTION	1-1
2.0 PURPOSE	2-1
3.0 SITE CONDITIONS AND BACKGROUND	3-1
3.1 Site Description	3-2
3.1.1 Physical Location	3-2
3.1.2 Site Evaluation	3-3
3.1.3 Site Characteristics	3-4
3.1.3.1 Physical Features	3-4
3.1.3.2 Site Stratigraphy	3-4
3.1.3.3 Hydrogeologic Setting	3-5
3.1.4 Release or Threatened Release of a Contaminant	3-6
3.1.4.1 Soil	3-7
3.1.4.2 Groundwater	3-9
3.1.4.3 Current Status	3-12
3.1.5 NPL Status	3-13
3.2 Other Actions to Date	3-13
3.3 Federal, State, and Local Actions to Date	3-13
4.0 THREATS TO PUBLIC HEALTH, WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES	4-1
4.1 Hazard Identification	4-1
4.2 Description of Contaminants	4-1
4.2.1 Toxicity	4-2
4.2.2 Fate and Transport	4-3
4.3 Contaminant Action Levels	4-4
4.3.1 Tetrachloroethene	4-4

TABLE OF CONTENTS (Con't)

	<u>Page No.</u>
4.3.2 Trichloroethene	4-4
4.3.3 Dichloroethene	4-5
4.4 Conclusions	4-5
5.0 ENDANGERMENT DETERMINATION	5-1
6.0 PROPOSED REMOVAL ACTION AND ESTIMATED COSTS	6-1
6.1 Proposed Removal Action	6-1
6.1.1 Overview	6-1
6.1.2 Treatment Area	6-1
6.1.3 Detailed Description	6-2
6.1.4 Disposal of Waste	6-3
6.1.5 Contribution to Remedial Performance	6-3
6.1.6 Description of Alternative Technologies	6-3
6.1.7 Engineering Evaluation/Cost Analysis (EE/CA)	6-3
6.1.8 Applicable or Relevant and Appropriate Requirements (ARARs) .	6-4
6.1.8.1 General	6-4
6.1.8.2 Removal Action	6-5
6.1.9 Project Schedule	6-6
6.2 Estimated Costs	6-6
7.0 EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN	7-1
8.0 REFERENCES	8-1

LIST OF FIGURES

Figure No.

- 3-1 Vicinity Location Map
- 3-2 Location of IRP Site SS-028
- 3-3 Site Features
- 3-4 Cross-Section A-A' and B-B' Locations
- 3-5 Cross-Section A-A'
- 3-6 Cross-Section B-B'
- 3-7 SI and RI Sampling Locations
- 3-8 Maximum Volatile Organic Compound Detections in Geoprobe Soil Samples
(July 1997)
- 3-9 Groundwater Sampling Results, Summary for SS-018 RI, SS-019 SI, and SS-028 SI
- 3-10 Maximum Chlorinated Hydrocarbon Compound Detections in Groundwater
at SS-018, SS-019 and SS-028
- 6-1 Proposed Soil Removal Area

LIST OF TABLES

Table No.

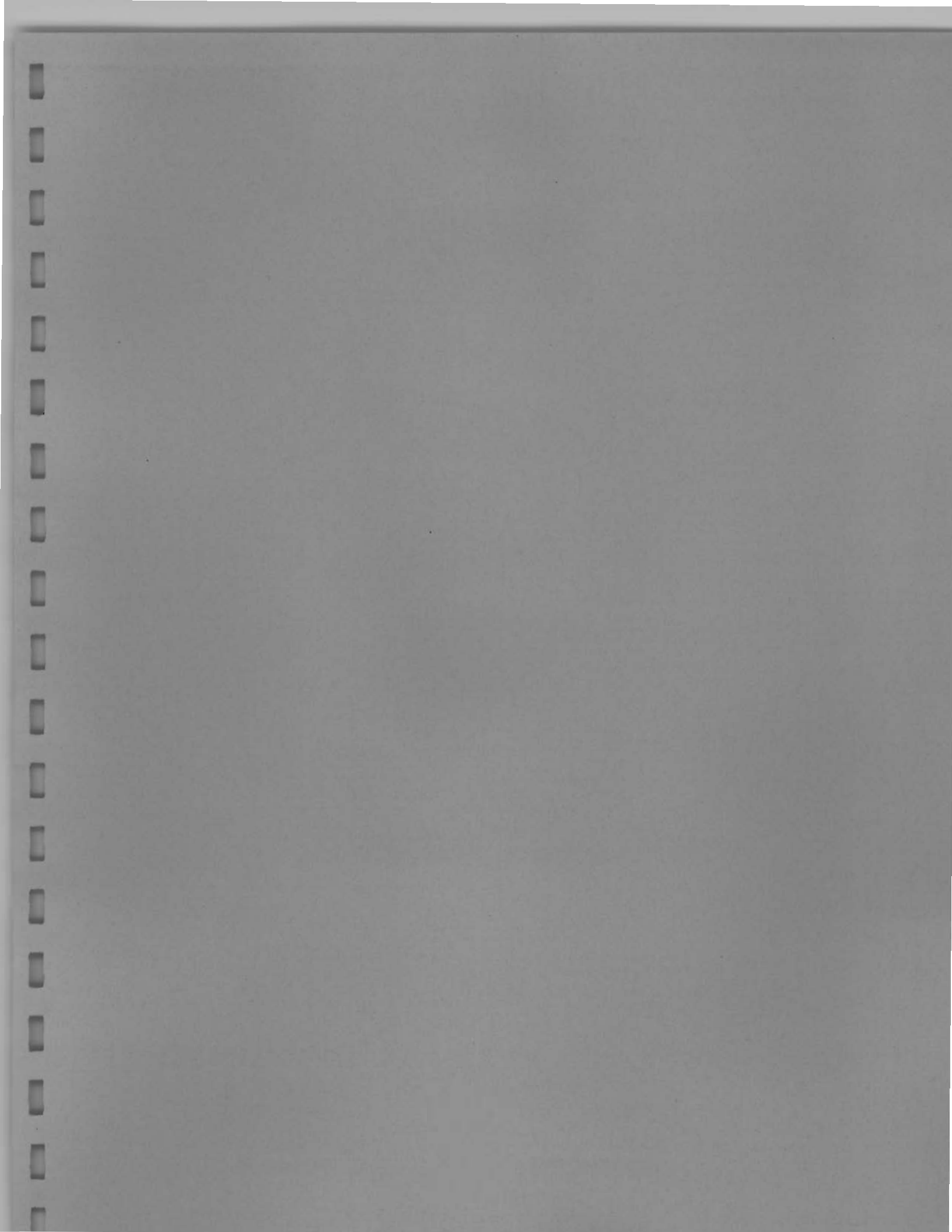
- 3-1 SS-028 Site Investigation, Summary of Soil Analytical Results
- 3-2 SS-028 Remedial Investigation, Summary of Soil Onsite Screening Analytical Results
- 3-3 SS-028 Remedial Investigation, Summary of Soil Offsite Definitive Analytical Results
- 3-4 SS-028 Site Investigation, Summary of November 1994 Groundwater
Analytical Results
- 3-5 SS-028 Site Investigation, Summary of August 1995 Groundwater Analytical Results
- 3-6 SS-028 Informal Technical Information Report, Summary of October 1996
Groundwater Analytical Results
- 3-7 SS-028 Remedial Investigation, Summary of July 1997 Groundwater Onsite
Screening Analytical Results
- 3-8 SS-028 Remedial Investigation, Summary of July 1997 Groundwater
Offsite Definitive Analytical Results
- 3-9 SS-028 Remedial Investigation, Summary of August 1997 Groundwater Analytical Results

ACRONYMS

AFB	Air Force Base
amsl	above mean sea level
ARAR	Applicable or Relevant and Appropriate Requirement
AST	aboveground storage tank
BTEX	benzene, toluene, ethylbenzene, xylenes
CERCLA	Comprehensive Environmental Restoration, Compensation, and Liability Act
CNS	central nervous system
cm/sec	centimeters per second
DCE	1,2-dichloroethene
DOD	Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
FFA	Federal Facilities Agreement
ft/ft	foot per foot
IRP	Installation Restoration Program
K_{oc}	organic carbon-water partition coefficient
MTBE	methyl tert-butyl ether
NCP	National Contingency Plan
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
PAH	polycyclic aromatic hydrocarbons
PARC	Plattsburgh Airbase Redevelopment Corporation
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PID/FID	photoionization detector/flame ionization detector
ppb	parts per billion
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
SARA	Superfund Amendments and Reauthorization Act

ACRONYMS (Con't)

SI	site investigation
SS	spill site
SVOC	semivolatile organic compounds
TAGM	Technical and Administrative Guidance Memorandum
TBC	To Be Considered
TCE	trichloroethene
TCLP	Toxicity Characteristic Leachate Procedure
USAF	United States Air Force
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound



**ACTION MEMORANDUM
DECLARATION STATEMENT**

**Installation Restoration Program
Building 508 Open Storage Area (SS-028)
Plattsburgh Air Force Base, Plattsburgh, New York**

1.0 STATEMENT OF BASIS AND PURPOSE

This decision document represents the selected removal action for the Open Storage Area Site SS-028, Plattsburgh Air Force Base (AFB), New York, developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended, and consistent with the National Contingency Plan (NCP). This decision is based on the administrative record for the site.

2.0 ASSESSMENT OF THE AREA

Conditions currently exist at the Plattsburgh AFB Installation Restoration Program (IRP) Site SS-028 (Open Storage Area) that, if not addressed by implementing the response action documented in this Action Memorandum, will lead to migration of unacceptable levels of additional hazardous substances, pollutants, or contaminants to the local groundwater.

3.0 DESCRIPTION OF THE PREFERRED ALTERNATIVE

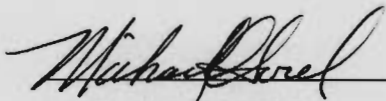
The preferred removal action alternative addresses the principle threat of SS-028 by removing the volatile organic compounds (VOCs) present in the site soils. The preferred alternative at SS-028 is based on available site information and will include excavation and disposal of contaminated soil from the area around Geoprobe location G-17. If TCLP (Toxicity Characteristic Leaching Procedure) analysis shows that the excavated soil is RCRA (Resource Conservation and Recovery Act) non-hazardous, the soil will be transported off-site for disposal as a non-hazardous

waste. If the soil is found to be RCRA hazardous, it will be transported off-site for proper treatment/disposal at a permitted hazardous waste facility.

Following excavation of the contaminated soils, confirmatory sampling will be conducted at the limits of the excavation. It is anticipated that this sampling will include, at a minimum, collecting one sample from each side and the bottom of the excavation. The samples will be analyzed for tetrachloroethene (PCE), trichloroethene (TCE), and 1,2-dichloroethene (DCE), using EPA Method 8260. Detected chemicals will be compared to their respective cleanup levels, as determined by using the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046.

4.0 STATUTORY DETERMINATION

The preferred remedial alternative protects human health and the environment, complies with applicable or relevant and appropriate federal and state requirements (ARARs), and is cost-effective.

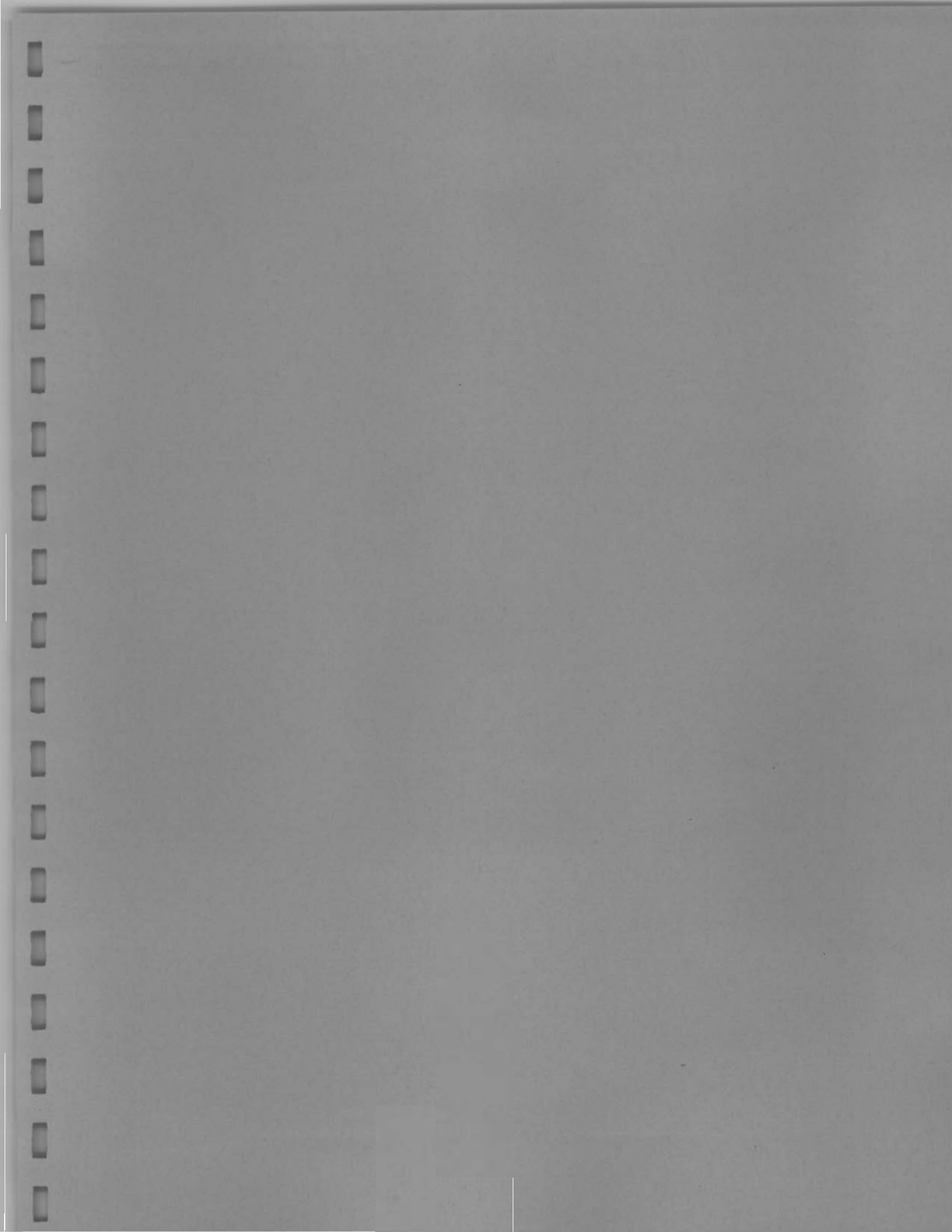


Michael D. Sorel, P.E.

BRAC Environmental Coordinator

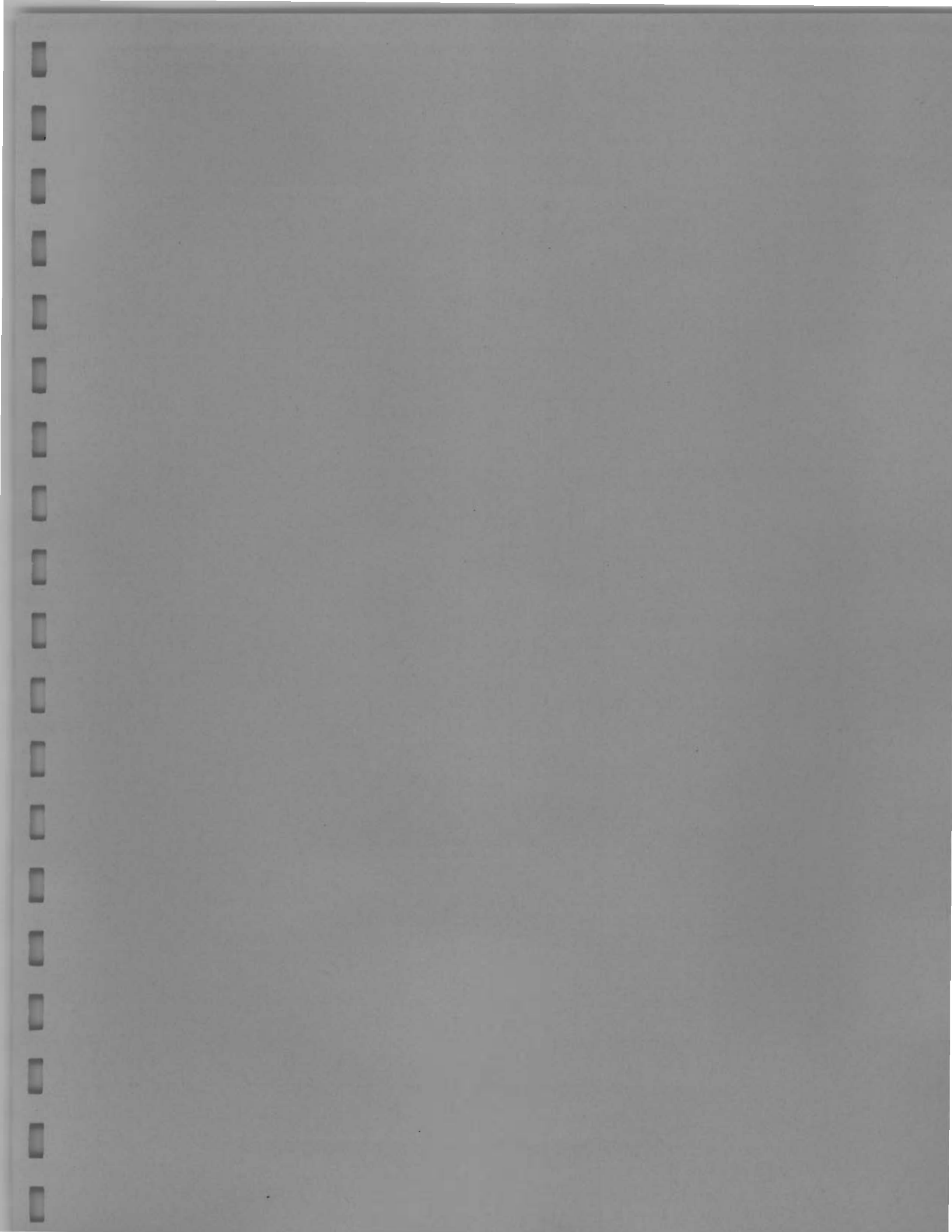
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1.0 INTRODUCTION

