INSTALLATION RESTORATION PROGRAM
ACTION MEMORANDUM
FORMER WASTE ACCUMULATION AREA AT
SPILL SITE SS-013
MUNITIONS MAINTENANCE SQUADRON (MMS)
PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

Contract No. F41624-94-D-8106
Delivery Order 003
CDRL # A030
Document Control # DO03083

Submitted to:

Air Force Center for Environmental Excellence
Brooks Air Force Base
San Antonio, Texas

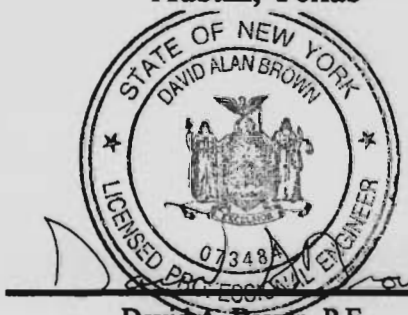
RECEIVED
MAR 10 1997
BUREAU OF EASTERN REMEDIAL ACTION
DIVISION OF HAZARDOUS
REMEDIATION

Submitted by:

Parsons Engineering Science, Inc.
Liverpool, New York

and

OHM Remediation Services Corp.
Austin, Texas



David A. Brown, P.E.
Project Manager

MARCH 7, 1997

INSTALLATION RESTORATION PROGRAM
ACTION MEMORANDUM
FORMER WASTE ACCUMULATION AREA
SPILL SITE SS-013
MUNITIONS MAINTENANCE SQUADRON (MMS)

CONTRACT NO. F41624-94-D-8106
DELIVERY ORDER 003
CDRL # A030
DOCUMENT CONTROL # DO03083

Submitted to:

Air Force Center for Environmental Excellence
Brooks Air Force Base
San Antonio, Texas

Submitted by:

PARSONS ENGINEERING SCIENCE, INC.
Liverpool, New York

and

OHM REMEDIATION SERVICES CORP.
Austin, Texas

MARCH 7, 1997

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT'D)

LIST OF FIGURES

LIST OF FIGURES (CONT'D)

LIST OF TABLES

LIST OF TABLES (CONT'D)

ACTION MEMORANDUM
DECLARATION STATEMENT

Installation Restoration Program
Former Waste Accumulation Area At
Spill Site SS-013, Munitions Maintenance Squadron (MMS)
Plattsburgh Air Force Base, Plattsburgh, New York

1.0 STATEMENT OF BASIS AND PURPOSE: This decision document represents the selected removal action for the Former Waste Accumulation Area (FWAA) at Spill Site SS-013, Plattsburgh Air Force Base (PAFB), 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 presently exist at the PAFB Installation Restoration Program (IRP) Spill Site SS-013 FWAA that, if not addressed by implementing the response action documented in this Action Memorandum, will lead to (1) actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, and (2) 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 the FWAA by removing the volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) present in vadose zone soils. The preferred alternative at the FWAA is based on available site information and will include excavation of contaminated vadose zone soil followed by appropriate treatment or disposal of the soil. If the excavated soil is found to be RCRA (Resource Conservation and Recovery Act) non-hazardous via TCLP (Toxicity Characteristic Leaching Procedure) analysis, the soil will be either landfarmed onsite or sent for appropriate off-site disposal. The decision to either landfarm the soil or send it off-site for disposal will be based on the volume of soil and the status of the on-site landfarm during implementation of this removal action. If the soil is found to be RCRA hazardous, it will be sent off-site for proper treatment/disposal.

Because of the limited number of soil samples previously collected in the area near the FWAA, additional soil samples will be collected adjacent to the former solvent storage pad to better delineate the extent of contamination prior to the removal action. This investigation will consist of collecting a total of four soil samples, one from within five feet of each side of the former solvent storage pad. Soil borings will be installed to near the groundwater table. Soil samples exhibiting evidence of contamination will be analyzed for target contaminants including TAGM list VOCs, SVOCs and metals. Soil that exceeds the RCO values outlined in Section 4 of this document will be excavated and treated as described below.

Following excavation of the vadose zone soils, 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 or, depending on the size of the excavation, at least one sample per every 50 feet along the perimeter and per every 625 square feet (i.e., 25 foot centers) of the bottom of the excavation. The samples will be analyzed for representative volatile organic compounds (i.e., toluene and total VOCs) via EPA Method 8020, and for representative semi-volatile organic compounds (benzo(a)anthracene, benzo(a) flouranthrene, and benzo(a)pyrene) via EPA Method 8270.

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. In addition, the remedial alternative satisfies the statutory preference for remedies that reduce the toxicity, mobility, or volume of hazardous substances.

_____ _____

Michael D. Sorel, P.E. Date

BRAC Environmental Coordinator

Title

SECTION 1

INTRODUCTION

1.1 INTRODUCTION

Plattsburgh Air Force Base (PAFB) is undertaking a removal action at the Former Waste Accumulation Area (FWAA) at Spill Site SS-013 located at PAFB in Plattsburgh, New York (Figure 1.1). This removal action is being undertaken to remove volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) from soils above the groundwater table (vadose zone soils) at the site. This removal action will prevent further contamination of the local groundwater with VOCs and SVOCs emanating from the site soils.

This Action Memorandum has been prepared to document the proposed removal action for the vadose zone soil contamination. The preferred removal action at the FWAA will include excavation of contaminated vadose zone soil and proper treatment/disposal of the excavated soil. If the soil is found to be RCRA hazardous via TCLP analysis, it will be sent off-site for proper treatment/disposal. If the excavated soil is found to be RCRA non-hazardous, it will be either landfarmed onsite or sent for appropriate off-site treatment/disposal. The decision to either landfarm the soil or send it off-site for disposal will be based on the volume of soil and the status of the on-site landfarm during implementation of this removal action. If the soil is treated in the on-site landfarm, it will be treated until it meets the New York State Department of Environmental Conservation (NYSDEC) recommended soil cleanup objectives for VOCs and SVOCs given in Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046 Determination of Soil Cleanup Objectives and Cleanup Levels (revised January 1994). Once the soil meets TAGM objectives, it would be used as fill material within the former base boundaries.

Excavation and *ex situ* treatment via landfarming or off-site treatment/disposal is recommended at the FWAA over *in situ* treatment, such as bioventing or soil vapor extraction. This recommendation is based on the presence of a thin vadose zone in the area of concern due to the shallow depth to groundwater (approximately four feet below ground surface (bgs)). Such a thin vadose zone severely reduces the effectiveness of potential *in situ* treatment options. Landfarming, the preferred treatment option, has been shown to be an effective means of treating soil containing the VOCs and SVOCs detected at this site, and is more cost effective than other treatment and/or disposal options available depending on the volume of soil to be treated.