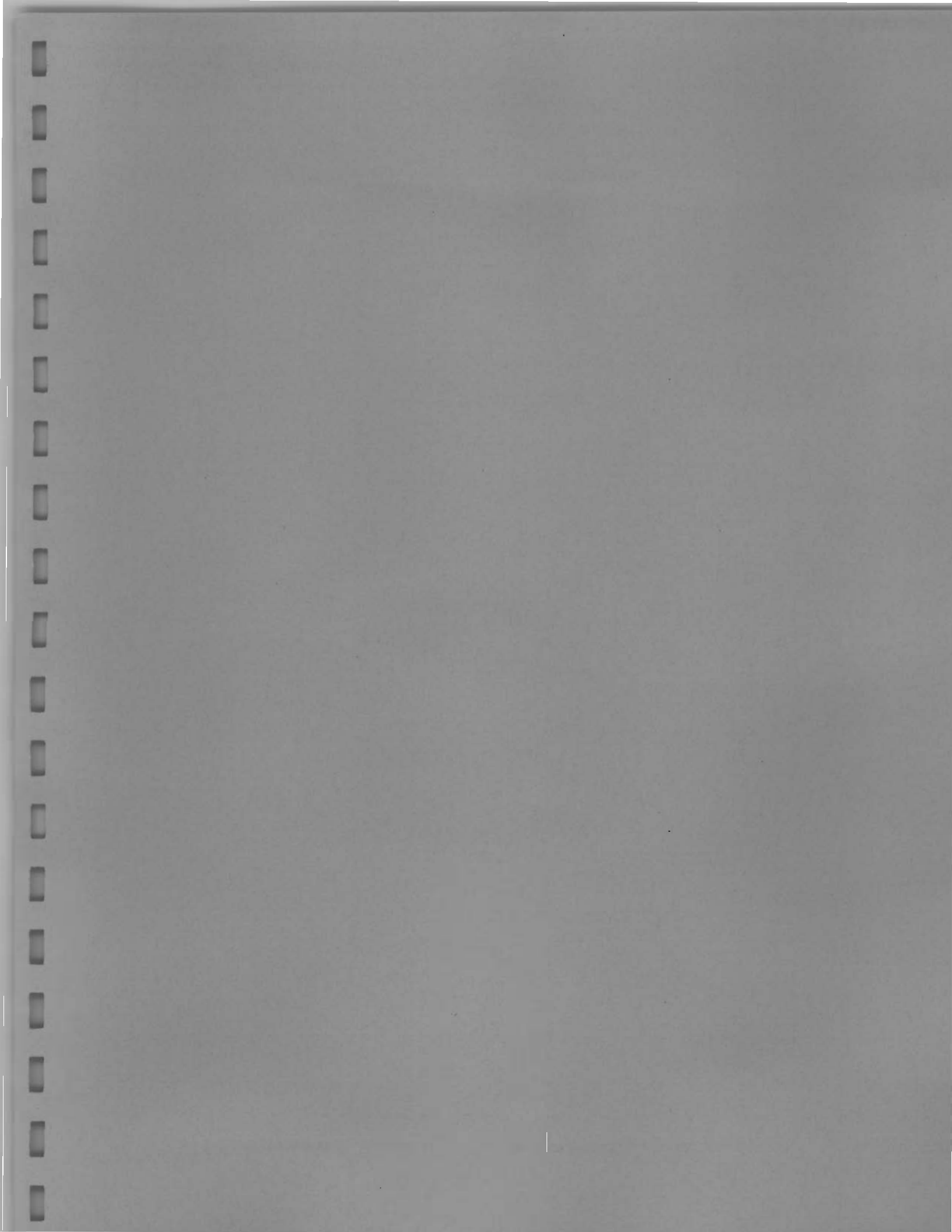
The United States Air Force (USAF) is undertaking a "time critical" removal action at the Building 508 Open Storage Area, designated as Spill Site SS-028, located at the former Plattsburgh Air Force Base (AFB) in Plattsburgh, New York. This removal action is being undertaken pursuant to the Federal Facilities Agreement (FFA), as part of the Department of Defense (DOD) Installation Restoration Program (IRP). The IRP was developed as a component of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. The IRP at Plattsburgh AFB currently is being administered by the Air Force Base Conversion Agency and implemented according to an interagency FFA (Docket No. II - CERCLA - FFA-10201) among the USAF, the United States Environmental Protection Agency (USEPA), and the New York State Department of Environmental Conservation (NYSDEC).



2.0 PURPOSE

The purpose of this Action Memorandum is to document the proposed removal action described herein for Site SS-028 at Plattsburgh AFB. This action will include excavation and disposal to remove tetrachloroethene (PCE) from contaminated soils at the site, around the Geoprobe sampling location G-17. This removal action will also minimize the potential for further contamination of the local groundwater with the chemicals currently found in the site soils.

This document is presented in the format provided by the USEPA Action Memorandum Guidance Document, dated December, 1990 (USEPA, 1990).



3.0 SITE CONDITIONS AND BACKGROUND

Plattsburgh AFB is located in Clinton County in northeastern New York State (Figure 3-1). It is bordered by the City of Plattsburgh to the north, Lake Champlain to the east, lake shore communities to the southeast, the Salmon River and agricultural land to the south, and Interstate 87 to the west. The base, formerly the home of the 380th Air Refueling Wing, officially closed on September 30, 1995.

SS-028, the Open Storage Area, shown in Figure 3-2, is associated with Building 508, which housed several base engineer maintenance shops. Building 508 is located in the "old base" section of Plattsburgh AFB near the intersection of Wisconsin Street and Ohio Avenue. Facilities adjacent to SS-028 are shown on Figure 3-3.

SS-028 was used for the general storage of equipment and contained product. Product stored in drums and tanks at the site included diesel fuel, roofing tar, hydraulic fluid, waste oil and solvents, and antifreeze. In September 1990, approximately thirty 55-gallon drums stored at SS-028 were disposed of properly off-site. Currently, Building 508 houses several Plattsburgh Airbase Redevelopment Corporation (PARC) caretaker maintenance shops, while the Open Storage Area is used to store excess equipment and construction materials, including empty drums and overpacks, fence gates, electrical conduit, pipe, boards, manways, steel tanks, bricks, and several new (never used) oil/water separators.

Several underground storage tanks (USTs) and aboveground storage tanks (ASTs) are or were formerly located near the site. The USTs generally stored No. 2 fuel oil. In 1991, one former UST that had stored gasoline was removed. No contaminated soil was noted during this removal. Former ASTs located near SS-028 were identified from a base record search. A site walkover in April 1994 did not reveal evidence of surface contamination associated with these tanks. During the site walkover in April 1994, "significant spills" were observed around an AST located north of the automotive hobby shop (SS-018) that stores waste oil/hydraulic fluid. In April 1996 that tank was removed and the tank area was cleaned. No soil contamination was observed to have remained.

3.1 Site Description

3.1.1 Physical Location

SS-028 is located approximately 200 feet west of Lake Champlain. The site is "L"-shaped and is approximately 1 acre in size. Developed portions of the "old base" border the site to the north, south, and west. The Delaware & Hudson Railroad is adjacent to the eastern portion of the site (Figure 3-3). SS-028 consists of buildings, paved parking/storage areas, and some lawn areas.

Land uses near Plattsburgh AFB include residential, commercial, industrial, and recreational. The base reuse plan designates the SS-028 site for commercial or public/recreational use (PARC, 1995). A strip of land east of the site, between the site and Lake Champlain, may be developed for recreational use, as a bike or walk path. The site has been nominated to the U.S. Oval National Register Historic District and currently is pending review by the New York State Office of Historic Preservation (USAF 1995). If the site is awarded historic status, future development and construction may be limited.

Plattsburgh AFB obtains its potable water from the City of Plattsburgh municipal water system. Some residences adjacent to the base, however, rely on private wells for drinking water. Residential wells on Kemp Lane, located approximately 1.2 miles southwest of the site, are the closest to SS-028. These wells are not influenced by groundwater flow from the site, because groundwater flow is to the east, toward Lake Champlain.

There are no protected wetlands in the vicinity of SS-028. The closest federally-regulated wetland is a ditch/intermittent stream located approximately 1,700 feet (0.3 mile) southeast of the site, and the closest NYSDEC-regulated wetland is located approximately 8,500 feet (1.6 miles) southwest of the site.

The cobble shoreline and adjacent wooded slope of Lake Champlain to the east of SS-028 are termed a "special interest natural area" of the New York Natural Heritage Program. The presence

of rare marsh horsetail within 1,000 feet of SS-028 adds to the "interest" of this natural area, but does not classify it as "exceptional."

3.1.2 Site Evaluation

Site SS-028 was added to the IRP in 1991 when it was included in a preliminary assessment of a number of areas of concern. Substances of concern that potentially may have caused contamination at the site include products formerly stored in drums or tanks at the site (i.e., diesel fuel, roofing tar, and hydraulic oil), or documented spills of diesel fuel and tar.

In 1992, a preliminary assessment for SS-028 was completed and included a review of historical records, personnel interviews, and a site walkover. Visual evidence of soil stained with a hardened tar substance was observed along the fence line. Also, a 200-gallon diesel fuel spill was documented at the site in December 1990 (TetraTech 1997). A Site Investigation (SI) (URS, 1995) was initiated in the fall of 1994 to carry out recommendations of the preliminary assessment for further investigation of the site, including the analysis of soil and groundwater samples.

Groundwater samples collected during the SI contained low levels of 1,2-dichloroethene (DCE), trichloroethene (TCE), and PCE. The Draft SI concluded that no further action was necessary at SS-028 to reduce or contain site contaminants. However, because PCE concentrations in groundwater appeared to increase in a northward direction, although generally below guidance values, the USAF agreed to install additional wells in that direction, as requested by NYSDEC. In October 1996, DCE, TCE, and PCE were detected in groundwater from a newly installed shallow well, at concentrations exceeding New York State Class GA Groundwater Standards. No organic compounds were detected in the paired deeper well. Because of the detected groundwater contamination, the USAF determined that the site warranted a remedial investigation (RI) and the SI was subsequently discontinued. PCE, TCE, and DCE were the only organic chemicals detected in groundwater samples that were collected during the RI (URS, 1998). All PCE exceedances of groundwater regulatory criteria were in the proximity of Geoprobe location G-17, which is in the area along the northern edge of the pavement. The soils in that location contained the maximum detected

PCE concentration, which was in exceedance of its guidance value. This was the only exceedance observed in RI soil samples. Therefore, the Draft RI (URS, 1998) concluded that a "hot spot" removal action should be undertaken to remove contaminated soil from around Geoprobe location G-17. This document is currently being reviewed by NYSEC and USEPA. To assess the nature and extent of contamination at SS-028, the results from previous investigations at nearby IRP sites, including sites SS-18, SS-019, and SS-025, were also evaluated (URS, 1998). This Action Memorandum references relevant conclusions from these investigations.

3.1.3 Site Characteristics

3.1.3.1 Physical Features

The site is nearly flat with an approximate elevation of 156 feet above mean sea level (amsl). A 12 to 15 foot high bank slopes downward from the eastern edge of the site toward the railroad tracks. From the railroad tracks, the topography slopes more steeply toward Lake Champlain (elevation of approximately 100 feet amsl). Surface water drainage in this portion of the base generally flows toward Lake Champlain through culverts and drainage ditches.

3.1.3.2 Site Stratigraphy

Stratigraphy in the SS-028 area generally consists of four hydrogeologic units: an upper unconsolidated sand aquifer, an underlying confining layer formed by a silt and clay unit, a glacial till unit water-bearing zone, and a thinly bedded dolostone bedrock aquifer. Geologic cross-sections, located on Figure 3-4, are shown on Figures 3-5 and 3-6.

Fill was encountered in several site borings from below the asphalt pavement or topsoil (in grassy areas) to a maximum depth of approximately 7 feet. The fill material is fine to coarse sand with gravel, coal fragments and dust, cinders, ash, and debris.

The sand (water table) aquifer generally consists of fine to medium sand with lesser, variable amounts of silt, coarse sand, and gravel. This unit ranges from 25 to 34 feet thick in the vicinity of the site and was observed to cap the top of slope along the Lake Champlain shoreline. The sand unit typically becomes finer grained with depth, grading texturally into the underlying silt and clay unit. A distinct silty sand unit was observed in borings located in the southeastern portion of the site area.

A gray silty clay unit, lying beneath the silty sand unit, was encountered in borings at adjacent IRP sites SS-018 and SS-019 at depths of 34 to 25 feet, respectively. Approximately 15 feet of silty clay also was observed outcropping along the Lake Champlain shoreline downgradient from the site. The total thickness of the silty clay is at least 8 feet thick in the site area.

Glacial till overlies bedrock at a location about 1,500 feet north of the site, (location of piezometer cluster PZ-1), and is a poorly-sorted gray sand, silt and clay matrix with frequent gravel, cobbles, and boulders. The till was reported to be from 3.5 feet thick to approximately 15 feet thick. The till has been found to be a water-bearing unit, but it is separated hydraulically from the overlying water table aquifer by the silty clay confining unit.

Bedrock was encountered at a depth of 17.5 feet in PZ-1D, which is the closest bedrock exploration to the site, and was described as thinly, horizontally to subhorizontally bedded dolostone. Soil boring SB-18-006, the deepest overburden boring near SS-028, was advanced 40 feet below ground surface without encountering bedrock. Bedrock has been observed to outcrop north of the picnic area at Plattsburgh AFB (¾ mile north of SS-028) along the Lake Champlain shoreline at an approximate elevation of 100 feet amsl.

3.1.3.3 Hydrogeologic Setting

Groundwater in the Plattsburgh area generally occurs in both the overburden deposits and in the bedrock. The Adirondack Mountains to the west of Plattsburgh represent the major recharge area for the region and Lake Champlain represents the regional discharge area. Other locally

significant discharge areas include the Saranac and Salmon Rivers. Groundwater flow from SS-028 is to the east toward Lake Champlain, which is approximately 200 feet from the site.

Groundwater elevations, recorded during the SI and RI studies (URS 1995, 1998) showed that the local groundwater flow is to the east at a horizontal gradient of approximately 0.04 foot per foot (ft/ft). Groundwater from the site eventually emanates from seeps where the unconfined sand aquifer is exposed along the Lake Champlain shoreline. Calculated hydraulic conductivities ranged from 8.58×10^{-4} centimeters per second (cm/sec) to 6.07×10^{-3} cm/sec in the site wells and other nearby wells. There is very little variation among hydraulic conductivities calculated for the sand aquifer in the site area.

The silty clay unit and underlying glacial till form a confining layer that separates the surficial silty sand unit from the bedrock aquifer. Stratigraphic information from deeper nearby borings indicates that the confining unit is probably continuous beneath SS-028. The vertical hydraulic conductivity of the silt and clay unit in the site area is estimated to be in the 10^8 to 10^{-7} cm/sec range.

3.1.4 Release or Threatened Release of a Contaminant

This section summarizes the analytical data for soil and groundwater samples collected by URS for USAF in 1994 through 1997, during the SS-028 SI and RI (URS, 1995 and 1998 respectively). Soil contaminant concentrations were compared to their respective "to be considered" (TBC) guidance values, and groundwater detections were compared to their respective "applicable or relevant and appropriate requirements" (ARARs).

Based on the conclusions of the SI and the RI (URS 1995 and 1998, respectively), PCE and its degradation products TCE and DCE, were the primary contaminants of concern. PCE, TCE, and DCE were the only organic compounds that exceeded their respective ARARs in groundwater. The maximum concentration of detected PCE in groundwater was 28 parts per billion (ppb) and occurred at well MW-28-004 (Figure 3-7). In addition, all PCE contraventions of its ARAR occurred within

100 feet of Geoprobe location G-17, which is located immediately upgradient from monitoring well MW-28-004. At Geoprobe location G-17, only PCE was detected in soil (1900 ppb) in exceedance of its TBC value. Therefore, the spill in the G-17 area appears to be the likely source for the PCE contamination present in that well.

3.1.4.1 Soil

Site Investigation

During the SI at SS-028, eight discrete soil samples (and one duplicate sample) were collected at four boring locations (SB-28-01, SB-28-02, MW-28-001, and MW-28-002) shown in Figure 3-7 (URS, 1995). The samples were analyzed for VOCs, semivolatile organic compounds (SVOCs), and metals. One composite surface soil sample was analyzed for pesticides/polychlorinated biphenyls (PCBs). A summary of the analytes detected in the soil samples is presented in Table 3-1.

Detected VOCs (PCE, TCE, DCE, toluene, xylenes, ethylbenzene, methylene chloride, and acetone) were at concentrations below their respective TBC values. PCE, TCE, and DCE were detected only in one soil sample (SB-28-02-0) taken from a depth of 0 to 2 feet near the site's northern edge of pavement. TCE and DCE are degradation products of PCE and were detected at much lower concentrations, most likely representing a former PCE spill in the area. Toluene, xylenes, and ethylbenzene, detected in a single soil sample (WB-MW-28-002-0), are generally associated with petroleum products, and may represent a spill in this area. Acetone and methylene chloride, detected frequently at low levels, may be attributed to laboratory contamination.

SVOCs detected included polycyclic aromatic hydrocarbons (PAHs) and phthalates. The phthalates were detected in two samples at concentrations well below their TBC values and their detection may have been due to contamination introduced by the latex gloves worn by sampling and laboratory personnel. Seven detected PAHs exceeded their TBC values [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and

indeno(1,2,3-c,d)pyrene], even at the upgradient location. A similar pattern, type, and level of PAH contamination was observed at adjacent site SS-018. A near surface fill layer appears to be common to both sites. At SS-028, total PAH concentrations in soil were somewhat lower than those observed at SS-018.

Surface soil sample BLDG 508-001 was composited from soils surrounding the current Open Storage Area pavement edge and analyzed for PCBs and pesticides. No PCBs were detected, however, four pesticides (dieldrin, 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT) were detected at concentrations below TBC values.

Nineteen metals were detected in the SS-028 SI soil samples, with six of them being found at maximum concentrations exceeding their respective TBC values (calcium, chromium, lead, magnesium, mercury, and zinc). Metals detected at concentrations exceeding TBC values were detected in only two samples (MW-28-002 and SB-28-02) obtained during the SI. These two samples were from areas that had respectively fill material containing dolostone (that probably contributed to the calcium and magnesium exceedances), and plastic and paint chips (that contributed in the chromium, lead, zinc, and mercury exceedances.).

Remedial Investigation

Fifty soil samples (and two duplicate samples) were collected from 27 Geoprobe borings across site SS-028 in July 1997 during the RI (URS, 1998) in an attempt to identify and delineate soil sources for the contamination present in groundwater at MW-28-004 (Figure 3-7). Soil samples were submitted for onsite screening analysis for PCE, TCE, and DCE. A summary of the analytes detected in the SS-028 soil samples is presented in Tables 3-2 (screening/onsite analyses) and 3-3 (definitive/offsite analyses). Detections in the definitive analyses are also shown in Figure 3-8.

The only VOC detections in the onsite soil screening sampling analyses were 18 ppb of PCE and 8 ppb of TCE at sample location G-3, 8 ppb of TCE at sample location G-9, and 5 ppb of PCE at sample location G-17. In the definitive analyses, eight VOCs (PCE, TCE, DCE, benzene, toluene,

xylenes, methylene chloride, and acetone) were detected at concentrations ranging from 1 to 1,900 ppb. Only one VOC, 1,900 ppb PCE (definitive analyses) at G-17, was detected at a concentration exceeding TBCs.

Boring G-17 is located along the site's northern edge of pavement, near the location where PCE was detected in soil during the SI. None of the other VOC detections exceeded their respective TBC values in the eleven samples, which were definitively analyzed. TCE and DCE are degradation products of PCE and were detected at much lower concentrations. The presence of these compounds most likely represents a former PCE spill in the area. Because boring G-17 is located immediately upgradient from monitoring well MW-28-004, the spill in this area appears to be the likely source for the PCE contamination present in that well. Toluene and xylenes detected at several locations, are generally associated with petroleum products and may represent spills on the ground surface. Benzene was detected at one soil sample (G-17). Acetone and methylene chloride, detected at low levels may be attributable to laboratory contamination.

3.1.4.2 Groundwater

Previous Investigations

Previous groundwater sampling conducted as part of the RI at adjacent IRP site SS-018 includes data collected during January 1993 and April 1993. Previous sampling at SS-019, as part of the SI, consisted of one sample collected at one well during January 1993 where only metals were detected. VOCs, phthalates, and metals were detected at SS-018 groundwater samples.

Site Investigation

During the SS-028 SI, groundwater samples were collected on November 16, 1994 and analyzed for VOCs, SVOCs, and total and dissolved metals. Analytical results are summarized in Table 3-4. Organic compound detections and metals ARAR exceedances are summarized in Figure 3-9.

Additional Groundwater Sampling

After the SS-028 SI, but prior to the SS-028 RI, two additional downgradient wells (MW-28-003 and MW-28-004) were installed during August 1996 and were sampled in October 1996 (URS, 1997). The samples were analyzed only for VOCs and the results are summarized in Table 3-6. Three VOCs (9 ppb of DCE, 5.7 ppb of TCE, and 28 ppb of PCE) were detected in water table well MW-28-004, all at concentrations exceeding their respective ARAR values.

Remedial Investigation

Groundwater screening samples were collected from Geoprobe borings and monitoring well MW-28-004 in July 1997 as part of the RI. The samples were analyzed for PCE, TCE, and DCE at an onsite laboratory. Several selected samples were also analyzed at an offsite confirmatory laboratory for VOCs. Onsite and offsite analytical results are summarized in Tables 3-7 and 3-8, respectively. During the onsite laboratory analyses, DCE and PCE were detected at concentrations that exceeded their respective ARAR values. VOCs detected in the offsite laboratory confirmatory analyses were below ARAR values.

In July 1997, three more downgradient monitoring wells were installed. The newly installed wells, along with four existing wells, were sampled and analyzed for VOCs in August 1997 (Table 3-9). Five VOCs were detected in the groundwater samples. The only ARAR exceedance was for PCE (17 ppb) in MW-28-004.

Methyl tert-butyl ether (MTBE), a gasoline additive, was tentatively identified in six groundwater samples, with three detections estimated to be over the ARAR value. These detections seem to be indicative of historic gasoline spills upgradient of site SS-028. The MTBE is not found at the site in conjunction with significant amounts of benzene, toluene, ethylbenzene, and xylenes (BTEX) (also present in gasoline).

Two groundwater seep samples (SW-28-001 and SW-28-002) were also collected in August 1997 along the Lake Champlain shoreline, downgradient of SS-028 (Figure 3-7). The samples were collected from seeps at the unconfined sand aquifer/clay confining unit contact. VOCs were analyzed for in the two samples, but not detected.

PCE and/or its degradation products were detected in four of the downgradient SS-018 and SS-028 wells (Figure 3-10). PCE was not detected in soil samples at SS-018. However, many of the surface and subsurface soil samples at SS-019 and SS-028 contained PCE. The highest detected concentration of PCE in groundwater (28 ppb in MW-28-004) occurred downgradient of the highest detected PCE concentration in soil (1,900 ppb at G-17). The soil concentrations of PCE observed at SS-019 (up to 20 ppb) are not indicative of a continuous source of groundwater contamination, although the 1,900 ppb "hot spot" at SS-028 is a probable source of continued groundwater contamination. In any case, PCE was not detected at the downgradient groundwater seeps located within approximately 100 feet of the Lake Champlain shoreline. Therefore, it does not appear that SS-028 is directly impacting Lake Champlain at this time.

3.1.4.3 Current Status

PCE is no longer stored or used at this site. The main concern at this time is the contaminated soil above the groundwater. As discussed above, sampling has confirmed the presence of organic contaminants in the soil located at SS-028, mainly PCE and its degradation products TCE and DCE. Based on the available information, elevated levels of organic contaminants have been detected in the groundwater. The proposed removal action will be implemented to protect the groundwater from potential future contamination due to soil contamination above the groundwater table.

will be collected and analyzed for these compounds to verify that soil containing elevated concentrations of these VOCs has been removed.

4.2.1 Toxicity

The toxicity data included below for all compounds are from the SmartTOX database (SmartTOX, 1998), most recently updated in July 1997. Information included in the database is from:

- USEPA, 1997. Integrated Risk Information System (IRIS). On-line data base.
- USEPA, 1995. Health Effects Assessment Summary Tables (HEAST). Office of Emergency and Remedial Response.

Toxicity information for each chemical is derived from scientific studies. In these studies, usually the chemical is used in high concentrations to investigate its effect on the health of the receptor. However, the concentrations of the chemicals of concern for SS-028 were relatively low.

Tetrachloroethene

Tetrachloroethene, also known as perchloroethylene (PCE), has been shown to cause central nervous system (CNS) depression, hepatitis, kidney impairment and liver and kidney enlargement. PCE causes hepatotoxicity in humans. PCE ingestion in humans results in symptoms indicative of liver damage, hepatomegaly and fatty degeneration of the liver cells. Evaluation of PCE for carcinogenicity will be reviewed by USEPA at a later date.

Trichloroethene

Trichloroethene (TCE) has been shown to affect the CNS. Short-term exposure to high concentrations of TCE caused dizziness, headache, nausea, confusion, facial numbness, blurred

vision, and, at very high levels, unconsciousness. Longer exposures cause ataxia, decreased appetite, sleep disturbances, and trigeminal neuropathy. Information regarding hepatotoxicity in humans is limited and derived from acute overexposure. The carcinogen assessment summary for this substance has been withdrawn and a risk assessment is under review by an USEPA work group.

Dichloroethene

Little information is available concerning the toxic effects of 1,2-dichloroethene (DCE). There are two isomers, cis and trans. The trans isomer is twice as potent as the cis isomer in depressing the CNS. Exposure to vapor levels of 2,000 ppm of the trans isomer may cause burning of the eyes, vertigo and nausea. Chronic exposure to high vapor concentrations of the trans isomer causes nausea, vomiting, weakness, tremor, and cramps in humans. Ingestion of DCE causes hepatic lesions. DCE is not mutagenic or tetraogenic. Neither isomer has been evaluated with respect to carcinogenic effects.

4.2.2 Fate and Transport

The primary reference for this fate and transport information was the Handbook of Environmental Fate and Exposure Data for Organic Chemicals (Howard, 1990).

PCE, TCE, and DCE are the primary contaminants of concern found in the groundwater at the SS-028 site. It has been shown that an isolated VOC contaminant plume is migrating downgradient from potential soil contaminant source areas. PCE, DCE, and TCE are relatively mobile in soil due to their relatively low values of organic carbon-water partition coefficient (K_{oc}) and are likely to be transported into the groundwater where they will persist due to their low biodegradabilities. Although some volatilization may occur, it is not a significant pathway for these compounds at low concentrations in subsurface soils (PCE was detected at 1.5 - 2.5 feet below ground at G-17). Under anaerobic conditions (which may occur beneath the water table or within product saturated soils), PCE degrades to TCE which in turn degrades to DCE. The presence of TCE and DCE suggests that anaerobic degradation may be occurring. PCE, TCE, and DCE are more

likely to persist in groundwater and migrate by advection, dispersion and diffusion. DCE will be more mobile in groundwater because it has a higher solubility than TCE and PCE.

4.3 Contaminant Action Levels

Soil cleanup criteria used to evaluate site contamination are based on a Technical and Administrative Guidance Memorandum (HWR-94-4046), issued by the NYSDEC Division of Hazardous Waste Remediation. The memorandum is titled "Determination of Soil Cleanup Objectives and Cleanup Levels" (TAGM 4046), January 24, 1994.

Cleanup of the vadose zone soils at the SS-028 site at Plattsburgh AFB will be considered complete when the recommended cleanup levels as specified under NYSDEC TAGM HWR-94-4046 are met.

The recommended maximum allowable soil concentrations for the major contaminants found at Site SS-028, as specified under NYSDEC TAGM HWR-94-4046, are as follows:

4.3.1 Tetrachloroethene

Tetrachloroethene was detected during the RI (URS, 1998) at a maximum concentration of 1,900 $\mu\text{g}/\text{kg}$ at Geoprobe location G-17. This value exceeds the 1,400 $\mu\text{g}/\text{kg}$ allowable contaminant concentration in the soil, as provided in TAGM 4046.

4.3.2 Trichloroethene

Trichloroethene was detected during the RI (URS, 1998) at a maximum concentration of 120 $\mu\text{g}/\text{kg}$ at Geoprobe location G-17. This value does not exceed the 700 $\mu\text{g}/\text{kg}$ allowable contaminant concentration in the soil as provided in TAGM 4046.

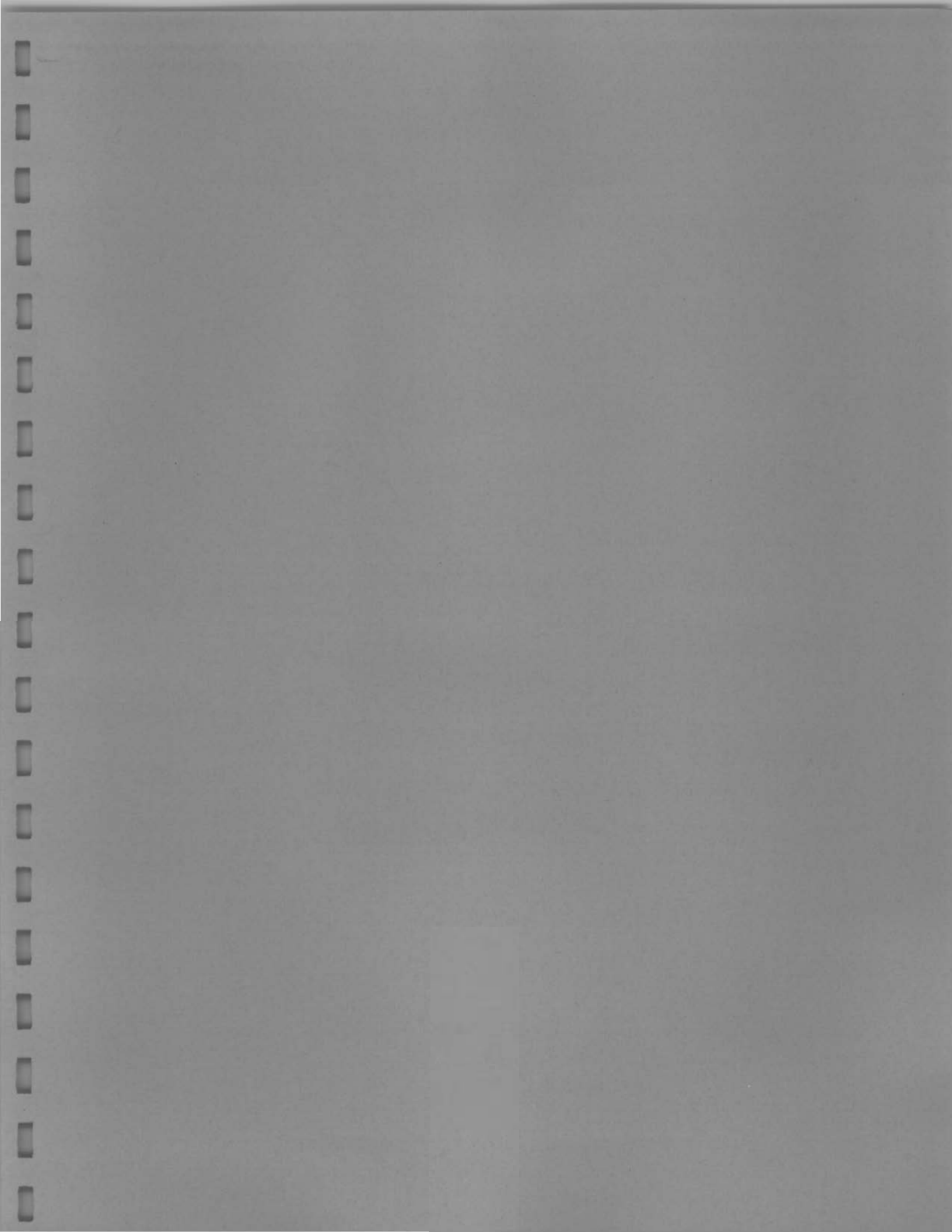
4.3.3 Dichloroethene

Dichloroethene was detected during the RI (URS, 1998) at a maximum concentration of 160 µg/kg at Geoprobe location G-17. This value does not exceed the 300 µg/kg allowable contaminant concentration in the soil as provided in TAGM 4046.

4.4 Conclusions

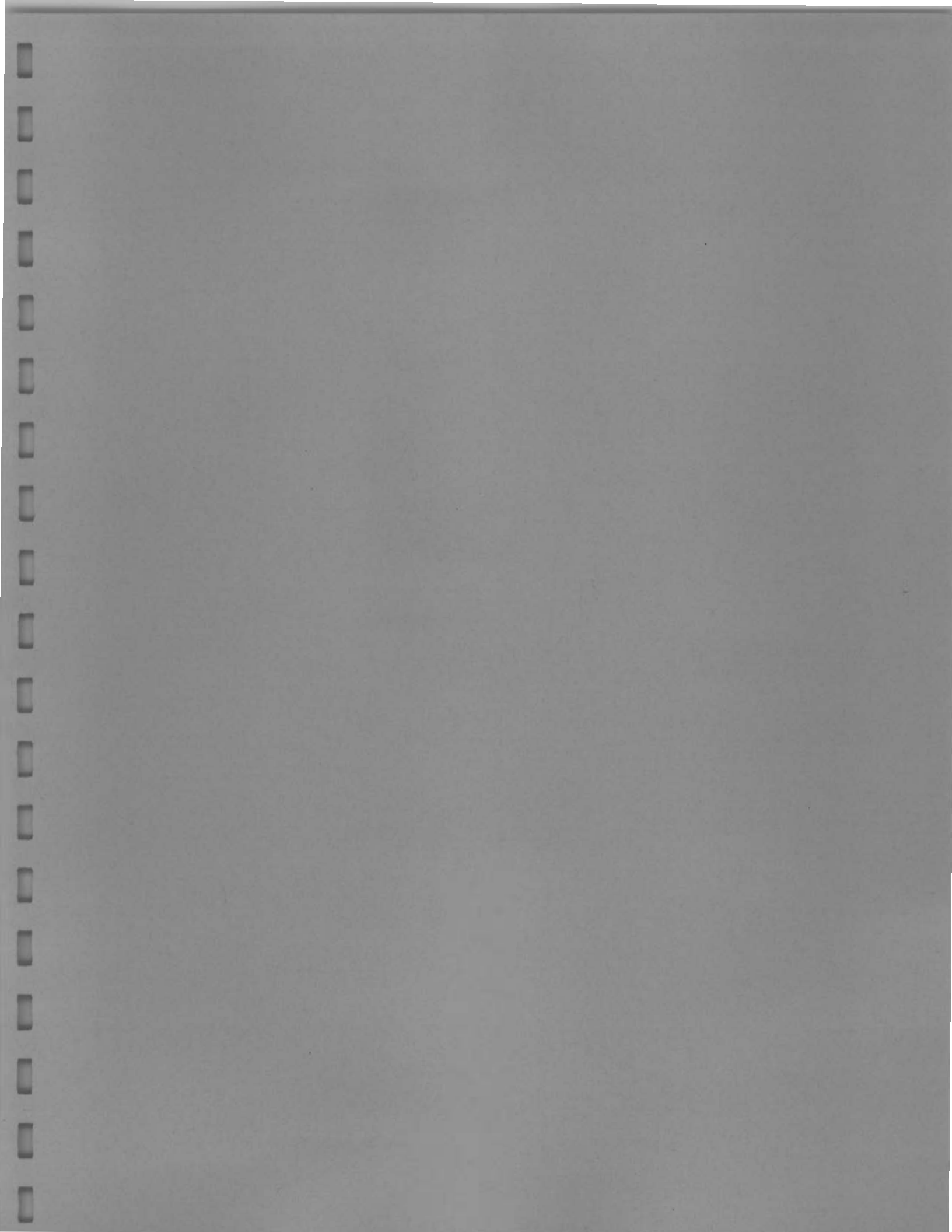
Previous field investigations at Site SS-028 indicate elevated levels of PCE. The soil cleanup objectives for PCE in TAGM 4046 are based on protection of groundwater. Comparing the PCE concentration detected in site soil samples to this objective indicates that there is a potential for PCE to eventually leach into the groundwater at concentrations that would exceed the NYSDEC groundwater and NYS Department of Health drinking water standards.

Most of the samples collected at Site SS-028 have been analyzed for VOCs, SVOCs, pesticides/PCBs, and metals. The cleanup levels for Site SS-028 have been based on PCE, TCE, and DCE. PCE exceeded its soil cleanup criteria. TCE and DCE, are its degradation products.



5.0 ENDANGERMENT DETERMINATION

Actual or threatened release of hazardous substances from this site if not addressed by implementing the removal action selected in this Action Memorandum, may present a potential endangerment to public health and the environment. If this removal action is not implemented, there is potential for additional contaminants to reach the groundwater and migrate off-site in the direction of groundwater flow. This may increase the potential for contact with on-site or off-site receptors, through the use of contaminated groundwater, if used as a potable water source in the future (groundwater at the site is not currently used as a potable water source).



6.0 PROPOSED REMOVAL ACTION AND ESTIMATED COSTS

6.1 Proposed Removal Action

6.1.1 Overview

The preferred removal action alternative addresses the principle threat of the Open Storage Area Site SS-028 by removing site soils, which contain PCE, around Geoprobe location G-17. The preferred alternative is based on available site information and will include excavation and proper disposal of the excavated soil. Based on available information, the excavated soil is not expected to be RCRA hazardous. Therefore, it is assumed that it will be sent off-site for proper disposal at a non-hazardous solid waste landfill.