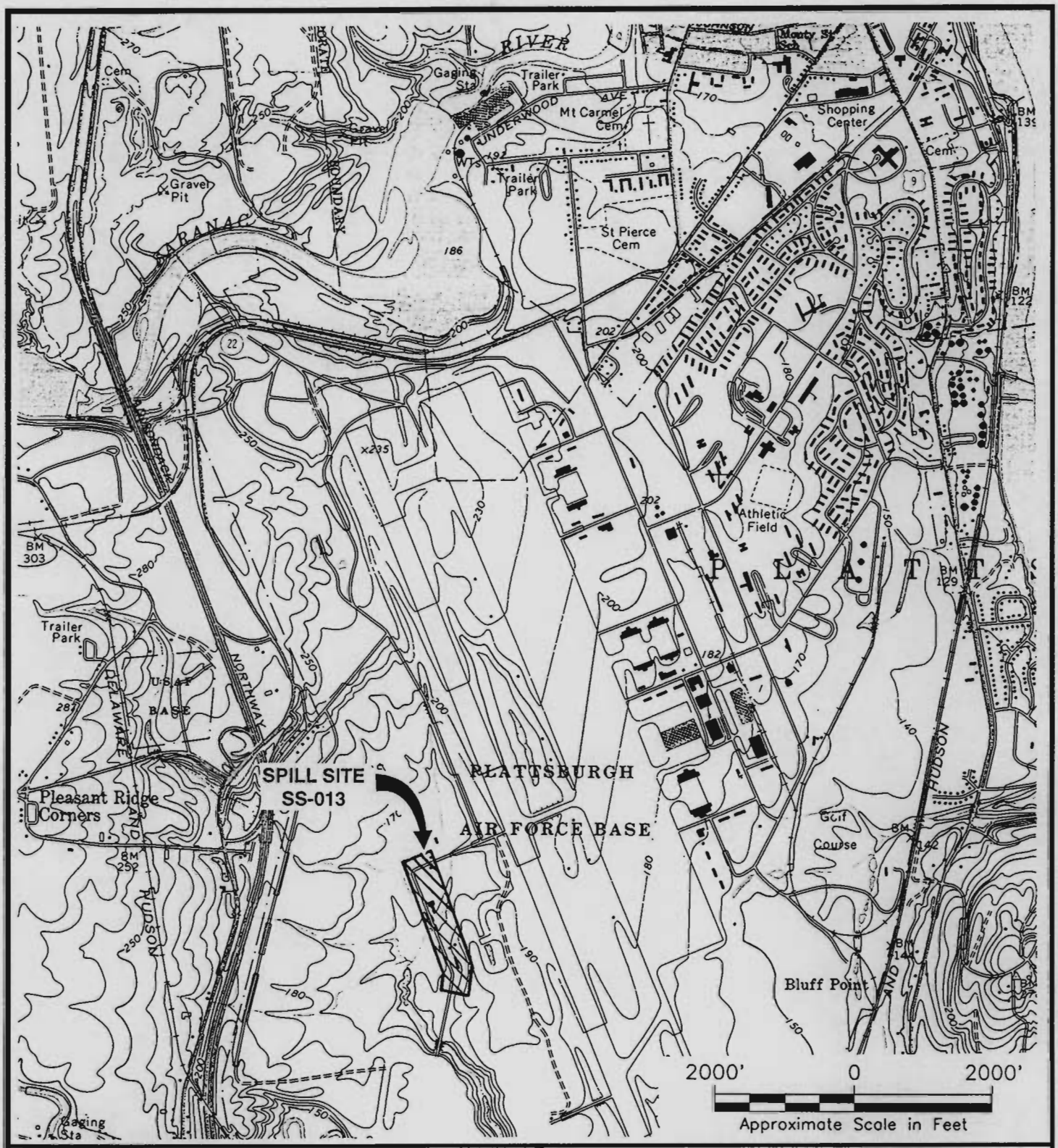
This document is presented in the format provided by the USEPA Action Memorandum Guidance Document, dated December 1990.

1.2 SITE HISTORY

Spill Site SS-013 was used from approximately 1954 to 1991 by the munitions maintenance squadron (MMS) for maintenance, storage, and handling of munitions-related items used to support the wing mission. A site plan of Spill Site SS-013 is presented in Figure 1.2. Activities carried out by this branch of the squadron were warehousing, inspecting, painting, and cleaning. Materials used or generated at Spill Site SS-013 included methyl ethyl ketone, toluene, oils and lubricants, brake fluid, paints, thinners, and acetone. The specific area of concern is the FWAA which was located east of Building 3578 and was used for the storage and staging of solvents. Quantities of materials spilled at the site are unknown. Shallow soils in the FWAA area contain VOCs and polycyclic aromatic hydrocarbons (URS, RI Report, February 1996). The principle source of contamination (i.e. solvents, oils and lubricants, and paints) were permanently removed from the site by the U.S. Air Force following base closure. Additionally, a former heating oil underground storage tank (UST) was removed from the site in 1996 (OHM Remediation Services Corp.)

A remedial investigation (RI) was conducted by URS Consultants, Inc. from July 1993 through February 1994 (URS, 1996). The analytical results from the surface and subsurface soil samples collected during the RI indicate that near-surface soils at the FWAA site are contaminated with VOCs, primarily toluene, and SVOCs. Several metals were also detected in soils near the FWAA, but at concentrations less than twice the background concentrations. Pesticides were detected in surface and subsurface soil samples, but at concentrations below NYSDEC TAGM HWR-94-4046 soil cleanup objectives.

As part of this removal action, additional soil samples will be collected near the FWAA to more completely define the extent of VOC and SVOC contamination in the area.



NEW YORK
QUADRANGLE LOCATION

LONGITUDE: N44° 38' 49"
LATITUDE: W73° 27' 17"

SOURCE: U.S.G.S. 7.5 MINUTE SERIES
TOPOGRAPHIC MAP
PLATTSBURGH QUADRANGLE .

FIGURE 1.1

PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

SITE LOCATION MAP

PARSONS ENGINEERING SCIENCE, INC.

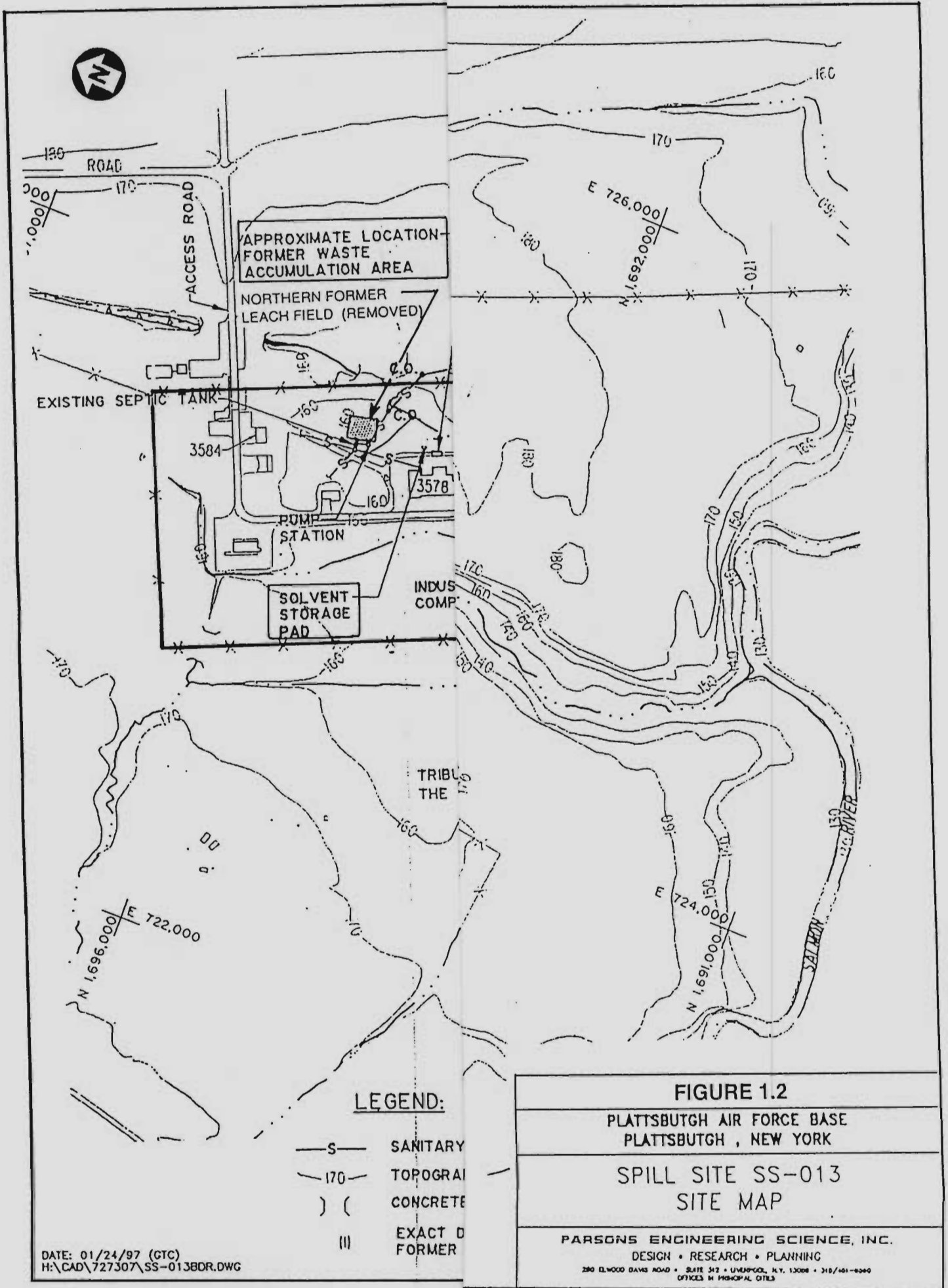


FIGURE 1.2

PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
SITE MAP

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-6360
OFFICES IN PRINCIPAL CITIES