Excavation and offsite disposal is recommended at SS-028 over other treatment alternatives such as bioventing or soil vapor extraction. This recommendation is based on the small quantity of soil that exceeds the cleanup criteria, making it the most timely and cost-effective method compared to other treatment and/or disposal options.

Confirmatory sampling will be conducted at the limits of the excavation. It is anticipated that this sampling will include, at a minimum, the collection of one sample from each side and bottom of the excavation. The samples will be analyzed for PCE, DCE, and TCE via EPA Method 8260.

6.1.2 Treatment Area

Soils will be remediated to cleanup levels for representative VOCs (PCE, TCE, and DCE). These cleanup objectives were determined according to TAGM 4046 and are outlined in Section 4 of this document. Data obtained from the SI and RI indicate that the following chemicals were detected at levels that contravened regulatory guidance: PCE, seven PAHs that appear to be associated with a layer of fill containing coal (found also in borings at adjacent IRP sites SS-018 and

SS-019), and six metals. Groundwater samples collected downgradient from SS-028 contained DCE, PCE, and TCE and four metals (PAHs were not detected in groundwater). Concentrations of the metals were comparable in the upgradient and downgradient well samples. Therefore, the site does not appear to be a source of PAHs or metals contamination to groundwater, and PAHs and metals were not considered in the determination of the treatment area. PCE has been detected at five monitoring well locations at site SS-028 and at adjacent site SS-018. PCE was also detected in soil above its guidance value at boring G-17, located about 40 feet upgradient along the site's northern edge of pavement. All contraventions of the PCE standard occurred within 100 feet of G-17. PCE and its degradation products DCE and TCE are the soil contaminants that might impact site groundwater, if they are not removed. Therefore, the treatment area was determined based on these chemicals of concern.

6.1.3 Detailed Description

Based on the existing information, which is presented in detail in the RI, the soil in the shaded area around Geoprobe location G-17 (shown on Figure 6.1) will be excavated to a depth of approximately three feet. Analytical results from borings advanced near this location (G-9, G-18, G-20, and G-23) show that the source appears to be confined to an area within 25 feet of G-17 and most highly concentrated in a 1-foot layer located between 1.5 and 2.5 feet below ground surface. The asphalt pavement will be removed from the excavation area and will be disposed of appropriately as constructed and demolition debris. The excavated soil will be placed in lined rolloff containers and tested for Resource Conservation and Recovery Act (RCRA) toxicity characteristics via Toxicity Characteristic Leaching Procedure (TCLP) analysis. One sample from each container of excavated soil will be collected. The samples will then be composited into one sample per 100 cubic yards which will be analyzed, before the excavated soils are transported to the disposal facility. The sampling procedure is normally required from the disposal facilities which, are required to collect representative samples of their incoming wastes according to RCRA, Title 40 Code of Federal Regulations, Sections 262 to 265, (a representative sample is one that provides a statistically accurate evaluation of hazardous constituents in the waste). The soil is expected to be non-hazardous and it will be sent off-site for proper disposal.

It is proposed that confirmatory samples be collected only after background levels in the excavation side walls are measured with field instruments (i.e. photoionization/flame ionization (PID/FID detector). A PID/FID detects all VOCs present in the soil. However, as Figure 6-1 shows VOCs other than PCE are expected to be at low concentrations in soils from around Geoprobe location G-17, and thus will not interfere with the determination of soils that must be excavated. Confirmatory sampling will be conducted at the limits of the excavation. It is anticipated that this sampling will include, at a minimum, the collection of one sample from each side and bottom of the excavation. The samples will be analyzed for the representative volatile organic compounds using EPA Method 8260, on a 48-hour turnaround basis to expedite the removal action. Once the cleanup criteria for the selected VOCs have been reached, excavation will be discontinued, and the excavation will be backfilled with clean fill. The site will then be restored to its previous condition (the area of concern contains both paved and grassy areas).

6.1.4 Disposal of Waste

Soils excavated from SS-028 will be disposed of as described in Section 6.1.3 of this document.

6.1.5 Contribution to Remedial Performance

The proposed action is being implemented to remediate contaminated soils at SS-028 and prevent contaminants from leaching into the groundwater. The main objective of the remedial action is to remediate the soils containing PCE that were detected around Geoprobe location G-17.

6.1.6 Description of Alternative Technologies

The proposed removal action is "time critical" and does not require the preparation of an Engineering Evaluation/Cost Analysis (EE/CA) or a review of alternative technologies. This remedial technology was selected based on its effectiveness in treating soils contaminated with VOCs, its cost effectiveness, and its implementability.

6.1.7 Engineering Evaluation/Cost Analysis (EE/CA)

An engineer's evaluation and cost analysis was not performed at the site, because "time critical" removal actions do not require preparation of an EE/CA.

6.1.8 Applicable or Relevant and Appropriate Requirements (ARARs)

6.1.8.1 General

All ARARs will be strictly adhered to during the removal action. The following ARARs have been identified for this removal action:

- Standards Applicable to Generators of Hazardous Waste (Title 40, Section 262, Code of Federal Regulations).
- Contingency Plan and Emergency Procedures (Title 40, Section 264, Subpart D, Code of Federal Regulations).
- General Facility Standards and Operations (Title 40, Section 264, Code of Federal Regulations).
- Hazardous Materials Regulations (Title 29, Section 1910, Code of Federal Regulations).
- Health and Safety Program (Title 29, Section 1910, Code of Federal Regulations).
- NYSDEC Hazardous Waste Management Regulations (Title 6, NYCRR, Part 373).

- Department of Transportation Hazardous Materials Regulations (Title 49, Parts 171 through 179, Code of Federal Regulations).
- NYSDEC TAGM HWR-94-4046 Determination of Soil Cleanup Objectives and Cleanup Levels (Revised) January 24, 1994.

6.1.8.2 Removal Action

The NCP Section 300.415 lists eight factors which shall be considered in determining the appropriateness of a removal action. The following factors apply to SS-028.

- Actual or potential exposure to nearby human populations, animal, or the food chain from hazardous substances or pollutants or contaminants;
- High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate; and
- Other situation or factors that may pose threats to the public health or welfare or the environment (i.e., the possibility for groundwater contamination).
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released do exist at the site;

The following factors do not apply to SS-028:

- Actual or potential contamination of drinking water supplies or sensitive ecosystems; groundwater is not currently used as a potable water source, and sensitive ecosystems are not in danger;

- Hazardous substances or pollutants in drums, barrels, tanks, or other bulk storage containers that pose a threat of release; all bulk storage containers have been removed;
- Threat of fire or explosion does not exist at the site; and
- The availability of other appropriate federal or state response mechanisms to respond to the release do not exist at this site.

6.1.9 Project Schedule

“Time Critical” removal actions require that a planning period of less than six months exists before on-site activities are initiated. The six month planning period begins with the receipt of the Action Memorandum for the Open Storage Area (SS-028) by the USEPA and NYSDEC. To meet time objectives, the following schedule is proposed:

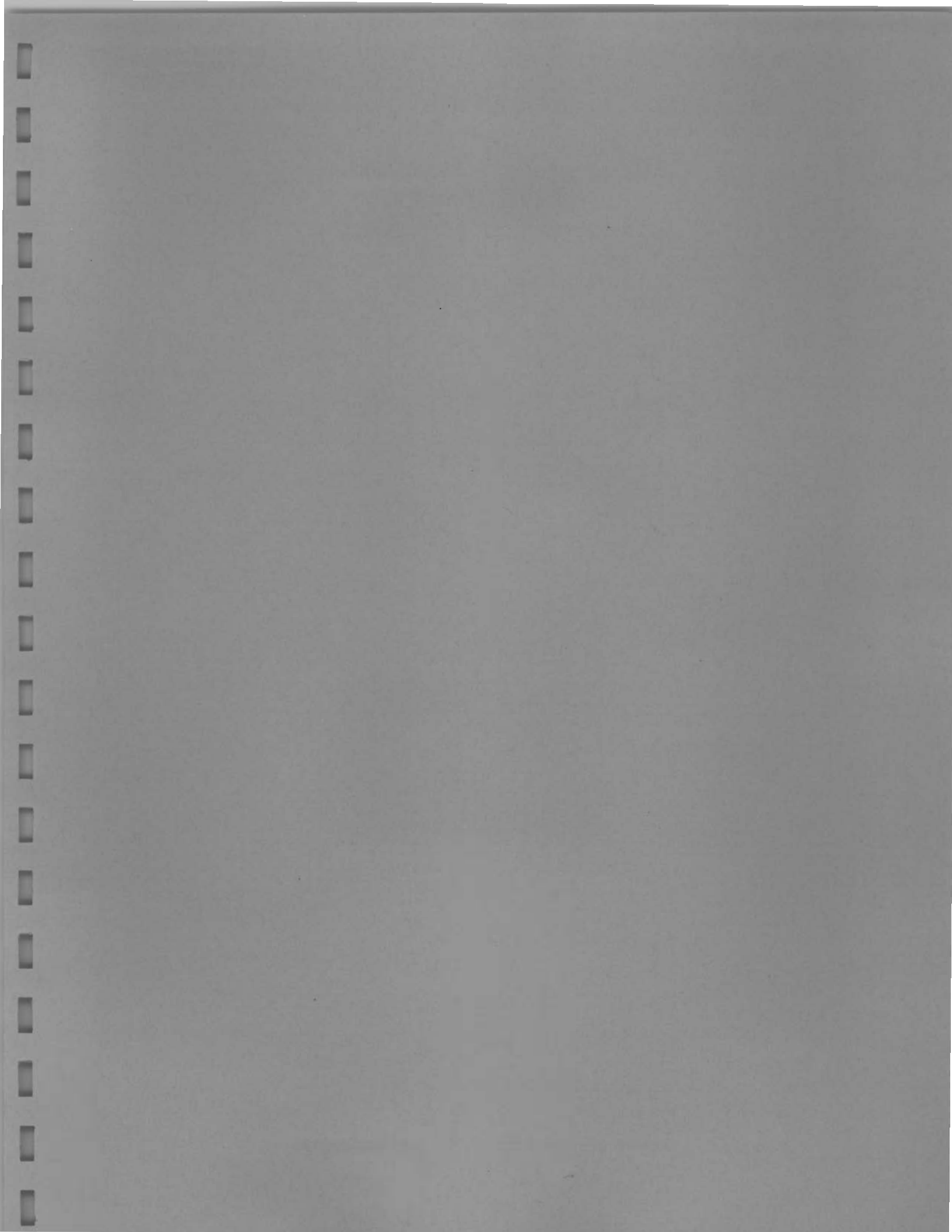
- October 1998 - submit action memorandum to USEPA and NYSDEC.
- November 1998 - present action memorandum in a public forum.
- November-early December 1998 - Begin and complete excavation of SS-028 contaminated soils around Geoprobe location G-17 and backfill.
- February 1999 - Submit brief draft closure report to NYSDEC and USEPA.
- April 1999 - Submit brief final closure report to NYSDEC and USEPA.

6.2 Estimated Costs

A preliminary cost estimate has been based on the following assumptions:

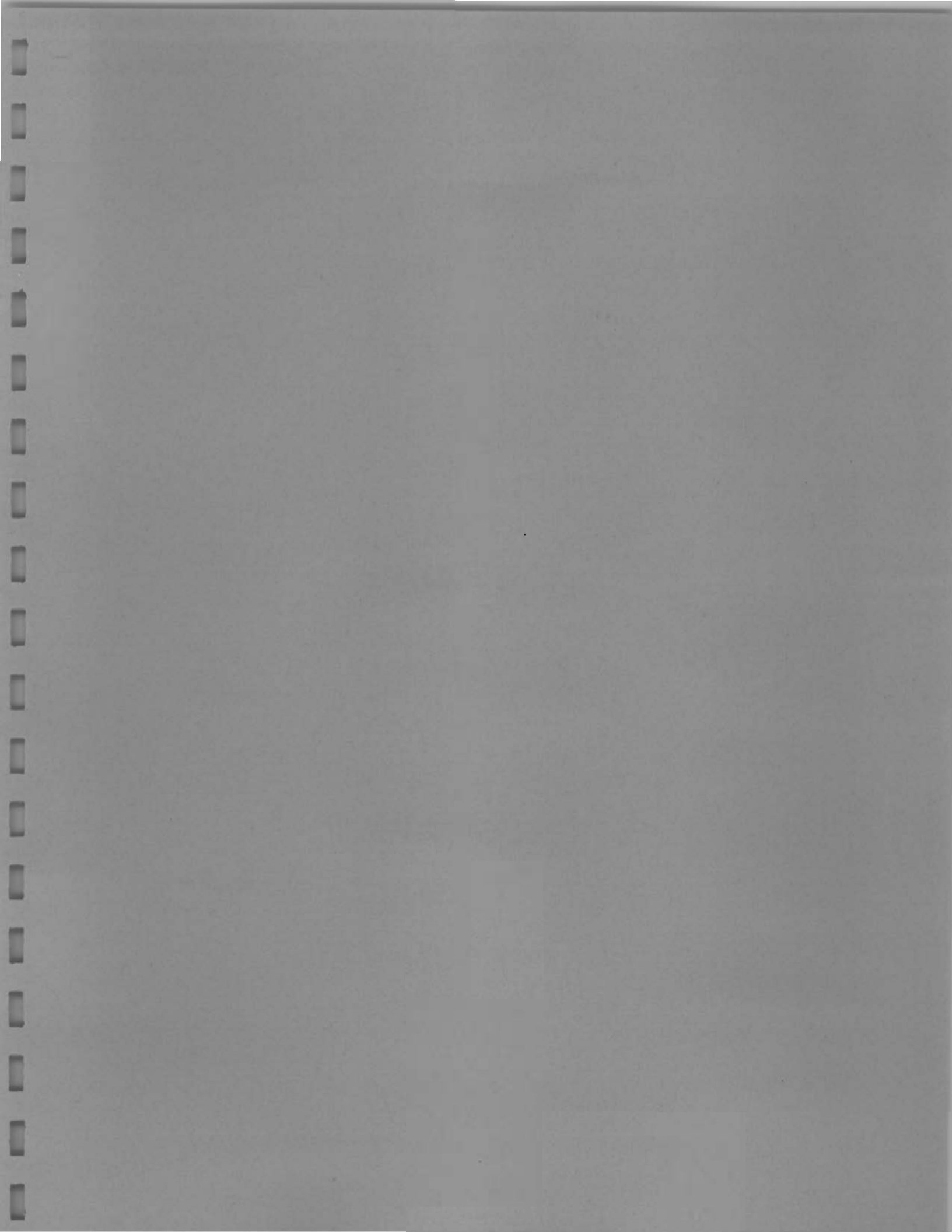
- The volume of soil to be excavated and disposed offsite at a non-hazardous waste landfill is estimated at 100 cubic yards.
- The work will be done by one prime contractor who may subcontract some work items.

The estimated cost for removing the contaminated soil is between \$36,000 and \$80,000. The actual cost will depend on the quantity of excavated soil.



7.0 EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

As previously discussed, there is a potential for PCE and its degradation products TCE and DCE to contaminate the groundwater and subsequently migrate off-site. If this removal action is not implemented, the threat exists that the contaminants will reach the groundwater and migrate downward and in the direction of groundwater flow.



8.0 REFERENCES

Howard, P.H. 1989, 1990, 1991, 1993. *Handbook of Environmental Fate and Exposure Data for Organic Chemicals*, Vols. 1, II, III, IV. Chelsea, MI: Lewis Publishers.

NYSDEC. 1994. *Determination of Soil Cleanup Objectives and Cleanup Levels*, Technical and Administrative Guidance Memorandum HWR-94-4046. Albany: Bureau of Hazardous Waste Remediation.

Plattsburgh Airbase Redevelopment Corporation (PARC). 1995. *Comprehensive Reuse Plan for Plattsburgh Air Force Base*.

Reschke, C. 1990. *Ecological Communities of New York State*. Latham, New York: New York Natural Heritage Program.

SmartTOX. 1998. Online Database containing toxicity profiles of chemicals. Accessed September.

Tetra Tech. 1997. *Basewide Environmental Baseline Survey Plattsburgh Air Force Base, New York* (revised May 1997, data updated to September 1996).

URS Consultants, Inc. 1995. *Building 508 Open Storage Area (SS-028) Site Investigation Report. United States Department of the Air Force, Plattsburgh Air Force Base, Plattsburgh, New York*. Buffalo, NY.