SECTION 2

PURPOSE

PAFB is undertaking a Removal Action at the FWAA at Spill Site SS-013 located at PAFB in Plattsburgh, New York, pursuant to a Federal Facilities Agreement (FFA) dated 12 September 1991. This is being undertaken as a component of the Department of Defense (DOD) Installation Restoration Program (IRP) and as a component of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980 as amended by the 1986 Superfund Amendments and Reauthorization Act (SARA).

The purpose of this Action Memorandum is to document the proposed removal action described herein for the Former Waste Accumulation Area at the Munitions Maintenance Squadron (MMS) designated as Spill Site SS-013 at PAFB.

SECTION 3

SITE CONDITIONS AND BACKGROUND

3.1 SITE DESCRIPTION

3.1.1 Physical Location

PAFB is located in northeastern New York State, adjacent to Lake Champlain (Figure 3.1). It is approximately 26 miles south of the Canadian border and 167 miles north of Albany, New York. The base is bordered on the north by the City of Plattsburgh and on the east by Lake Champlain. The base covers 4,795 acres of which 3,365 acres are federally owned and controlled by the military, and 1,430 acres are registered as easement tracts. PAFB was officially closed by DOD on 30 September 1995, and responsibility of property reuse transferred to the Plattsburgh Airbase Redevelopment Corporation.

Spill Site SS-013 is located in the southwest portion of PAFB and consists of several buildings that were previously used for weapons support maintenance and services (Figure 3.2). The area of concern is the FWAA located east of Building 3578 (Figure 3.3).

3.1.2 Removal Site Evaluation

From 1954 to 1991, the MMS industrial complex was used for the maintenance, storage, and handling of munitions-related items supporting the wing mission. The Integrated Munitions Maintenance and Storage Branch (Building 3578) of the MMS generated wastes in significant quantities (Radian, 1985). Activities carried out by this branch of the squadron were warehousing, inspecting, painting, and cleaning. Additionally, support equipment essential to munitions maintenance was also maintained. Materials used or generated included methyl ethyl ketone and toluene (50 gallons per year (gal/yr) total), oils and lubricants (55 gal/yr total), brake fluid (55 gal/yr), paints (120 gal/yr) and thinners (30 gal/yr). Acetone was also reportedly used. Some solvents were staged in drums on a concrete pad with approximate dimensions of 4 feet by 12 feet located 50 feet east of Building 3578. This area is known as the former waste accumulation area. Waste disposal activities are unknown at this location.

3.1.3 Site Characteristics

3.1.3.1 Physical Features

The major surface features of the vicinity of Spill Site SS-013 include unoccupied buildings of the former industrial complex, paved areas, paved roads, weapons storage bunkers, lawn areas, drainage ditches or intermittent streams, and a stand of hardwood trees. Paved areas exist around Buildings 3568, 3569, 3570, and 3578. Storage bunkers are located south of Building 3568. Lawn areas are located along the paved road, and

surrounding the buildings and bunker area. A stand of hardwood trees is located along the western edge of the site.

The land surface at Spill Site SS-013 generally slopes to the south and southwest, with local slopes towards intermediate surface drainages. Topography ranges from hilly to flat, and the surface elevations range from 200 feet above mean sea level (MSL) near the eastern portion of the site to 150 feet above MSL near the industrial complex. A former waste accumulation area is located east of Building 3578. This area consists of a former storage area located along the edge of a concrete surface, within 30 feet of Building 3578, and a small concrete storage pad formerly used for solvent storage located approximately 50 feet east of Building 3578 (Figure 3.3).

3.1.3.2 Site Stratigraphy

Stratigraphy in the area of Spill Site SS-013 consists of four generalized geologic units. These units consist of two unconsolidated, stratified layers consisting primarily of sand and silt/clay, which overlie glacial till and bedrock. The depth and thickness of the unconsolidated deposits vary across the site, although the composition and texture of each deposit is similar. Each of these units is described below. Geologic cross sections are shown in Figures 3.4 through 3.7.

Sand and Gravel

This unit is characterized as generally fine- to medium-grained sand with occasional interstratified layers of coarse sand, silts, and gravel. The sand unit typically becomes finer-grained with depth. The thickness of the sand unit ranged from 14 to 55 feet across the FWAA site (Figures 3.4 through 3.7).

Silt and Clay

This unit is characterized as a gray, very soft to stiff clayey silt and silty clay. The plasticity index of the unit generally increases with depth, as does the clay content. The silt and clay unit was encountered between 14 and 55 feet bgs. The borings and monitoring wells installed at Spill Site SS-013 did not penetrate this layer; however, based on previous investigations at PAFB, its thickness at well location MW-13-002 is approximately 30 feet.

Glacial Till

The glacial till was not encountered during the Spill Site SS-013 RI because no borings were advanced to the till layer. However, the thickness of the glacial till measured at various base-wide piezometer locations ranged from 5 feet to 111 feet (Malcolm Pirnie, 1993). The glacial till was characterized as poorly sorted silty sand and clay with frequent gravel and cobbles, and occasional boulders. The till was typically gray and was medium to very dense.

Bedrock

The underlying bedrock consists of thin- to thick-bedded limestone and dolostones with interbedded layers of sandstone and shale. The depth to bedrock at Spill Site SS-013 is estimated to be 60 feet bgs (Figures 3.4 through 3.7). This depth was estimated from deep wells and geophysical surveys conducted during the Base-Wide Hydrogeology Investigation (Malcolm Pirnie Inc., 1993), and during the FT-002 RI (ABB Environmental, 1993).

3.1.3.3 Hydrogeology

The regional hydrogeology in the Plattsburgh area is dominated by infiltration and runoff from the Adirondack Mountains to the west. The regional discharge is to Lake Champlain to the East.

Three distinct hydrogeologic units were found in the SS-013 study area: (1) a water table aquifer present in the sand unit; (2) a series of semiconfining and confining layers consisting of silts, clays, and glacial till; and (3) a confined aquifer within the bedrock (Giese and Hobba, 1970). Groundwater flows along the main drainage that meanders through Spill Site SS-013. Due to irregular surface topography, the groundwater flow varies locally with horizontal gradients ranging from approximately 0.01 ft/ft to approximately 0.11 ft/ft. The depth to groundwater varies from approximately 2 feet bgs along the western edge of the site to 18 feet bgs near the southeastern portion of the site.

3.1.4 Release or Threatened Release of a Hazardous Substance, Pollutant or Contaminant

The primary source of contamination at the FWAA is possible historic solvent spills at the former solvent storage pad located approximately 50 feet east of Building 3578. This source of contamination may further threaten groundwater at the site if it is not remediated.

3.1.4.1 Previous Sampling Results

The primary source of information presented in this section is the RI Draft Report for the MMS (SS-013) prepared by URS Consultants, Inc. (URS, 1996).

3.1.4.1.1 Surface Soils

Nineteen surface soil samples were collected as part of the URS RI. Ten samples were taken in the vicinity of Building 3578 and the northern former leach field, four in the area of the southern former leach field and Building 3569, four at the active leach field, and one in a background location. The sample locations and results are displayed on Figure 3.8, and the results are also presented in Table 3.1.