_____. 1997. *Informal Technical Information Report*. Buffalo, NY.

_____. 1998. *Building 508 Open Storage Area (SS-028) Remedial Investigation Report. United States Department of the Air Force, Plattsburgh Air Force Base, Plattsburgh, New York*. Buffalo, NY

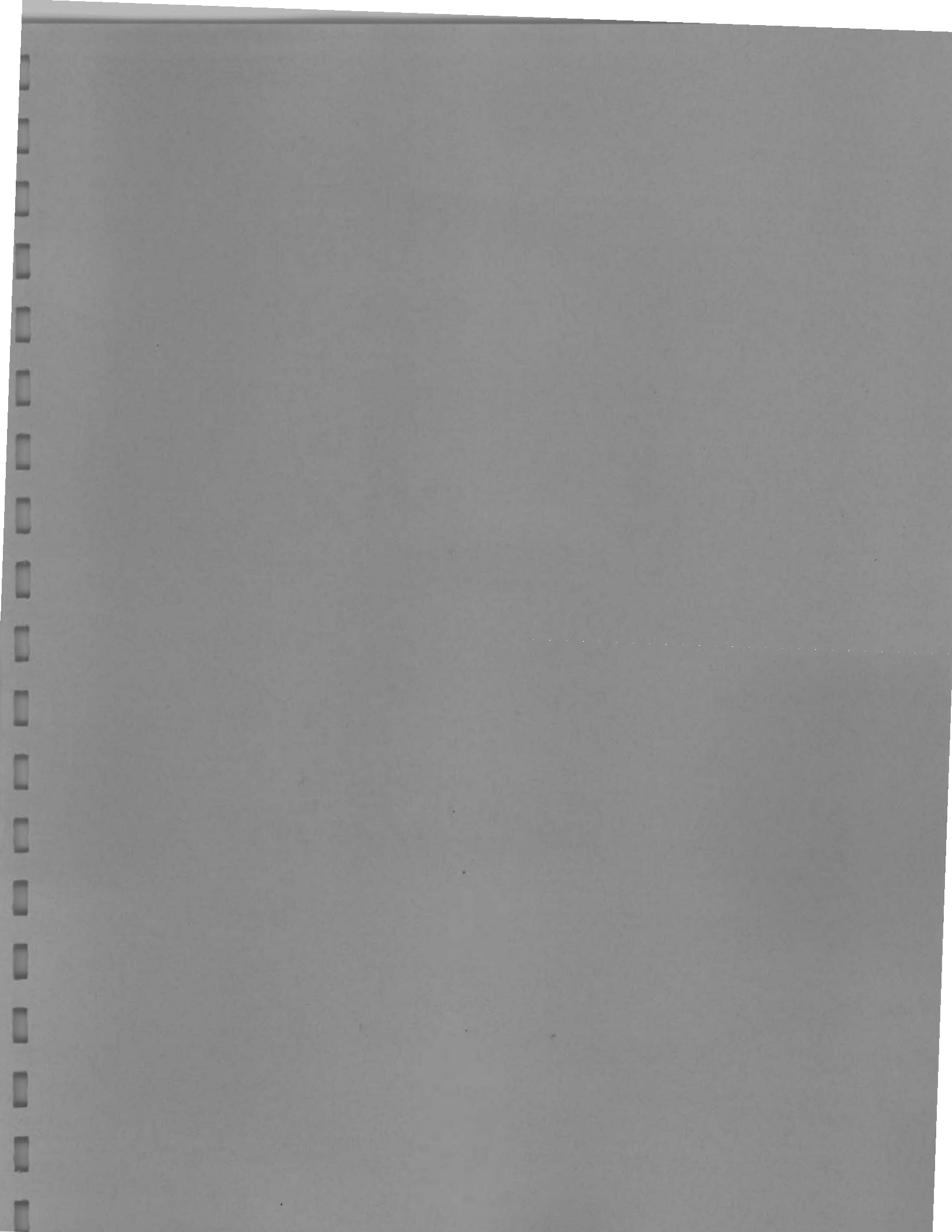
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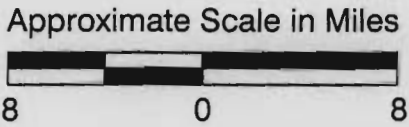
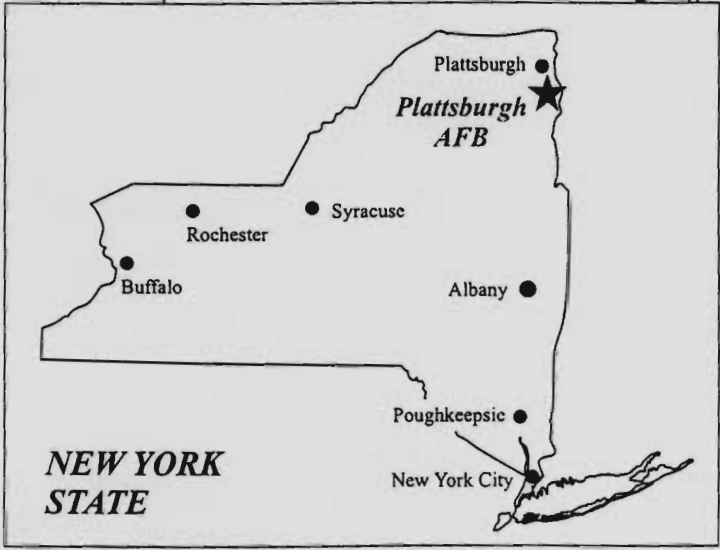
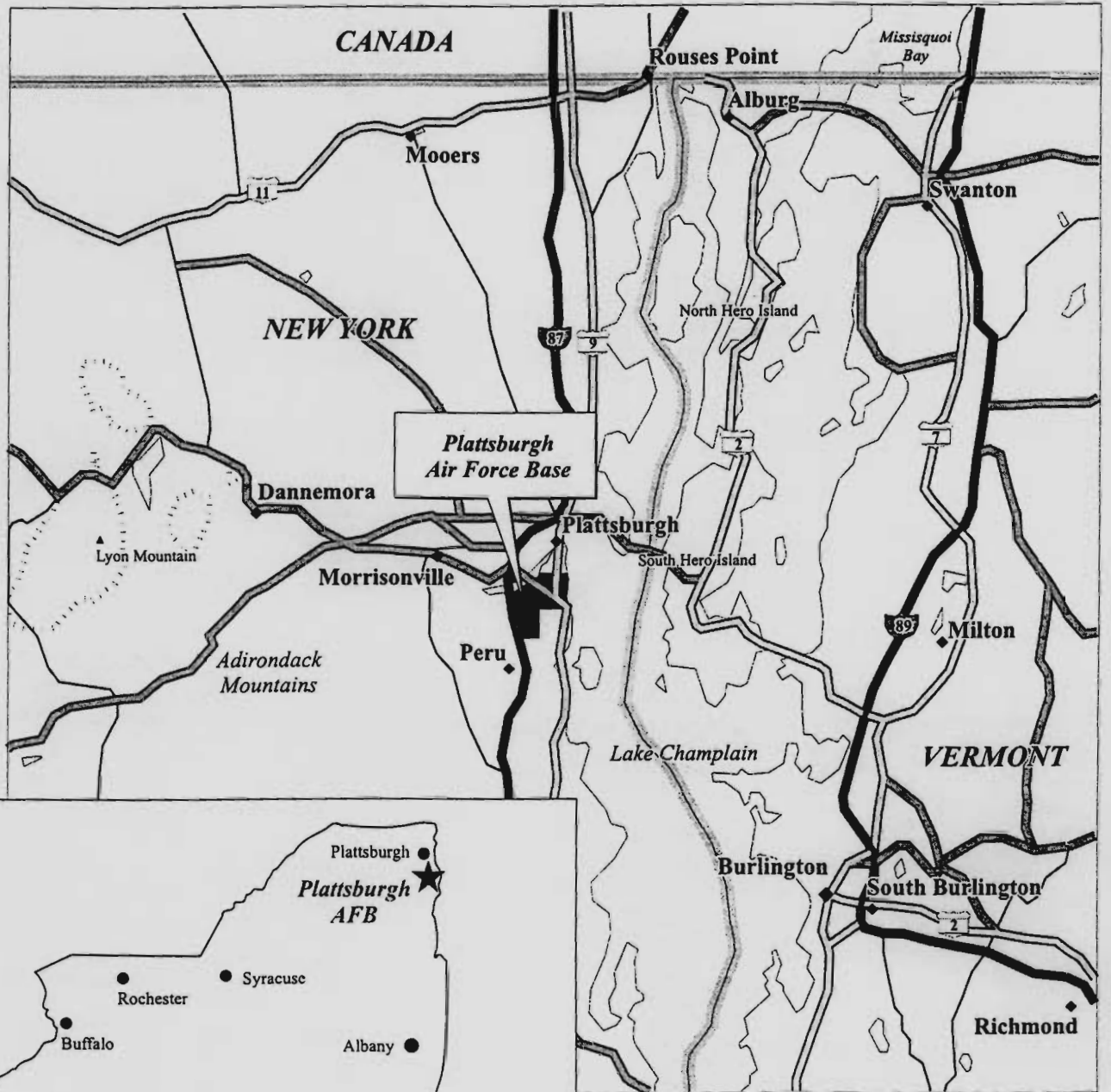
United States Air Force. (USAF). 1995. *Final Environmental Impact Statement (FEIS) for the Disposal and Reuse of Plattsburgh AFB, NY*. Washington, DC.

United States Environmental Protection Agency (USEPA). 1990. *Superfund Removal Procedures Action Memorandum Guidance*. EPA/540/P-90/004. Washington, DC. December.

_____. 1995. Health Effects Assessment Summary Tables, FY-1994 (OERR.6-303(94-1)).

_____. 1997. Integrated Risk Information System (IRIS). July 1997 retrieval.





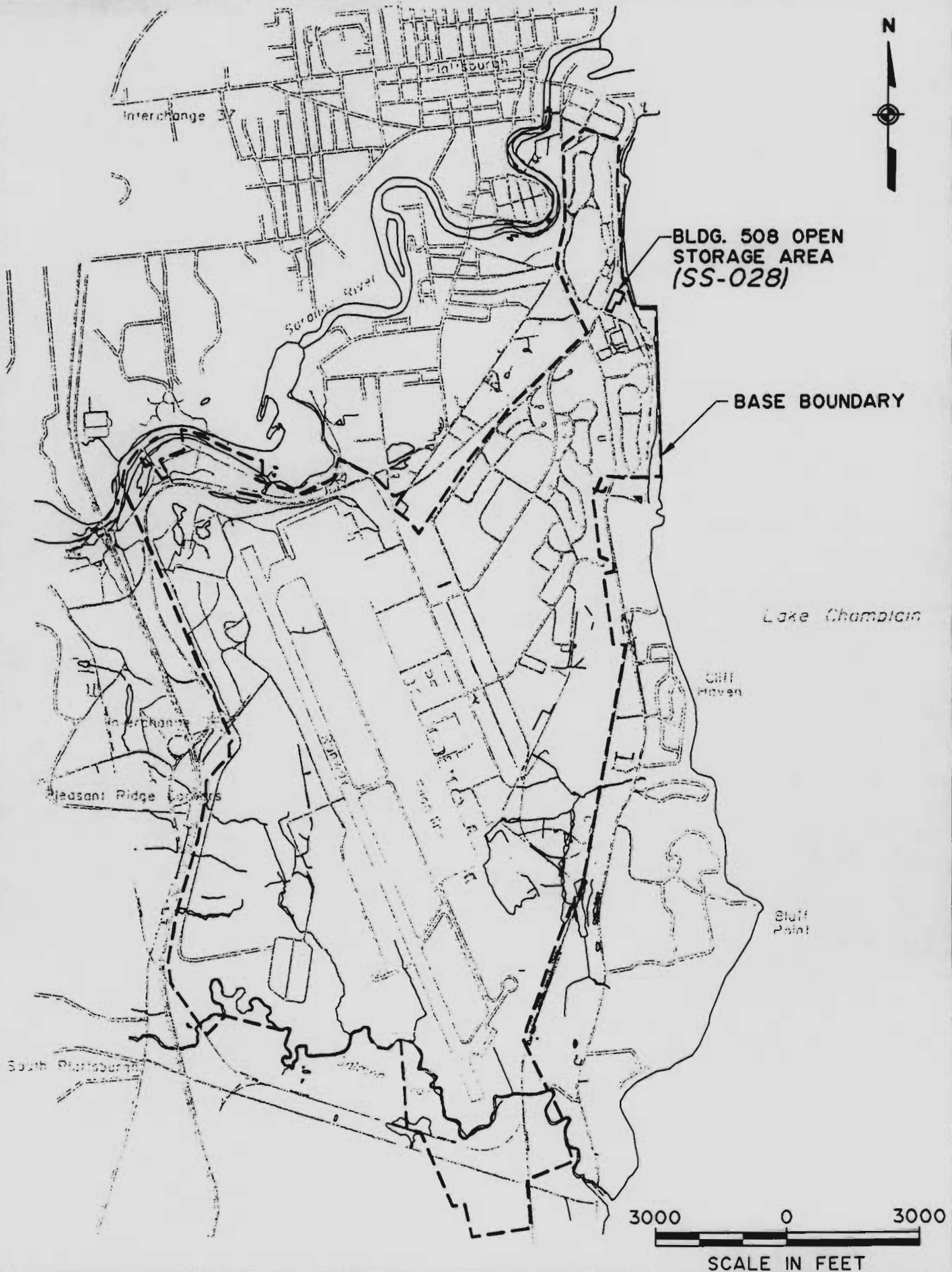
© 1993 DeLorme Mapping

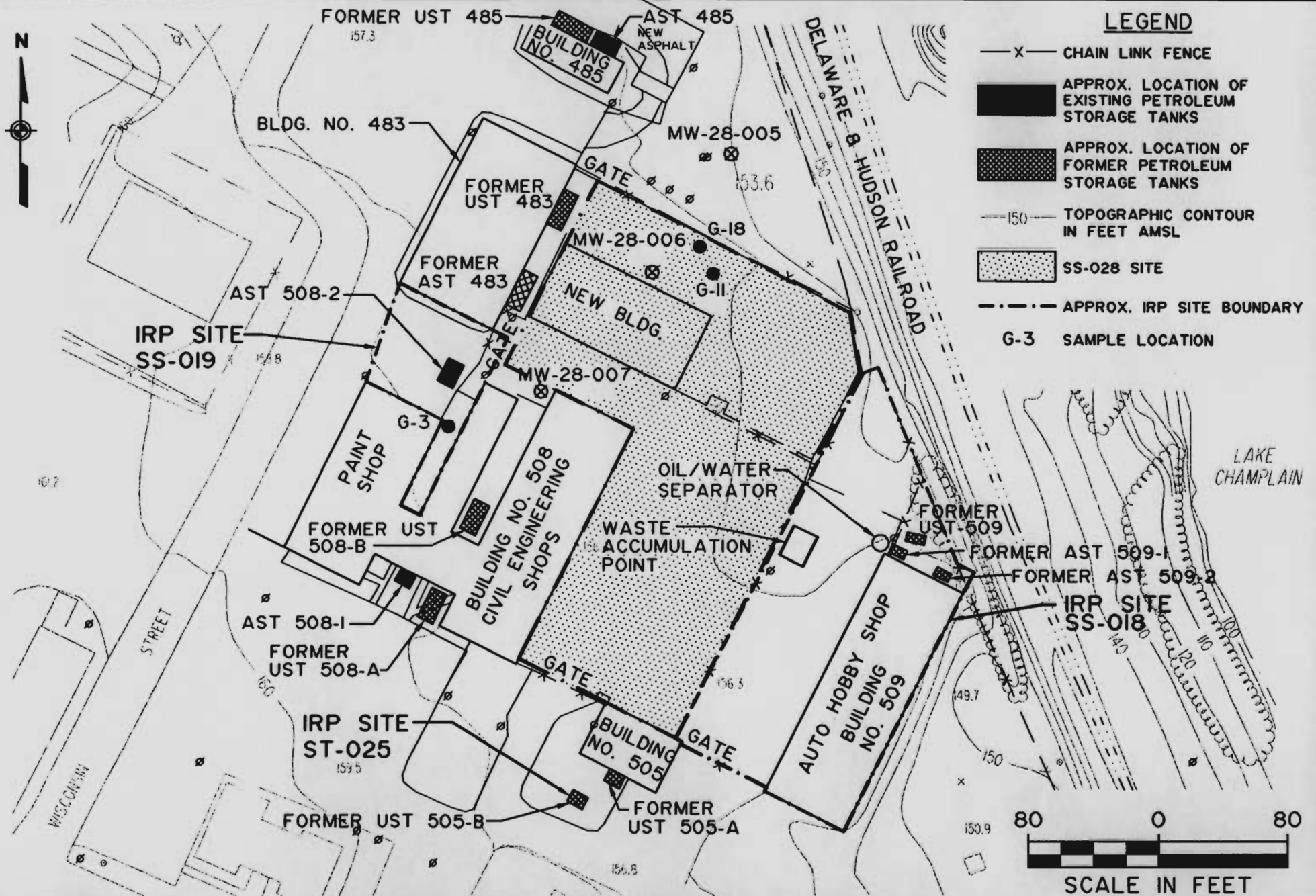
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PLATTSBURGH AIR FORCE BASE
VICINITY LOCATION MAP

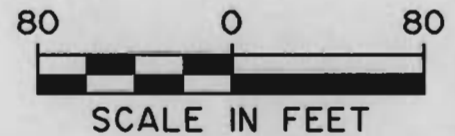
FIGURE 3-1

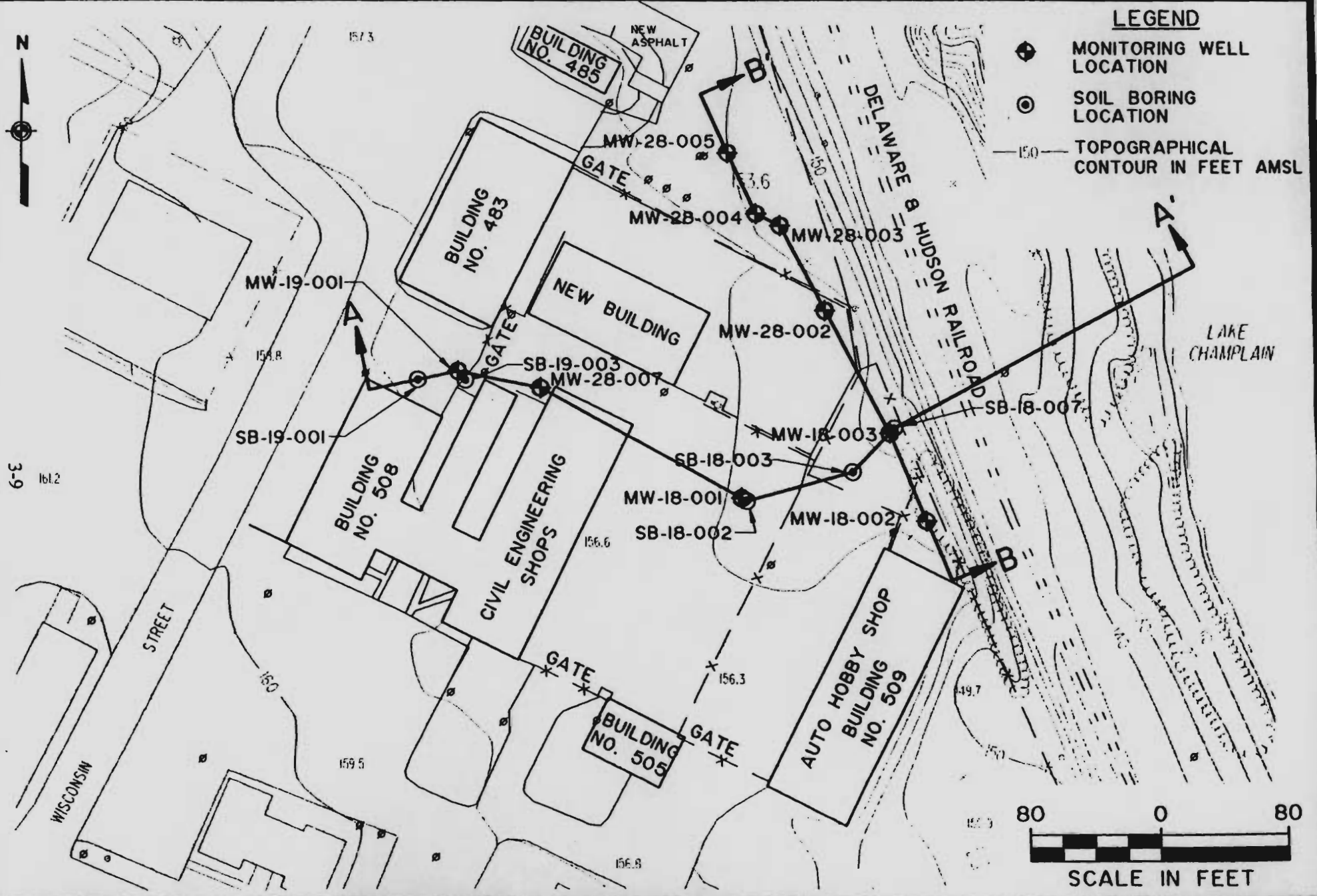




LEGEND

- X — CHAIN LINK FENCE
- APPROX. LOCATION OF EXISTING PETROLEUM STORAGE TANKS
- ▨ APPROX. LOCATION OF FORMER PETROLEUM STORAGE TANKS
- 150— TOPOGRAPHIC CONTOUR IN FEET AMSL
- ▧ SS-028 SITE
- - - - - APPROX. IRP SITE BOUNDARY
- G-3 SAMPLE LOCATION