Six VOCs were detected in 7 of the surface soil samples. Individual samples commonly contained only 1 VOC. Detected VOCs included acetone, methylene chloride,

2-butanone, 2-hexanone, toluene, and xylene. The maximum VOC concentration detected was from sample SS-13-12 (3,300 µg/kg toluene).

Nineteen SVOCs were detected in 11 surface soil samples. The highest total SVOC concentration (53,820 µg/kg) was detected in sample SS-13-10 located near the former waste accumulation area. Total PAH concentrations of greater than 1,000 µg/kg were detected in three samples collected at the former waste accumulation area, and in one sample collected near Building 3569.

Six pesticides were detected in three surface soil samples that were analyzed for pesticides/PCBs. Pesticides were detected most frequently and at the highest concentrations in sample SS-13-07 located near Building 3569. Detected pesticides included endrin, 4,4'-DDD, endosulfan sulfate, 4,4'-DDT, methoxychlor, and alpha-chlordane. Only one PCB, Aroclor-1254, was detected (SS-13-06 at 17 µg/kg).

Twenty metals were detected in 18 of the surface soil samples collected. Metals exceeding the TAGM values included magnesium detected at a maximum concentration of 3,520 µg/kg in SS-13-11, manganese detected at a maximum concentration of 679 µg/kg in SS-13-01, and thallium detected at a maximum concentration of 0.22 µg/kg in SS-13-06.

3.1.4.1.2 Subsurface Soils

Twenty-six subsurface soil samples were collected from 15 borings as part of the URS RI. Boring locations and results are shown in Figure 3.9, and the results are also presented in Table 3.2. A background sample was collected from an undisturbed area west of the industrial complex. Twenty-one samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and TAL metals.

Nine VOCs including benzene, toluene, ethylbenzene, xylenes, 1,2-dichloroethene (1,2_DCE), acetone, 2-butanone, methylene chloride, and vinyl chloride were detected in 10 of the subsurface soil samples. Concentrations of total VOCs ranged from 0.9 µg/kg to 925 µg/kg. Samples with the highest frequency of VOCs detected were from the southern former leach field and from near the former waste accumulation area.

Twenty-three SVOCs, consisting of 19 PAHs, 2 phthalates, 1,2-dichlorobenzene, and 1,2,4-trichlorobenzene were detected in 15 samples. The highest concentration of total SVOCs was 62,130 µg/kg detected in SB-13-10-4 near the former waste accumulation area.

Eight pesticides were detected in 12 of the subsurface soil samples. Pesticides were detected throughout the SS-013 site at concentrations in the subsurface at the same order of magnitude as in the surface soil samples. No PCBs were detected in subsurface soils at this site. Metals were detected in every subsurface soil sample collected. Aluminum, calcium, chromium, iron, magnesium, and zinc were detected in every sample and arsenic, lead, and manganese were detected in 20 of the 21 samples.

3.1.4.1.3 Surface Water

Twelve surface water samples were collected at the locations shown in Figure 3.10. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and RCRA metals. VOCs were detected in RI surface water samples adjacent to and downgradient of Building 3578. These included chlorinated solvents, 1,2-DCE, trichloroethylene (TCE), and xylenes. Xylenes were also detected downstream of the storage bunkers. Detections of inorganics were infrequent and at relatively low levels. Upgradient TCE and 1,2-DCE detections were attributed to the FT-002 groundwater contaminant plume seeping into drainageways (ABB, 1993). The results of the surface water samples are shown on Figure 3.10 and also presented in Table 3.3.

3.1.4.1.4 Sediments

Twelve sediment samples were collected from the locations shown in Figure 3.10. Samples were analyzed for VOCs and SVOCs or pesticides, PCBs and metals. Sediment contamination was most prevalent downstream of Building 3578 and near the southern former leach field. Samples collected downstream of Building 3578 detected the highest concentrations of VOCs, pesticides, and PCBs, and samples collected near the southern leach field had the highest detections of SVOCs. The results of the sediment samples are shown on Figure 3.10 and also in Table 3.4.

3.1.4.1.5 Groundwater

The groundwater investigation performed as part of the RI (URS, 1996) was undertaken in two phases. In the first phase, groundwater screening samples were collected in 15 soil borings, using a HydroPunch sampler, in four existing groundwater monitoring wells, and in three newly installed monitoring wells. In the second phase, four additional monitoring wells were installed and groundwater samples were collected from the 12 SS-013 monitoring wells and eight upgradient monitoring wells from sites FT-002, SS-004, LF-023 and SS-027.

Screening Sampling Results

During groundwater screening, a total of 20 samples were collected and analyzed for VOCs and SVOCs at the locations shown in Figure 3.11. VOCs were detected in 14 of the 20 groundwater screening samples. Total VOCs ranged from 3 µg/L in HP-13-10-8 to 2,308 µg/L in HP-13-06-6 located near the northern former leach pad. Acetone was the most frequently detected VOC. SVOCs were detected in 11 of the groundwater screening samples. SVOCs detected were primarily PAHs, phthalates, and phenolic compounds. Concentrations of total PAHs ranged from 3 µg/L to 1,773 µg/L in HP-13-15-11 located at the southwest corner of Building 3578. The groundwater screening sample results are shown on Figure 3.11 and also in Table 3.5.

Monitoring Well Sampling Results

Six monitoring wells were sampled during each of two rounds. The first round of samples were collected on January 6 and 7, 1994 (results shown on Figure 3.12) and the second round of samples were collected on February 16, 1994 (results shown on Figure 3.13). In addition, a third round of sampling was conducted in October 1995 (results shown on Figure 3.14) to evaluate the impact of the FT-002 groundwater contaminant plume on SS-013. A summary of all detections of all three rounds of groundwater samples is presented in Table 3.6.

During the first round, the maximum concentration of total VOCs was detected in MW-13-008 (3,258 µg/l) located southwest of Building 3578. SVOCs were detected in two wells, MW-13-004 and MW-13-008. Naphthalene was the only SVOC detected in MW-13-004 at a concentration of 5 µg/l. The total concentration of SVOCs detected in MW-13-008 was 3,258 µg/l, composed primarily of PAH compounds. Detected metals include arsenic, barium, chromium, lead, selenium, and mercury. The highest metals concentrations were detected in MW-13-006 with lead at 34 µg/l, chromium at 57.7 µg/l, and arsenic at 25.8 µg/l.

During the second round of sampling, nine VOCs were detected. The maximum concentration of total VOCs was detected in MW-13-008 at 61 µg/l. The most frequently detected VOCs were chloromethane, acetone, and 1,2-dichloroethane. SVOCs were detected in only one sample, MW-13-008, at a total concentration of 1,576 µg/l. No pesticides or PCBs were detected in the second round of sampling. Lead was found at a concentration of 22.7 µg/l in well MW-13-006.

During the third round of groundwater sampling, the 12 monitoring wells located at SS-013 and eight upgradient wells from adjacent IRP sites were sampled and analyzed for VOCs at low detection limits. With the exception of MW-13-008, all VOC detections in SS-013 wells were also detected upgradient of SS-013.

3.1.4.2 Current Status

The principle sources of contamination (solvents, oils and lubricants, and paints) have been permanently removed from the site. A UST and the area septic system (septic tank, leach fields and piping) were removed during the summer of 1996. In addition, this area will no longer be used for weapons support maintenance and services because the base is closed. The main concern at this time is the contaminated soil above the groundwater. Based on available information, elevated levels of organic compounds have been detected in the soil and groundwater. The proposed removal action should be implemented to protect groundwater from further contamination.

3.1.5 NPL Status

PAFB was listed on the National Priority List (NPL) on November 1989. Multiple locations within the base are of concern, including Spill Site SS-013. An RI has been conducted at the MMS Spill Site SS-013. The proposed removal action addresses

immediate environmental risks associated with previous spills at the FWAA located within Spill Site SS-013.

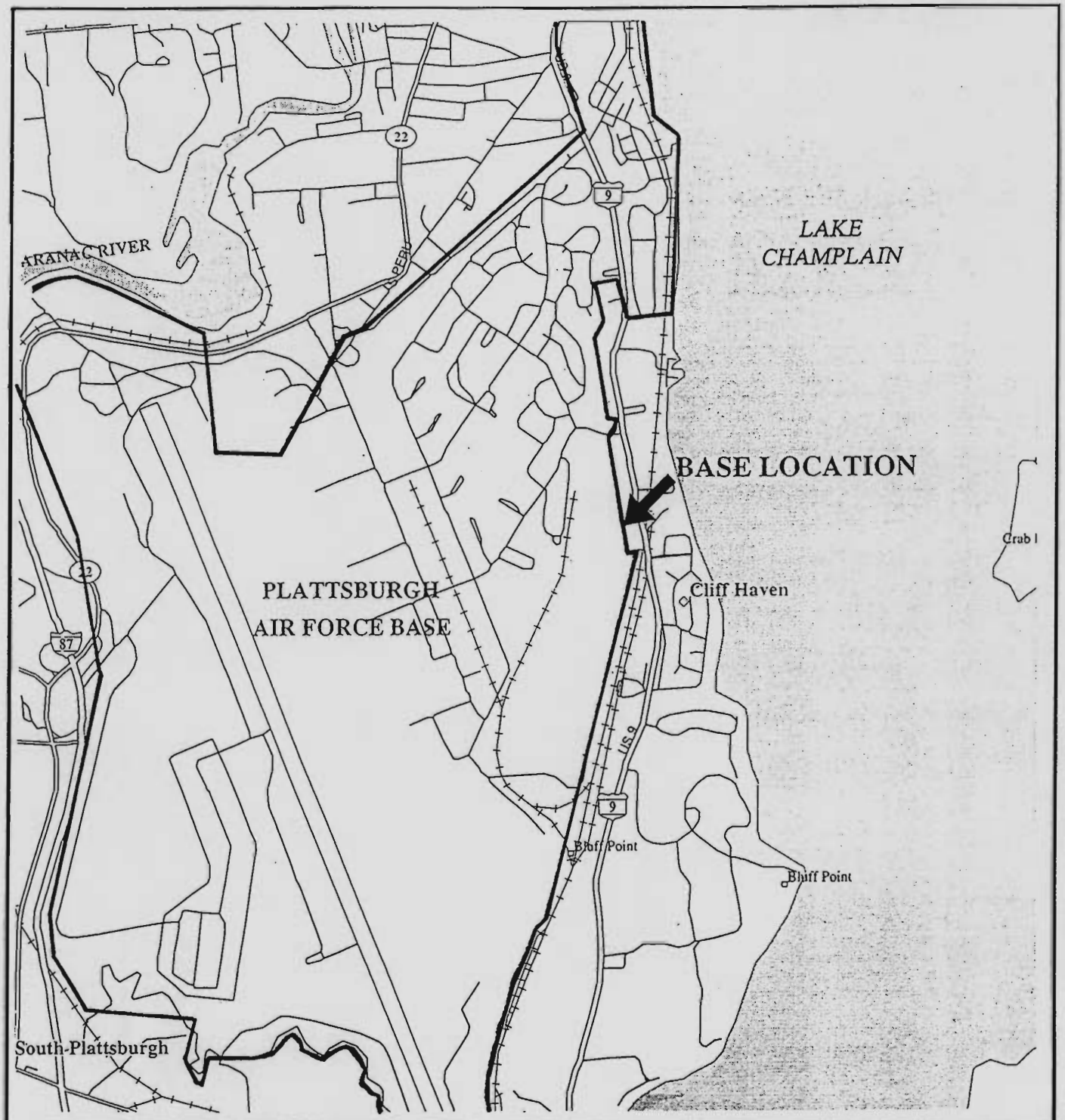
3.2 OTHER ACTIONS TO DATE

A 6,000 gallon No. 2 fuel oil UST located adjacent to Building 3578 and the area septic system (i.e. septic tank, leach fields and piping) were removed during the summer of 1996. Additionally, all solvents, paints oils, etc., were removed from the site prior to base closure.

3.3 FEDERAL, STATE, AND LOCAL ACTIONS TO DATE

The NYSDEC first recognized that contamination was present at Spill Site SS-013 after identification of the site by Radian, Inc. during a Phase I records search in 1985.

The U.S. Air Force previously informed the USEPA and the NYSDEC of their intention to perform a source control removal action at the FWAA on Spill Site SS-013. Receipt of this Action Memorandum starts the clock for this time critical removal action.



LATITUDE: N44°39'49"
LONGITUDE: W73°27'45"

Scale 1:31,250 (at center)

2000 Feet

1000 Meters

DATE: 10/10/95 (SEH)
727307.06100\BOARD.DWG

SOURCE: DeLORME MAP EXPERT
COPYRIGHT 1993 DeLORME MAPPING.

FIGURE 3.1

PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

BASE LOCATION MAP

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES

NEW YORK
QUADRANGLE LOCATION

LONGITUDE: N44° 38' 49"
LATITUDE: W73° 27' 17"

N

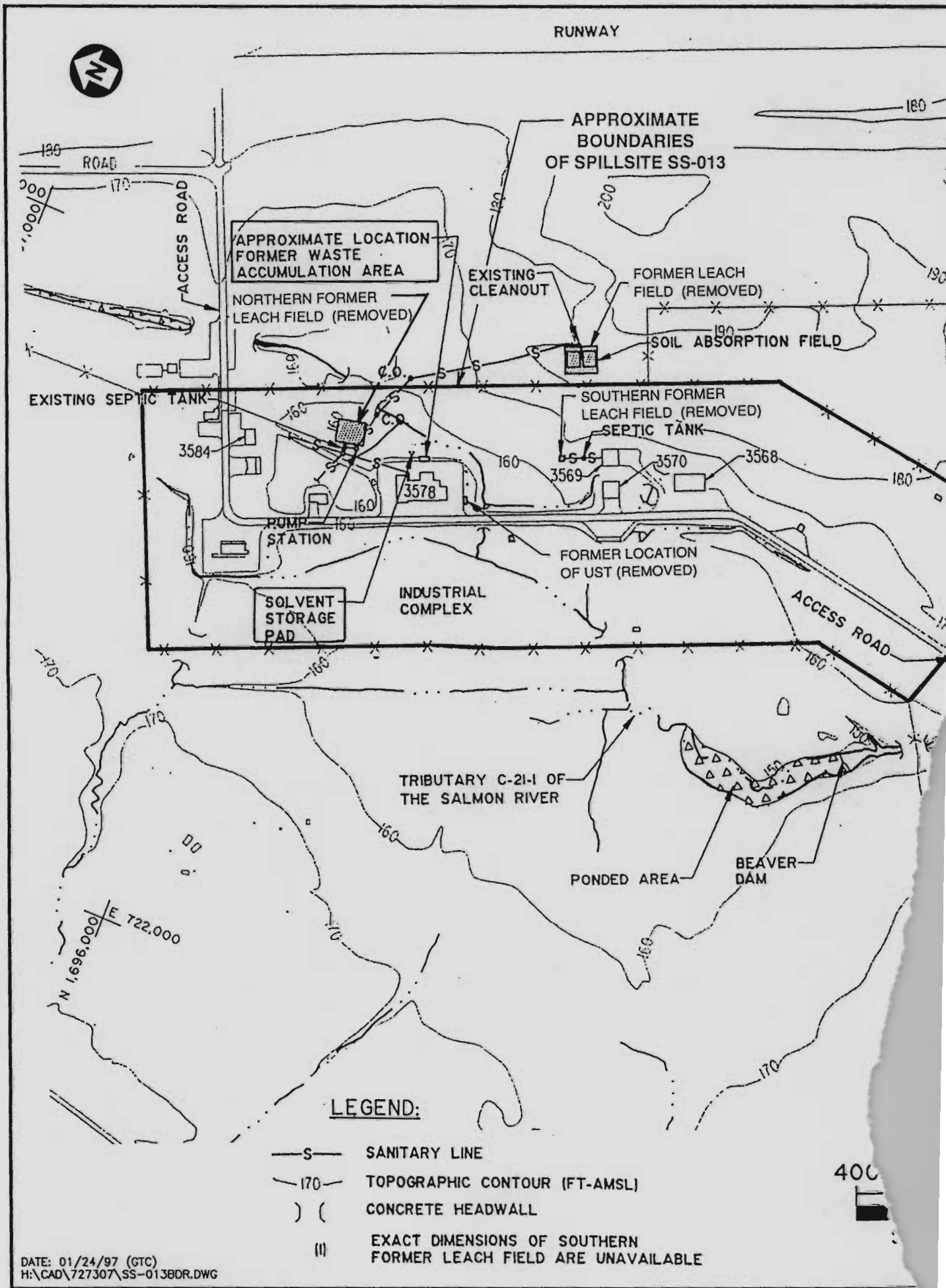
SOURCE: U.S.G.S. 7.5 MINUTE SERIES
TOPOGRAPHIC MAP
PLATTSBURGH QUADRANGLE .