**BUILDING 508 - OPEN STORAGE AREA (SS-028)
CROSS-SECTION A-A' AND B-B' LOCATIONS**

FIGURE 3-4

G-23 (4.2'-4.8')	
Tetrachloroethene	5
Trichloroethene	1
Toluene	1
Methylene Chloride	3

G-9 (4.2'-4.8')	
Tetrachloroethene	33
Trichloroethene	11
1, 2-Dichloroethene	6
Toluene	2
Acetone	12

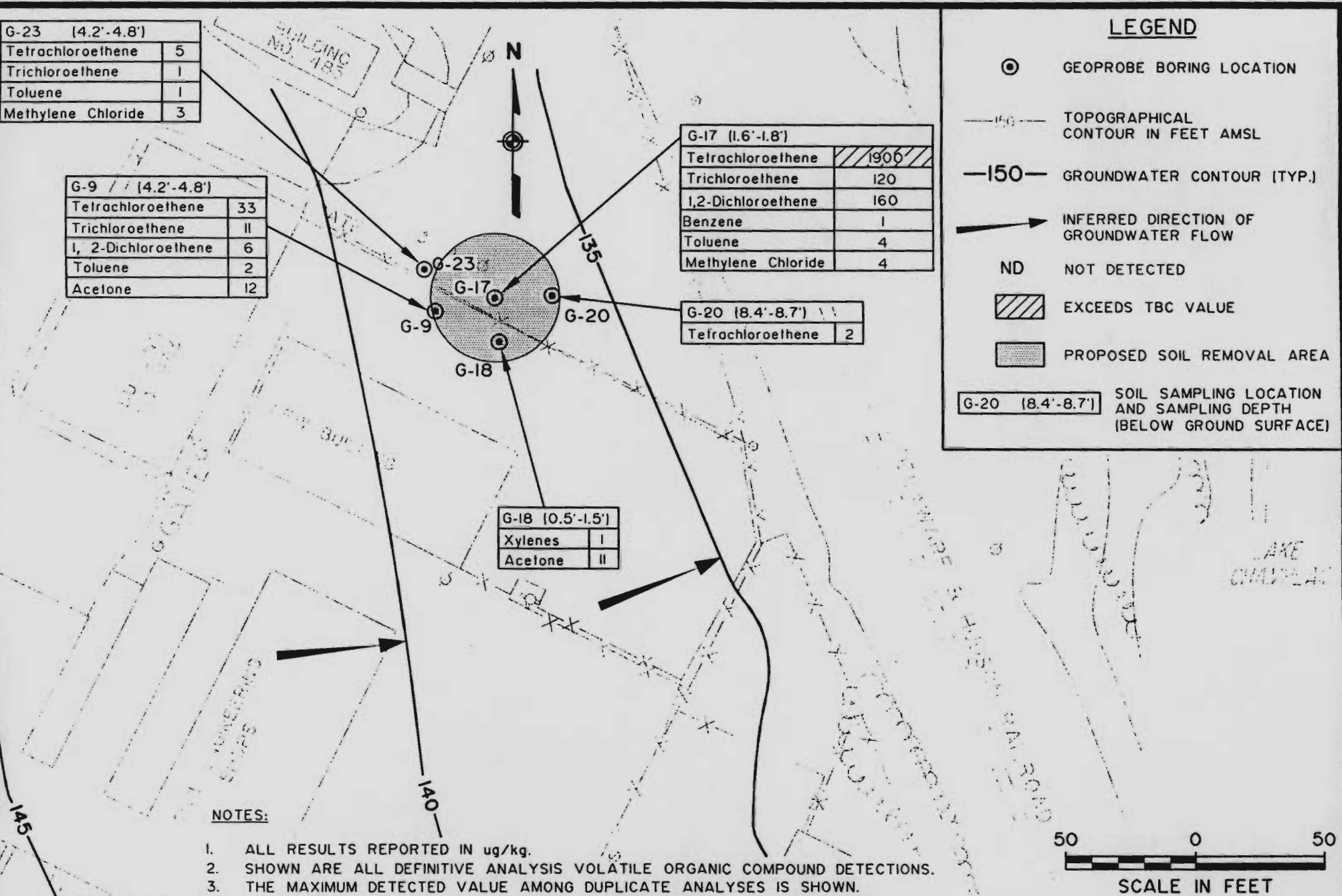
G-17 (1.6'-1.8')	
Tetrachloroethene	1900
Trichloroethene	120
1,2-Dichloroethene	160
Benzene	1
Toluene	4
Methylene Chloride	4

G-20 (8.4'-8.7')	
Tetrachloroethene	2

G-18 (0.5'-1.5')	
Xylenes	1
Acetone	11

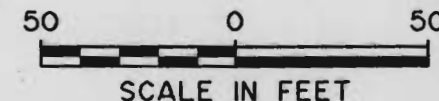
LEGEND

- GEOPROBE BORING LOCATION
- TOPOGRAPHICAL CONTOUR IN FEET AMSL
- 150- GROUNDWATER CONTOUR (TYP.)
- INFERRED DIRECTION OF GROUNDWATER FLOW
- ND NOT DETECTED
- EXCEEDS TBC VALUE
- PROPOSED SOIL REMOVAL AREA
- G-20 (8.4'-8.7') SOIL SAMPLING LOCATION AND SAMPLING DEPTH (BELOW GROUND SURFACE)

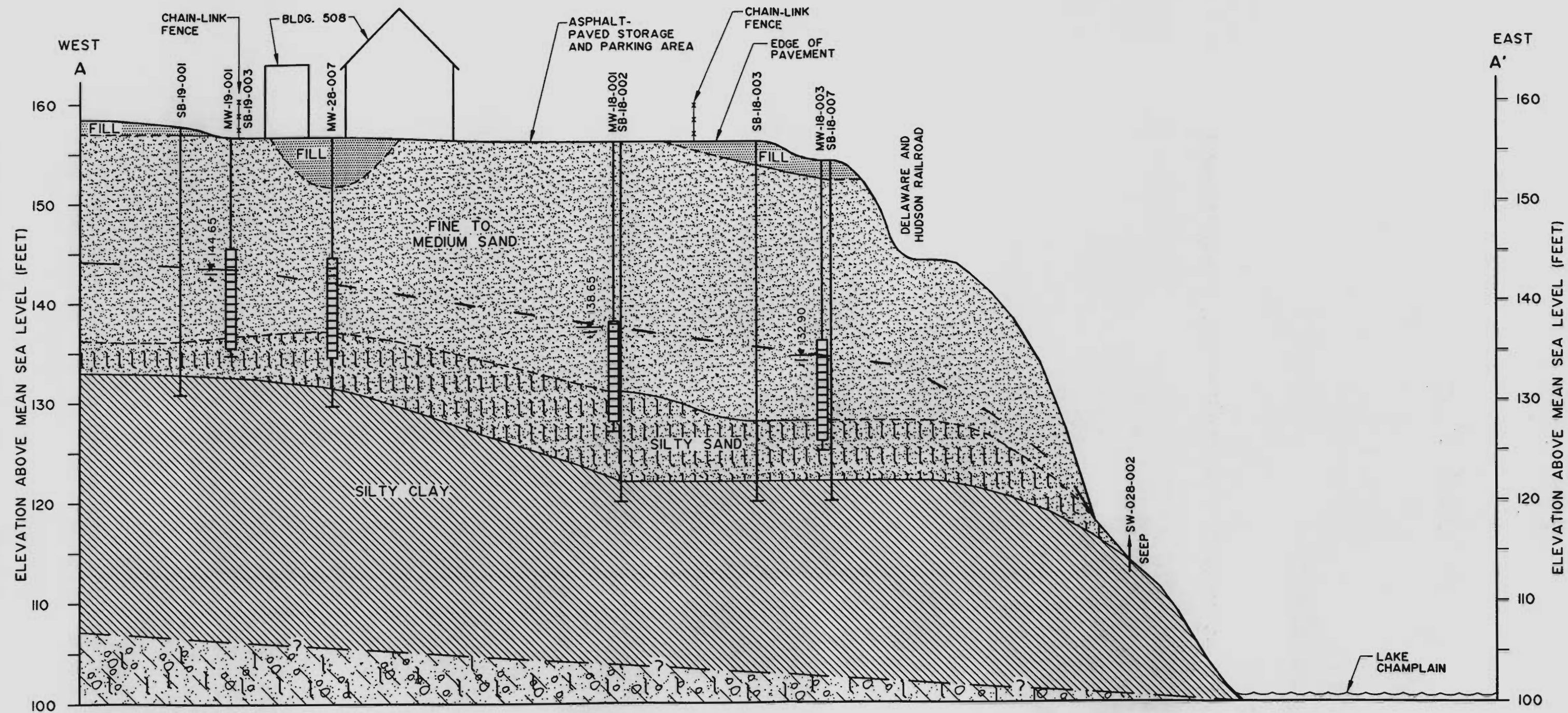


NOTES:

1. ALL RESULTS REPORTED IN ug/kg.
2. SHOWN ARE ALL DEFINITIVE ANALYSIS VOLATILE ORGANIC COMPOUND DETECTIONS.
3. THE MAXIMUM DETECTED VALUE AMONG DUPLICATE ANALYSES IS SHOWN.



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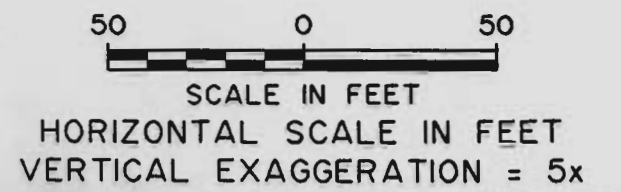
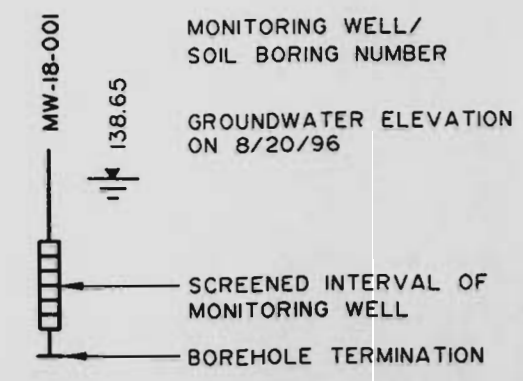


NOTES:

1. WATER TABLE SHOWN IN CROSS-SECTION DEPICTS WATER LEVEL DATA OBTAINED ON 8/20/96.
2. GEOLOGICAL CONDITIONS SHOWN ARE REPRESENTATIVE OF THE CONDITIONS ENCOUNTERED AT EACH BORING LOCATION TO THE DEPTH DRILLED. EXTRAPOLATIONS BETWEEN BORINGS HAVE BEEN INTERPRETED USING STANDARDLY ACCEPTED GEOLOGIC PRACTICES AND PRINCIPLES. ACTUAL CONDITIONS MAY VARY BETWEEN BORINGS FROM THOSE SHOWN.
3. ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

LEGEND

- FILL - BRICK, COAL, WOOD & METAL IN A GRAVELLY SAND MATRIX
- FINE TO MEDIUM SAND
- SILTY SAND
- SILTY CLAY
- TILL
- INFERRED POTENTIOMETRIC SURFACE ELEVATION ON 8/20/96



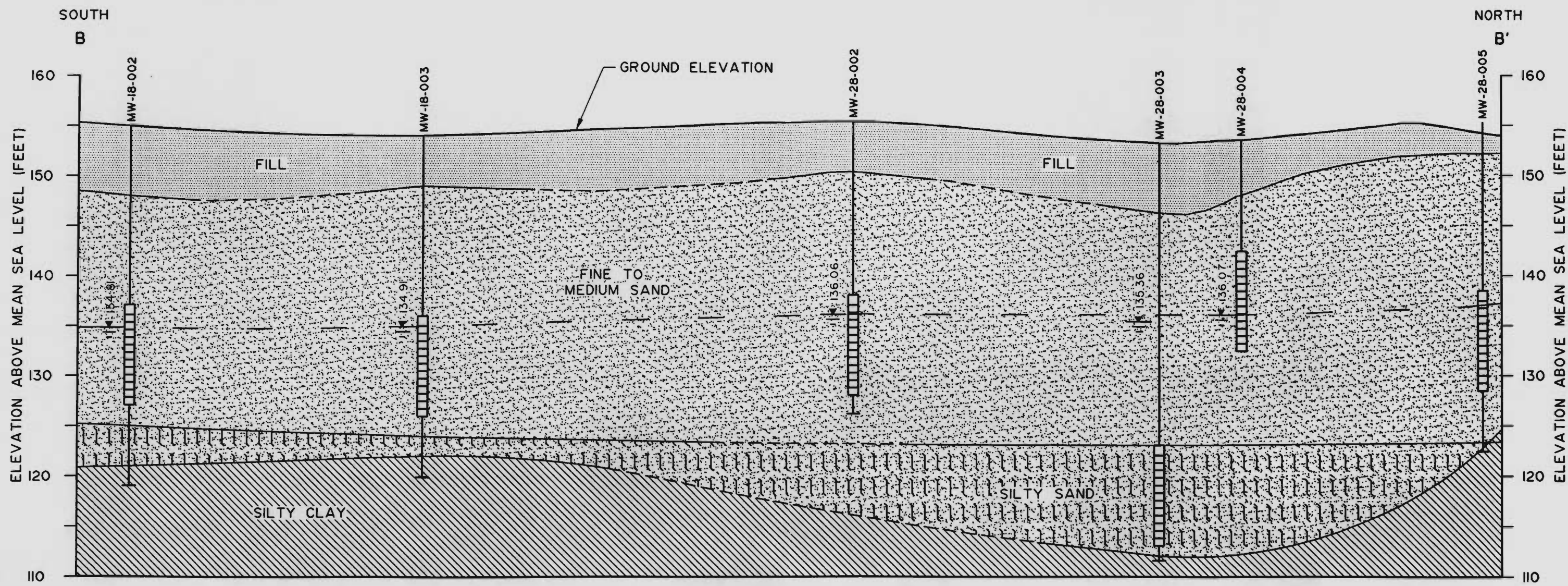
BUILDING 508 OPEN STORAGE AREA- (SS-028) CROSS-SECTION A-A'

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FIGURE 3-5

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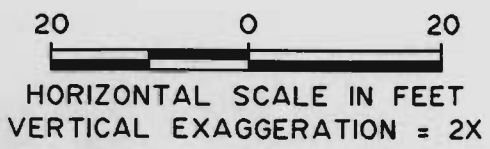


LEGEND

- FILL - BRICK, COAL, WOOD, AND METAL IN A GRAVELLY SAND MATRIX
- FINE TO MEDIUM SAND
- SILTY SAND
- SILTY CLAY
- INFERRED POTENTIOMETRIC SURFACE ELEVATION ON 12/5/96
- MONITORING WELL NUMBER
- GROUNDWATER ELEVATION ON 12-5-96
- SCREENED INTERVAL OF MONITORING WELL
- BOREHOLE TERMINATION

NOTES:

1. WATER TABLE SHOWN IN CROSS-SECTION DEPICTS WATER LEVEL DATA OBTAINED ON 12/5/96.
2. GEOLOGICAL CONDITIONS SHOWN ARE REPRESENTATIVE OF THE CONDITIONS ENCOUNTERED AT EACH BORING LOCATION TO THE DEPTH DRILLED. EXTRAPOLATIONS BETWEEN BORINGS HAVE BEEN INTERPRETED USING STANDARDLY ACCEPTED GEOLOGIC PRACTICES AND PRINCIPLES. ACTUAL CONDITIONS MAY VARY BETWEEN BORINGS FROM THOSE SHOWN.
3. ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.



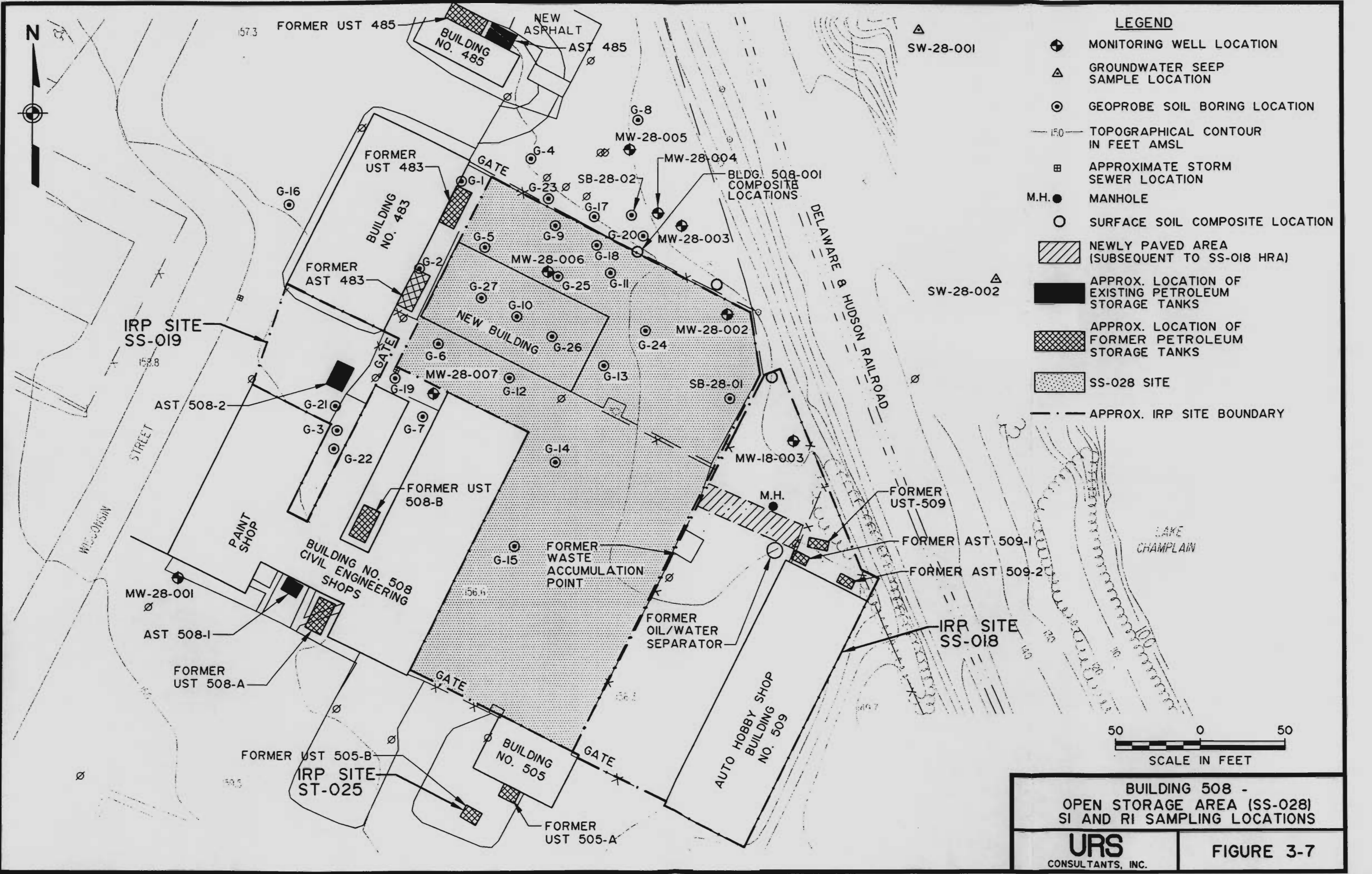
BUILDING 508 OPEN STORAGE AREA- (SS-028) CROSS-SECTION B-B'

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FIGURE 3-6

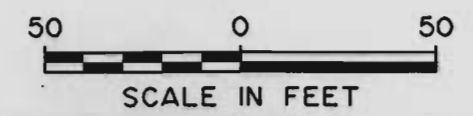
CC-5367

\\053529\CAD\SS028 1-50 10/2/98-5 B.JG



LEGEND

- ▲ SW-28-001
- ◆ MONITORING WELL LOCATION
- ▲ GROUNDWATER SEEP SAMPLE LOCATION
- ⊙ GEOPROBE SOIL BORING LOCATION
- 150 — TOPOGRAPHICAL CONTOUR IN FEET AMSL
- ▣ APPROXIMATE STORM SEWER LOCATION
- M.H. ● MANHOLE
- SURFACE SOIL COMPOSITE LOCATION
- ▨ NEWLY PAVED AREA (SUBSEQUENT TO SS-018 HRA)
- APPROX. LOCATION OF EXISTING PETROLEUM STORAGE TANKS
- ▩ APPROX. LOCATION OF FORMER PETROLEUM STORAGE TANKS
- ▤ SS-028 SITE
- - - APPROX. IRP SITE BOUNDARY

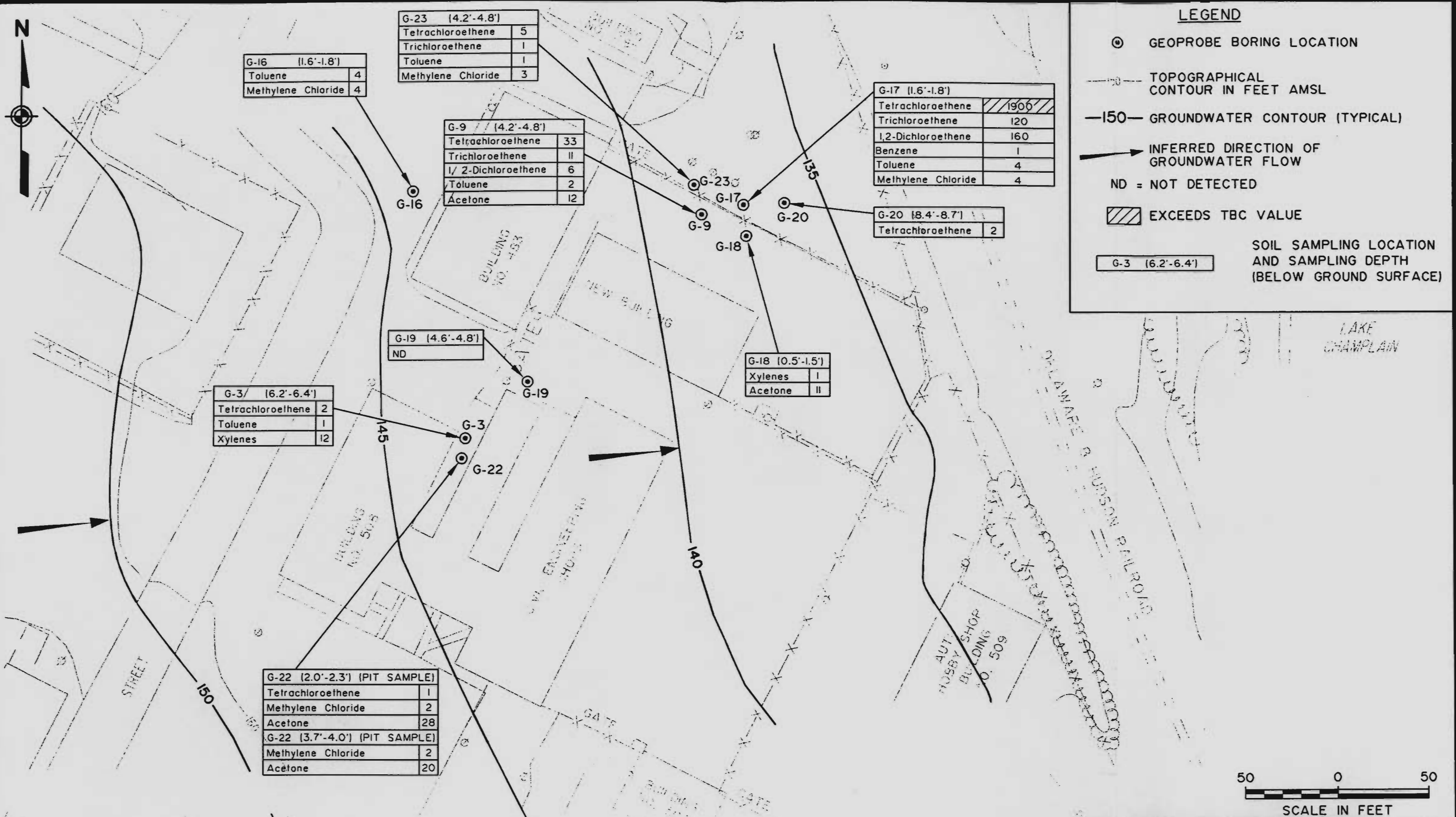


**BUILDING 508 -
OPEN STORAGE AREA (SS-028)
SI AND RI SAMPLING LOCATIONS**

URS
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FIGURE 3-7

CC-5338



LEGEND

- ⊙ GEOPROBE BORING LOCATION
- TOPOGRAPHICAL CONTOUR IN FEET AMSL
- 150- GROUNDWATER CONTOUR (TYPICAL)
- ➔ INFERRED DIRECTION OF GROUNDWATER FLOW
- ND = NOT DETECTED
- ▨ EXCEEDS TBC VALUE
- SOIL SAMPLING LOCATION AND SAMPLING DEPTH (BELOW GROUND SURFACE)

G-16 (1.6'-1.8')

Toluene	4
Methylene Chloride	4

G-23 (4.2'-4.8')

Tetrachloroethene	5
Trichloroethene	1
Toluene	1
Methylene Chloride	3

G-9 (4.2'-4.8')

Tetrachloroethene	33
Trichloroethene	11
1,2-Dichloroethene	6
Toluene	2
Acetone	12

G-17 (1.6'-1.8')

Tetrachloroethene	1900
Trichloroethene	120
1,2-Dichloroethene	160
Benzene	1
Toluene	4
Methylene Chloride	4

G-20 (8.4'-8.7')

Tetrachloroethene	2
-------------------	---

G-19 (4.6'-4.8')

ND	
----	--

G-18 (0.5'-1.5')

Xylenes	1
Acetone	11

G-3 (6.2'-6.4')

Tetrachloroethene	2
Toluene	1
Xylenes	12

G-22 (2.0'-2.3') [PIT SAMPLE]

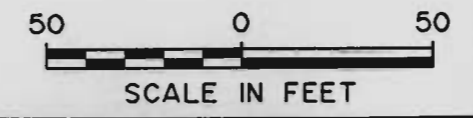
Tetrachloroethene	1
Methylene Chloride	2
Acetone	28

G-22 (3.7'-4.0') [PIT SAMPLE]

Methylene Chloride	2
Acetone	20

NOTES:

1. ALL RESULTS REPORTED IN ug/kg.
2. SHOWN ARE ALL DEFINITIVE ANALYSIS VOLATILE ORGANIC COMPOUND DETECTIONS.
3. THE MAXIMUM DETECTED VALUE AMONG DUPLICATE ANALYSES IS SHOWN.
4. SAMPLES AT G-22 WERE COLLECTED FROM A PIT EXCAVATED TO REPAIR A BROKEN WATERLINE.



PLATTSBURGH A.F.B. - SS-028 RI
 MAXIMUM VOLATILE ORGANIC
 COMPOUND DETECTIONS IN GEOPROBE
 SOIL SAMPLES (JULY 1997)

URS
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FIGURE 3-8



MW-19-001 (11/93)		
	Unfiltered	Filtered
Aluminum	3530	ND
Iron	13100	4100
Sodium	131000	155000
Thallium	11.0	12.9

MW-28-001 (11/94)		
	Unfiltered	Filtered
Aluminum	14800	206
Iron	30300	7970
Manganese	385	269
Sodium	384000	379000

LEGEND

- MONITORING WELL LOCATION
- TOPOGRAPHICAL CONTOUR IN FEET AMSL
- 150 GROUNDWATER CONTOUR (12/12/94)
- (137.42) GROUNDWATER ELEVATION (12/12/94)
- INFERRED DIRECTION OF GROUNDWATER FLOW
- ND = NOT DETECTED
- NA = NOT ANALYZED
- EXCEEDS ARAR

MW-28-002 (11/94) MONITORING WELL ID AND SAMPLING DATE(S)

MW-28-002 (11/94 & 8/95)	
1,1,1-Trichloroethane	0.3
Trichloroethene	0.6
Tetrachloroethene	8
Aluminum	9730
Iron	28800
Sodium	27900

MW-18-003 (1/93 & 4/93 & 8/95)	
Chloroform	0.6
Tetrachloroethene	3
bis(2-Ethylhexyl)phthalate	0.6
Aluminum	1520
Iron	2960
Sodium	31100

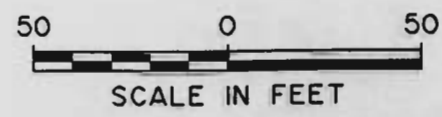
MW-18-002 (1/93 & 4/93 & 8/95)	
Chloroform	49
Bromodichloromethane	1.8
Tetrachloroethene	1.2
Trichloroethene	0.4
1,1-Dichloroethene	7
Benzene	2
Toluene	2
Chlorobenzene	2
bis(2-Ethylhexyl)phthalate	0.7
Aluminum	1320
Iron	5600
Sodium	118000

MW-18-001 (1/93 & 4/93)		
	Unfiltered	Filtered
Tetrachloroethene	0.4	
Diethylphthalate	0.5	
bis(2-Ethylhexyl)phthalate	2	
Aluminum	2240	NA
Antimony	29.6	NA
Iron	35600	NA
Sodium	169000	NA

SOURCE: SS-018 AND SS-019 DATA OBTAINED FROM MALCOLM PIRNIE 1994 AND 1996.

NOTES:

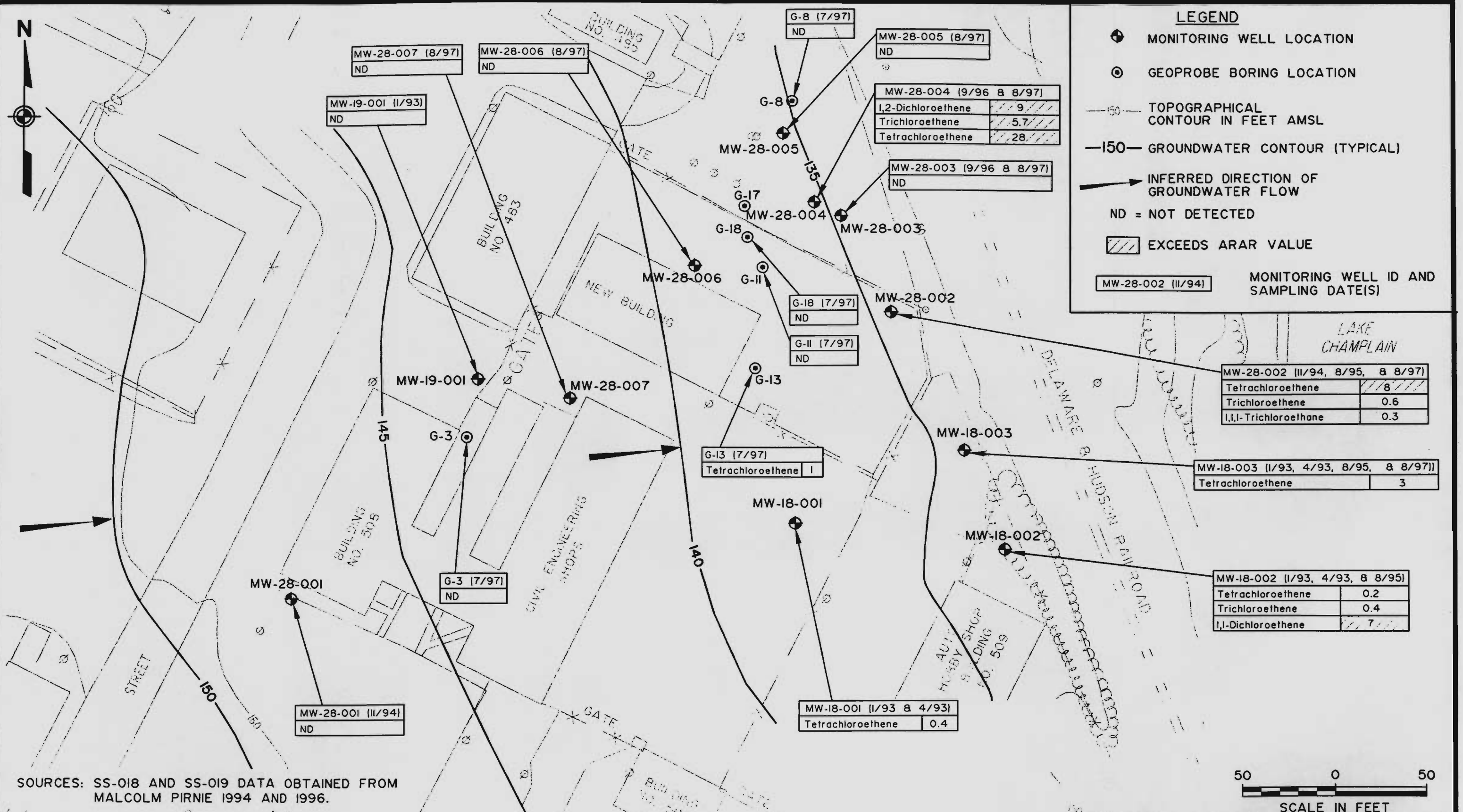
- ALL RESULTS REPORTED IN ug/l.
- SHOWN ARE ALL ORGANIC COMPOUND DETECTIONS AND THOSE METALS DETECTIONS THAT EXCEEDED ARAR VALUES.
- THE MAXIMUM DETECTED VALUE BETWEEN SAMPLING ROUNDS OR AMONG DUPLICATE ANALYSES IS SHOWN.



**PLATTSBURGH A.F.B.
GROUNDWATER SAMPLING RESULTS
SUMMARY FOR SS-018 RI, SS-019 SI,
AND SS-028 SI**



FIGURE 3-9



LEGEND

- ◆ MONITORING WELL LOCATION
- ⊙ GEOPROBE BORING LOCATION
- TOPOGRAPHICAL CONTOUR IN FEET AMSL
- 150- GROUNDWATER CONTOUR (TYPICAL)
- ➔ INFERRED DIRECTION OF GROUNDWATER FLOW
- ND = NOT DETECTED
- ▨ EXCEEDS ARAR VALUE

MONITORING WELL ID AND SAMPLING DATE(S)

MW-28-002 (11/94)	Tetrachloroethene	8
	Trichloroethene	0.6
	1,1,1-Trichloroethane	0.3

MW-28-002 (11/94, 8/95, & 8/97)	Tetrachloroethene	8
	Trichloroethene	0.6
	1,1,1-Trichloroethane	0.3

MW-18-003 (11/93, 4/93, 8/95, & 8/97)	Tetrachloroethene	3
---------------------------------------	-------------------	---

MW-18-002 (11/93, 4/93, & 8/95)	Tetrachloroethene	0.2
	Trichloroethene	0.4
	1,1-Dichloroethene	7

G-8 (7/97)	ND
------------	----

MW-28-004 (9/96 & 8/97)	1,2-Dichloroethene	9
	Trichloroethene	5.7
	Tetrachloroethene	28

MW-28-003 (9/96 & 8/97)	ND
-------------------------	----

G-18 (7/97)	ND
-------------	----

G-11 (7/97)	ND
-------------	----

G-13 (7/97)	Tetrachloroethene	1
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MW-18-001 (11/93 & 4/93)	Tetrachloroethene	0.4
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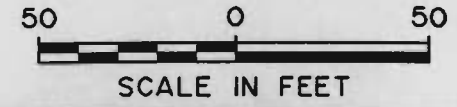
MW-28-001 (11/94)	ND
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G-3 (7/97)	ND
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SOURCES: SS-018 AND SS-019 DATA OBTAINED FROM MALCOLM PIRNIE 1994 AND 1996.

NOTES:

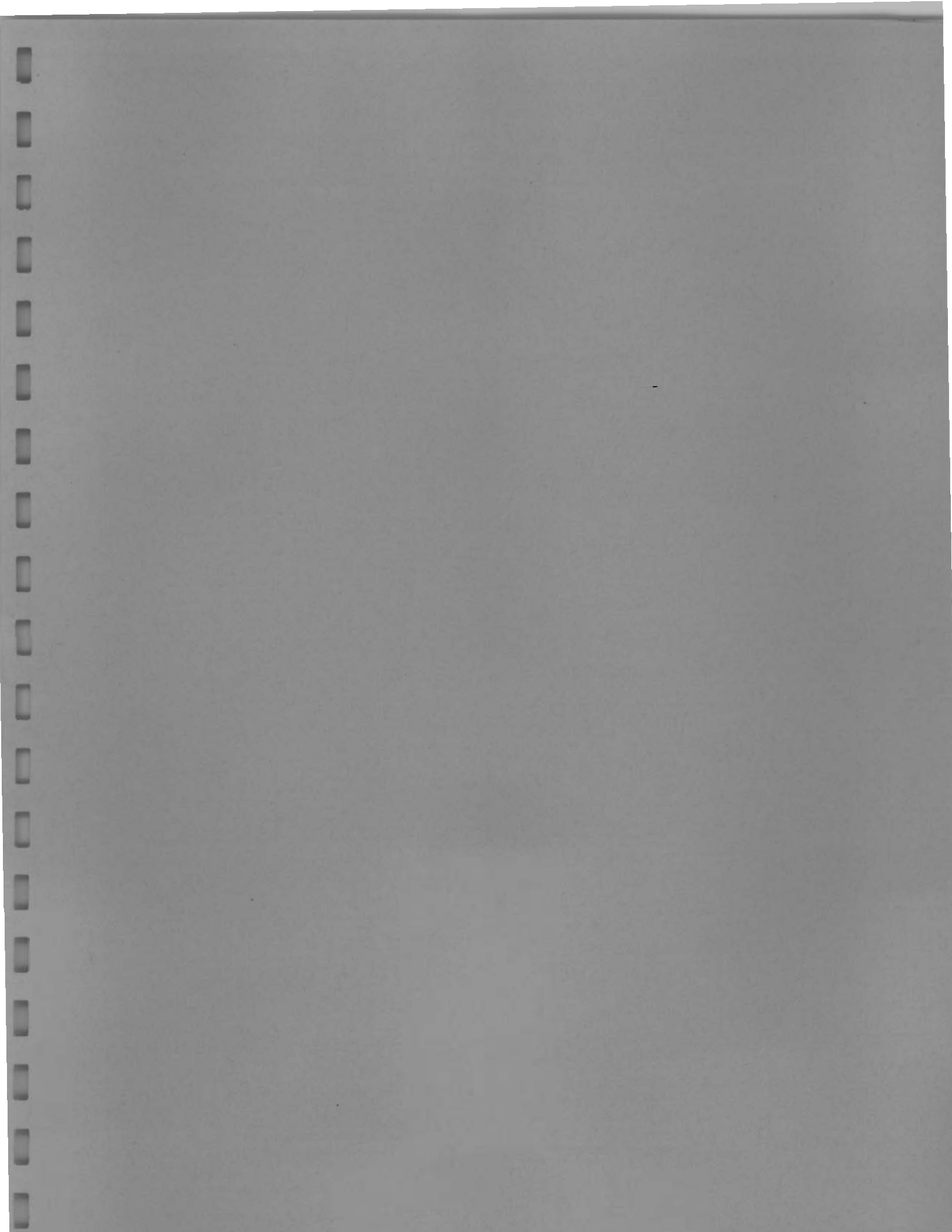
1. ALL RESULTS REPORTED IN ug/l.
2. SHOWN ARE ALL LEVEL IV OR DEFINITIVE ANALYSIS CHLORINATED HYDROCARBON COMPOUND DETECTIONS (EXCEPT CHLOROFORM AND BROMODICHLOROMETHANE).
3. THE MAXIMUM DETECTED VALUE BETWEEN SAMPLING ROUNDS OR AMONG DUPLICATE ANALYSES IS SHOWN.



**PLATTSBURGH A.F.B.
MAXIMUM CHLORINATED HYDROCARBON
COMPOUND DETECTIONS IN GROUNDWATER
AT SS-018, SS-019, AND SS-028**

URS
CONSULTANTS, INC.


FIGURE 3-10



**SS-028 SITE INVESTIGATION
SUMMARY OF SOIL ANALYTICAL RESULTS**

Analyte Name	TBC Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Volatile Organic Compounds						
Methylene Chloride	100	9/5	7 ug/kg	3 ug/kg	SB-28-01	10/13/94
Acetone	200	9/1	7 ug/kg	7 ug/kg	MW-28-002	10/17/94
1,2-Dichloroethene (total)	300	9/1	1 ug/kg	1 ug/kg	SB-28-02	10/13/94
Trichloroethene	700	9/1	3 ug/kg	3 ug/kg	SB-28-02	10/13/94
Tetrachloroethene	1400	9/1	28 ug/kg	28 ug/kg	SB-28-02	10/13/94
Toluene	1500	9/4	4 ug/kg	2 ug/kg	MW-28-002	10/17/94
Ethylbenzene	5500	9/1	1 ug/kg	1 ug/kg	MW-28-002	10/17/94
Xylene (total)	1200	9/2	6 ug/kg	6 ug/kg	MW-28-002	10/17/94
Semivolatile Organic Compounds						
Naphthalene	13000	9/1	92 ug/kg	92 ug/kg	SB-28-02	10/13/94
2-Methylnaphthalene	36400	9/3	210 ug/kg	145 ug/kg	MW-28-002	10/17/94
Acenaphthene	50000	9/4	830 ug/kg	282 ug/kg	MW-28-002	10/17/94
Dibenzofuran	6200	9/3	630 ug/kg	283 ug/kg	MW-28-002	10/17/94
Diethylphthalate	7100	9/1	89 ug/kg	89 ug/kg	MW-28-001	10/17/94
Fluorene	50000	9/5	1800 ug/kg	493 ug/kg	MW-28-002	10/17/94
Phenanthrene	50000	9/6	10000 ug/kg	2582 ug/kg	MW-28-002	10/17/94
Anthracene	50000	9/6	3900 ug/kg	903 ug/kg	MW-28-002	10/17/94
Carbazole		9/5	900 ug/kg	244 ug/kg	MW-28-002	10/17/94
Fluoranthene	50000	9/6	22000 ug/kg	4938 ug/kg	MW-28-002	10/17/94
Pyrene	50000	9/6	14000 ug/kg	3487 ug/kg	MW-28-002	10/17/94
Benzo(a)anthracene	224	9/6	10000 ug/kg	2497 ug/kg	MW-28-002	10/17/94
Chrysene	400	9/6	7600 ug/kg	1990 ug/kg	MW-28-002	10/17/94
bis(2-Ethylhexyl)phthalate	50000	9/1	310 ug/kg	310 ug/kg	SB-28-02	10/13/94
Benzo(b)fluoranthene	1100	9/6	9700 ug/kg	2598 ug/kg	MW-28-002	10/17/94
Benzo(k)fluoranthene	1100	9/6	3800 ug/kg	931 ug/kg	MW-28-002	10/17/94
Benzo(a)pyrene	61	9/6	6400 ug/kg	1693 ug/kg	MW-28-002	10/17/94
Indeno(1,2,3-cd)pyrene	3200	9/6	4100 ug/kg	1153 ug/kg	MW-28-002	10/17/94
Dibenz(a,h)anthracene	14	9/6	1200 ug/kg	340 ug/kg	MW-28-002	10/17/94
Benzo(g,h,i)perylene	50000	9/6	3100 ug/kg	875 ug/kg	MW-28-002	10/17/94
Metals						
Aluminum	8510	9/9	3920 mg/kg	2440.00 mg/kg	MW-28-002	10/17/94
Arsenic	7.5	9/5	2.2 mg/kg	1.40 mg/kg	SB-28-02	10/13/94
Barium	300	9/9	34.4 mg/kg	14.48 mg/kg	SB-28-02	10/13/94
Beryllium	0.74	9/9	0.27 mg/kg	0.14 mg/kg	MW-28-002	10/17/94
Cadmium	1.3	9/1	0.77 mg/kg	0.77 mg/kg	MW-28-002	10/17/94
Calcium	30200	9/9	52200 mg/kg	10096.00 mg/kg	MW-28-002	10/17/94
Chromium	19.5	9/9	24.1 mg/kg	7.30 mg/kg	MW-28-002	10/17/94
Cobalt	30	9/9	4.7 mg/kg	2.96 mg/kg	MW-28-002	10/17/94
Copper	44.1	9/9	11.2 mg/kg	4.24 mg/kg	SB-28-02	10/13/94
Iron	36700	9/9	8530 mg/kg	5256.67 mg/kg	MW-28-002	10/17/94


* Chemical-specific TBC values from NYSDEC TAGM HWR-94-4046 (January 1994) or from Site Background.

 -Exceeds TBC value.

**SS-028 SITE INVESTIGATION
SUMMARY OF SOIL ANALYTICAL RESULTS**

Analyte Name	TBC Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Metals						
Lead	79.4	7/7	90.6 mg/kg	23.20 mg/kg	SB-28-02	10/13/94
Magnesium	3340	9/9	4590 mg/kg	1465.56 mg/kg	MW-28-002	10/17/94
Manganese	474	9/9	301 mg/kg	121.84 mg/kg	MW-28-002	10/17/94
Mercury	0.1	9/1	0.18 mg/kg	0.18 mg/kg	SB-28-02	10/13/94
Nickel	13	9/8	9.2 mg/kg	4.15 mg/kg	MW-28-002	10/17/94
Potassium	929	9/7	915 mg/kg	366.14 mg/kg	MW-28-002	10/17/94
Sodium	520	9/3	153 mg/kg	143.33 mg/kg	MW-28-002	10/17/94
Vanadium	150	9/9	23.9 mg/kg	8.42 mg/kg	MW-28-002	10/17/94
Zinc	63.4	5/5	219 mg/kg	61.24 mg/kg	SB-28-02	10/13/94

* Chemical-specific TBC values from NYSDEC TAGM HWR-94-4046 (January 1994) or from Site Background.

 -Exceeds TBC value.

SS-028 SITE INVESTIGATION
SUMMARY OF SOIL ONSITE SCREENING ANALYTICAL RESULTS

Analyte Name	TBC Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Volatile Organic Compounds						
Trichloroethene	700	52/3	8 ug/kg	7 ug/kg	G-03	07/08/97
Tetrachloroethene	1400	52/3	18 ug/kg	9 ug/kg	G-03	07/08/97

* Chemical-specific TBC values from NYSDEC TAGM HWR-84-4046 (January 1994) or from Site Background.


 -Exceeds TBC value.

TABLE 3-3
SS-028 SITE INVESTIGATION
SUMMARY OF SOIL OFFSITE DEFINITIVE ANALYTICAL RESULTS

Analyte Name	TBC Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Volatile Organic Compounds						
Methylene Chloride	100	11/5	4 ug/kg	3 ug/kg	G-16	07/10/97
Acetone	200	11/3	28 ug/kg	20 ug/kg	G-22	07/31/97
1,2-Dichloroethene (total)	300	11/2	160 ug/kg	83 ug/kg	G-17	07/10/97
Trichloroethene	700	11/3	120 ug/kg	44 ug/kg	G-17	07/10/97
Benzene	60	11/1	1 ug/kg	1 ug/kg	G-17	07/10/97
Tetrachloroethene	1400	11/6	1900 ug/kg	324 ug/kg	G-17	07/10/97
Toluene	1500	11/6	4 ug/kg	2 ug/kg	G-16	07/10/97
Xylene (total)	1200	11/3	12 ug/kg	7 ug/kg	G-03	07/08/97

* Chemical-specific TBC values from NYSDEC TAGM HWR-84-4046 (January 1994) or from Site Background.

1900 ug/kg -Exceeds TBC value.

**SS-028 SITE INVESTIGATION
SUMMARY OF NOVEMBER 1994 GROUNDWATER ANALYTICAL RESULTS**

Analyte Name	ARAR Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Volatile Organic Compounds						
Tetrachloroethene	5	3/2	8 ug/l	8 ug/l	MW-28-002	11/16/94
Metals						
Aluminum	200	3/3	14800 ug/l	10753 ug/l	MW-28-001	11/16/94
Arsenic	25	3/2	8.5 ug/l	6 ug/l	MW-28-001	11/16/94
Barium	1000	3/3	218 ug/l	122 ug/l	MW-28-001	11/16/94
Beryllium	3	3/3	1.5 ug/l	1 ug/l	MW-28-001	11/16/94
Calcium		3/3	144000 ug/l	107967 ug/l	MW-28-001	11/16/94
Chromium	50	3/3	35.7 ug/l	31 ug/l	MW-28-001	11/16/94
Cobalt		3/3	23.1 ug/l	17 ug/l	MW-28-001	11/16/94
Copper	200	3/3	30.9 ug/l	23 ug/l	MW-28-001	11/16/94
Iron	300	3/3	30300 ug/l	28600 ug/l	MW-28-001	11/16/94
Lead	25	3/3	8.4 ug/l	7 ug/l	MW-28-002	11/16/94
Magnesium	35000	3/3	30300 ug/l	19600 ug/l	MW-28-001	11/16/94
Manganese	300	3/3	385 ug/l	231 ug/l	MW-28-001	11/16/94
Nickel	100	3/3	27.9 ug/l	24 ug/l	MW-28-001	11/16/94
Potassium		3/3	13300 ug/l	11090 ug/l	MW-28-001	11/16/94
Selenium	10	3/3	6.5 ug/l	6 ug/l	MW-28-002	11/16/94
Sodium	20000	3/3	384000 ug/l	145667 ug/l	MW-28-001	11/16/94
Vanadium		3/3	64.9 ug/l	48 ug/l	MW-28-001	11/16/94
Zinc	300	3/3	164 ug/l	124 ug/l	MW-28-002	11/16/94
Metals						
Aluminum (Filtered)	200	3/3	206 ug/l	137 ug/l	MW-28-001	11/16/94
Arsenic (Filtered)	25	3/3	5.1 ug/l	4 ug/l	MW-28-001	11/16/94
Barium (Filtered)	1000	3/3	190 ug/l	117 ug/l	MW-28-001	11/16/94
Beryllium (Filtered)	3	3/1	0.23 ug/l	0 ug/l	MW-28-002	11/16/94
Calcium (Filtered)		3/3	152000 ug/l	104600 ug/l	MW-28-001	11/16/94
Iron (Filtered)	300	3/3	7970 ug/l	2713 ug/l	MW-28-001	11/16/94
Magnesium (Filtered)	35000	3/3	26100 ug/l	15833 ug/l	MW-28-001	11/16/94
Manganese (Filtered)	300	3/3	269 ug/l	98 ug/l	MW-28-001	11/16/94
Potassium (Filtered)		3/3	9600 ug/l	9177 ug/l	MW-28-002	11/16/94
Selenium (Filtered)	10	3/2	6.3 ug/l	6 ug/l	MW-28-002	11/16/94
Sodium (Filtered)	20000	3/3	379000 ug/l	148200 ug/l	MW-28-001	11/16/94
Zinc (Filtered)	300	3/3	93.3 ug/l	83 ug/l	MW-28-001	11/16/94


* Chemical-specific ARAR values from NYCRR Part 703.5 (Class GA Groundwater).

○ -Exceeds ARAR value.

**SS-028 SITE INVESTIGATION
SUMMARY OF AUGUST 1995 GROUNDWATER ANALYTICAL RESULTS**

Analyte Name	ARAR Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Volatile Organic Compounds						
Chloroform	7	3/2	49 ug/l	25 ug/l	MW-18-002	08/24/95
1,1,1-Trichloroethane	5	3/1	0.3 ug/l	0 ug/l	MW-28-002	08/24/95
Bromodichloromethane	50	3/1	1.8 ug/l	2 ug/l	MW-18-002	08/24/95
Trichloroethene	5	3/1	0.6 ug/l	1 ug/l	MW-28-002	08/24/95
Tetrachloroethene	5	3/2	5 ug/l	3 ug/l	MW-28-002	08/24/95


* Chemical-specific ARAR values from NYCRR Part 703.5 (Class GA Groundwater).

 -Exceeds ARAR value.

**SS-028 SITE INVESTIGATION
SUMMARY OF OCTOBER 1996 GROUNDWATER ANALYTICAL RESULTS**

Analyte Name	ARAR Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Volatile Organic Compounds						
1,2-Dichloroethene (total)	5	2/1	9 ug/l	9 ug/l	MW-28-004	10/11/96
Trichloroethene	5	2/1	5.7 ug/l	6 ug/l	MW-28-004	10/11/96
Tetrachloroethene	5	2/1	28 ug/l	28 ug/l	MW-28-004	10/11/96

* Chemical-specific ARAR values from NYCRR Part 703.5 (Class GA Groundwater).


 -Exceeds ARAR value.

SS-028 SITE INVESTIGATION

SUMMARY OF JULY 1997 GROUNDWATER ONSITE SCREENING ANALYTICAL RESULTS

Analyte Name	ARAR Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Volatile Organic Compounds						
1,2-Dichloroethene (total)	5	30/3	58 ug/l	35 ug/l	G-03	07/08/97
Tetrachloroethene	5	30/1	15 ug/l	15 ug/l	MW-28-004	07/10/97

* Chemical-specific ARAR values from NYCRR Part 703.5 (Class GA Groundwater).


 -Exceeds ARAR value.

SS-028 SITE INVESTIGATION

SUMMARY OF JULY 1997 GROUNDWATER OFFSITE DEFINITIVE ANALYTICAL RESULTS

Analyte Name	ARAR Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Volatile Organic Compounds						
Carbon Disulfide	50	6/1	3 ug/l	3 ug/l	G-11	07/09/97
Tetrachloroethene	5	6/1	1 ug/l	1 ug/l	G-13	07/09/97
Toluene	5	6/4	4 ug/l	3 ug/l	G-03	07/08/97
Xylene (total)	5	6/2	2 ug/l	2 ug/l	G-03	07/08/97


* Chemical-specific ARAR values from NYCRR Part 703.5 (Class GA Groundwater).

 -Exceeds ARAR value.

**SS-028 SITE INVESTIGATION
SUMMARY OF AUGUST 1997 GROUNDWATER ANALYTICAL RESULTS**

Analyte Name	ARAR Value *	# Samples/ # Detections	Maximum Detected Value	Average Detected Value	Location of Maximum Detected Value	Maximum Detected Value Sample Date
Volatile Organic Compounds						
Acetone	50	7/1	23 ug/l	23 ug/l	MW-28-006	08/06/97
1,2-Dichloroethene (total)	5	7/2	3 ug/l	3 ug/l	MW-28-004	08/06/97
Chloroform	7	7/1	3 ug/l	3 ug/l	MW-28-007	08/06/97
Trichloroethene	5	7/2	3 ug/l	3 ug/l	MW-28-004	08/06/97
Tetrachloroethene	5	7/3	17 ug/l	13 ug/l	MW-28-004	08/06/97

* Chemical-specific ARAR values from NYCRR Part 703.5 (Class GA Groundwater).

 -Exceeds ARAR value.