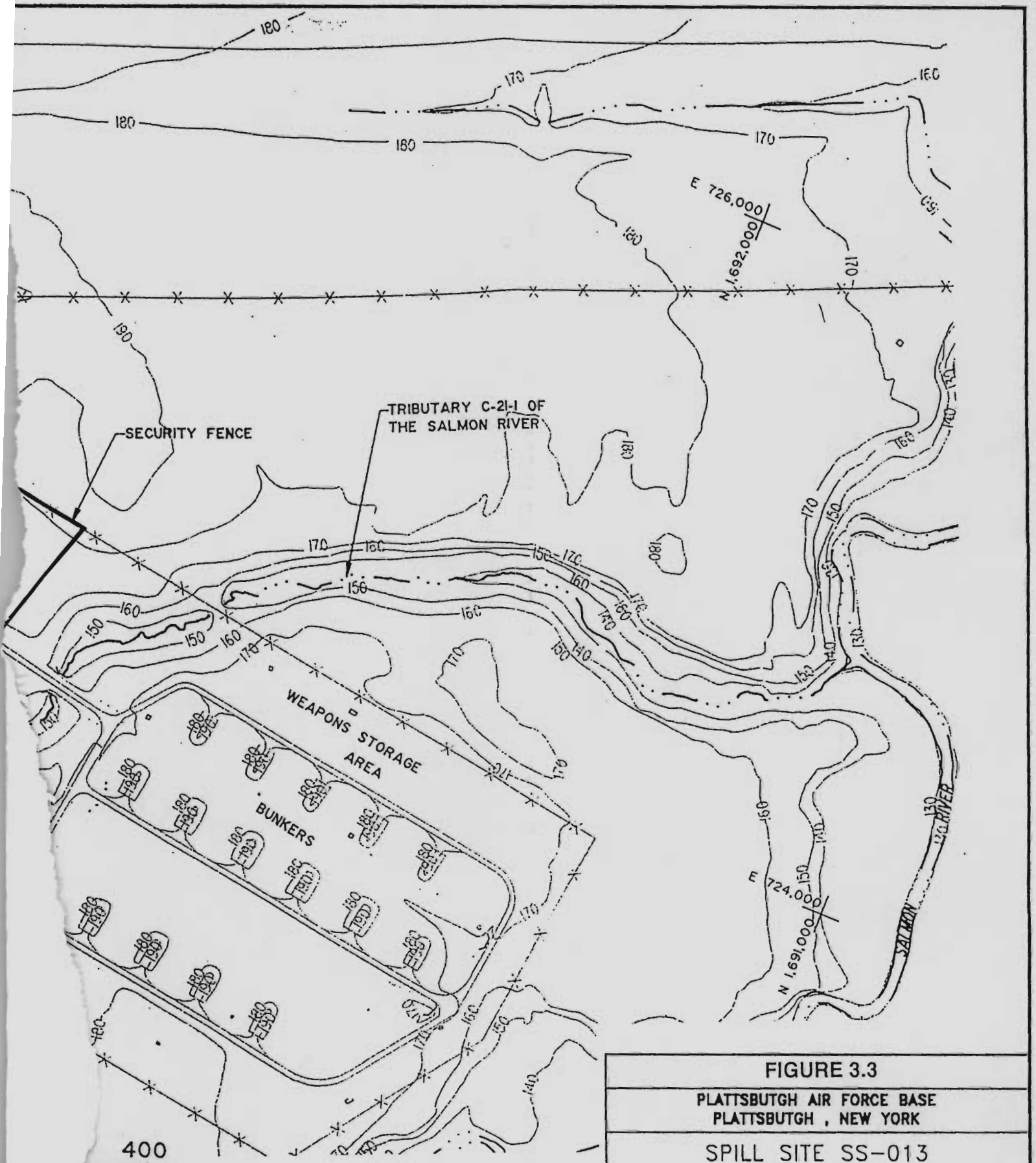
FIGURE 3.2

PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

SITE LOCATION MAP

PARSONS ENGINEERING SCIENCE, INC.


RUNWAY
APPROXIMATE BOUNDARIES OF SPILLSITE SS-013
ROAD
ACCESS ROAD
APPROXIMATE LOCATION FORMER WASTE ACCUMULATION AREA
NORTHERN FORMER LEACH FIELD (REMOVED)
EXISTING CLEANOUT
FORMER LEACH FIELD (REMOVED)
SOIL ABSORPTION FIELD
EXISTING SEPTIC TANK
SOUTHERN FORMER LEACH FIELD (REMOVED)
SEPTIC TANK
3584
3578
3569
3570
3568
PUMP STATION
FORMER LOCATION OF UST (REMOVED)
SOLVENT STORAGE PAD
INDUSTRIAL COMPLEX
ACCESS ROAD
TRIBUTARY C-21-1 OF THE SALMON RIVER
PONDED AREA
BEAVER DAM
N 1,696,000
E 722,000
LEGEND:
—S— SANITARY LINE
—170— TOPOGRAPHIC CONTOUR (FT-AMSL)
) (CONCRETE HEADWALL
(1) EXACT DIMENSIONS OF SOUTHERN FORMER LEACH FIELD ARE UNAVAILABLE
DATE: 01/24/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG



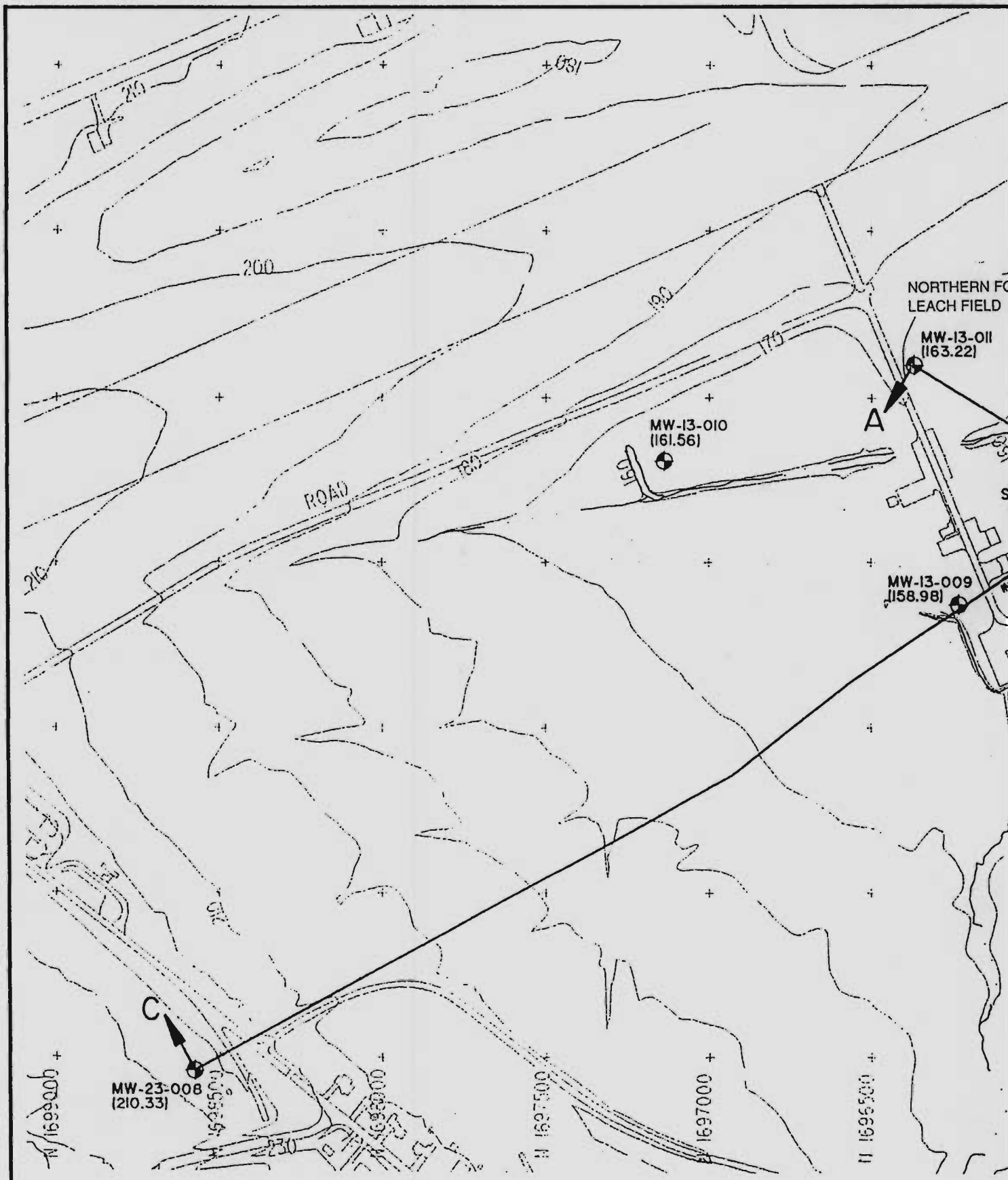
SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

FIGURE 3.3

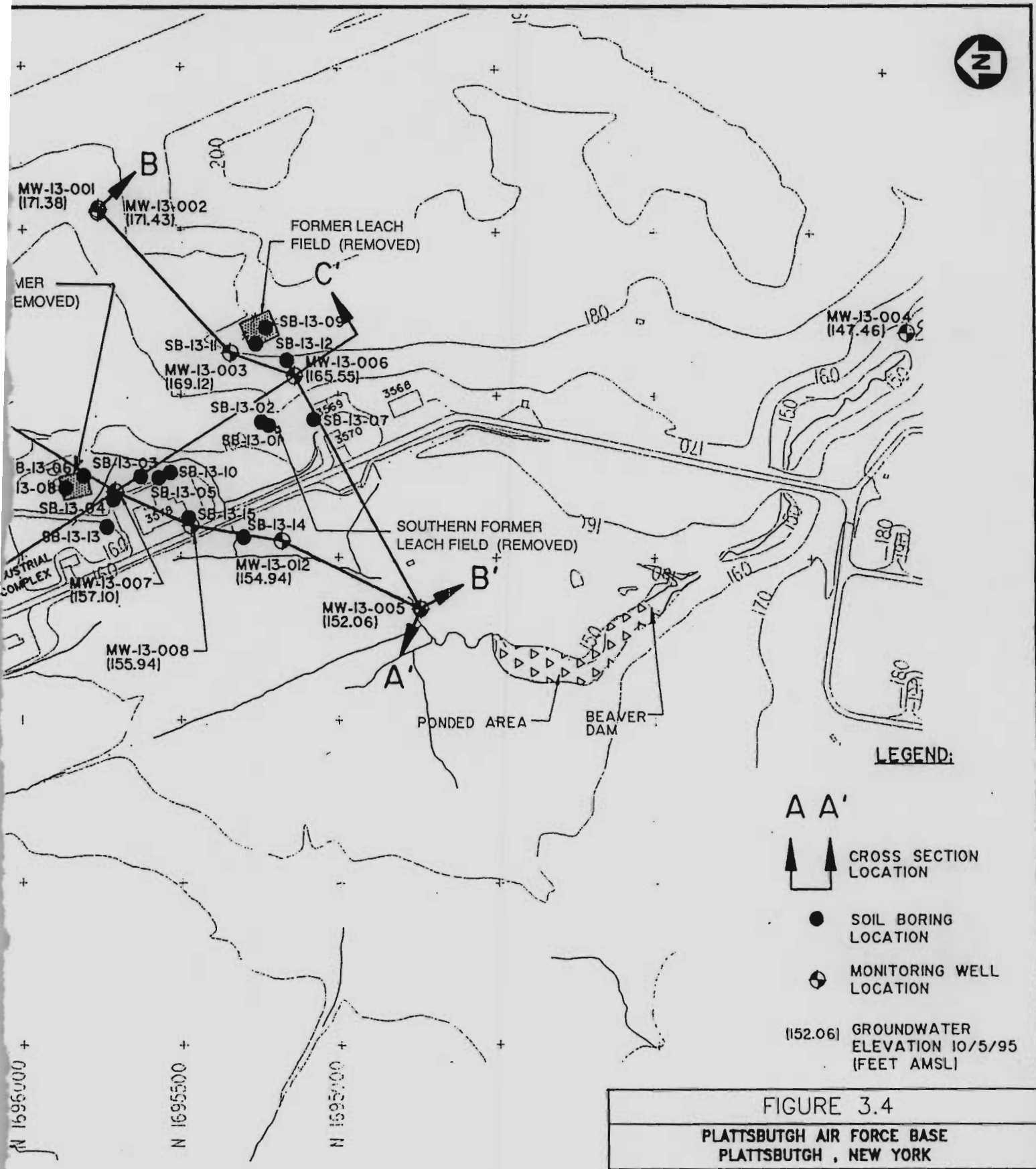
PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
SITE MAP

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 310 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES



DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG



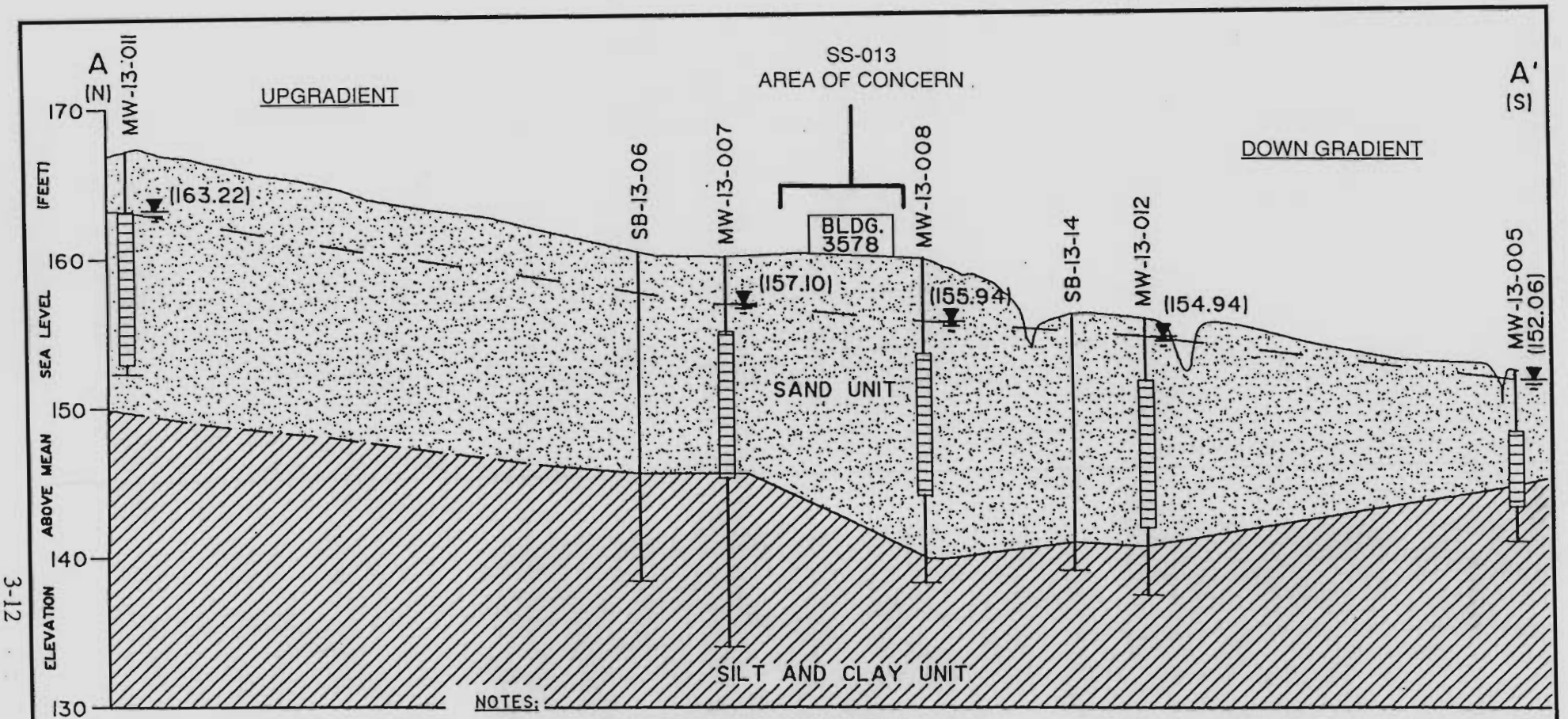
SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

FIGURE 3.4

PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
CROSS SECTION LOCATIONS

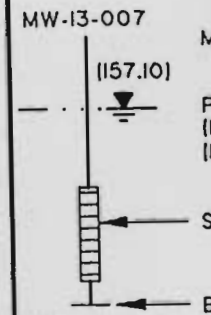
PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES



NOTES:

1. GEOLOGIC CONDITIONS SHOWN ARE REPRESENTATIVE OF CONDITONS 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.
2. ELEVATIONS BASED ON THE NORTH AMERICAN VERTICAL DATUM, 1988.

LEGEND:



MONITORING WELL NUMBER

POTENTIOMETRIC SURFACE
(157.10) GROUNDWATER ELEVATION
(10/5/95 UNLESS OTHERWISE SPECIFIED)

SCREENED INTERVAL OF MONITORING WELL

BOREHOLE TERMINATION

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

200 0 200

HORIZONTAL SCALE IN FEET

VERTICAL
EXAGGERATION = 20X

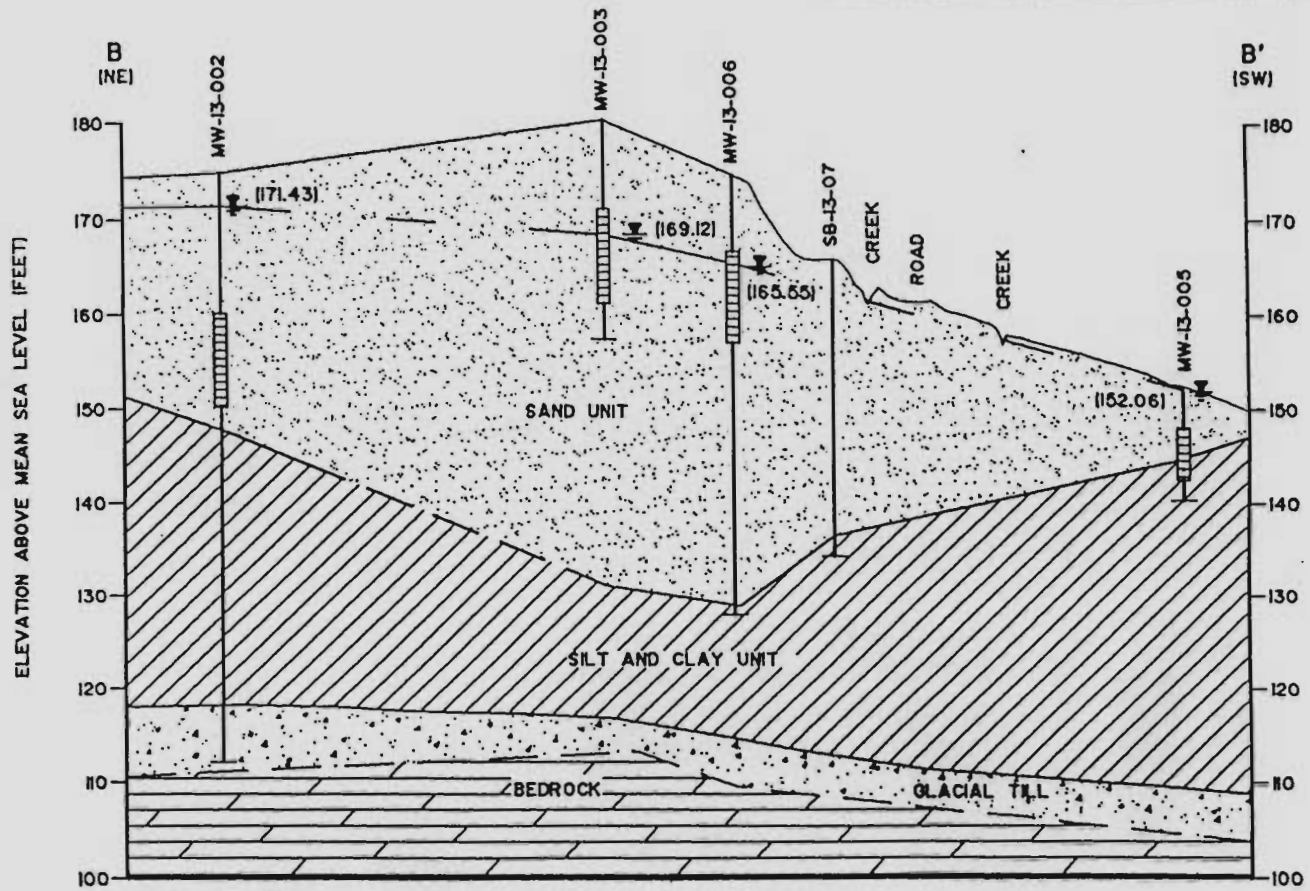
DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG

FIGURE 3.5

PLATTSBURGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
CROSS SECTION A – A'

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES



LEGEND:

MW-13-007 — MONITORING WELL NUMBER

(157.10) — POTENTIOMETRIC SURFACE (157.10) GROUNDWATER ELEVATION 10/6/95 UNLESS OTHERWISE SPECIFIED

SCREENED INTERVAL OF MONITORING WELL

BOREHOLE TERMINATION

NOTES:

1. GEOLOGIC CONDITIONS SHOWN ARE REPRESENTATIVE OF 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.
2. ELEVATIONS BASED ON TRANSVERSE MERCATOR PROJECTION, EAST ZONE, NORTH AMERICAN DATUM 1983.
2. BED ROCK SURFACE INFERRED FROM SEISMIC RESULTS (MALCOM PIRNIE, 1993) SEE FIGURE 3-14.

VERTICAL EXAGGERATION = 15X

300 0 300

HORIZONTAL SCALE IN FEET

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

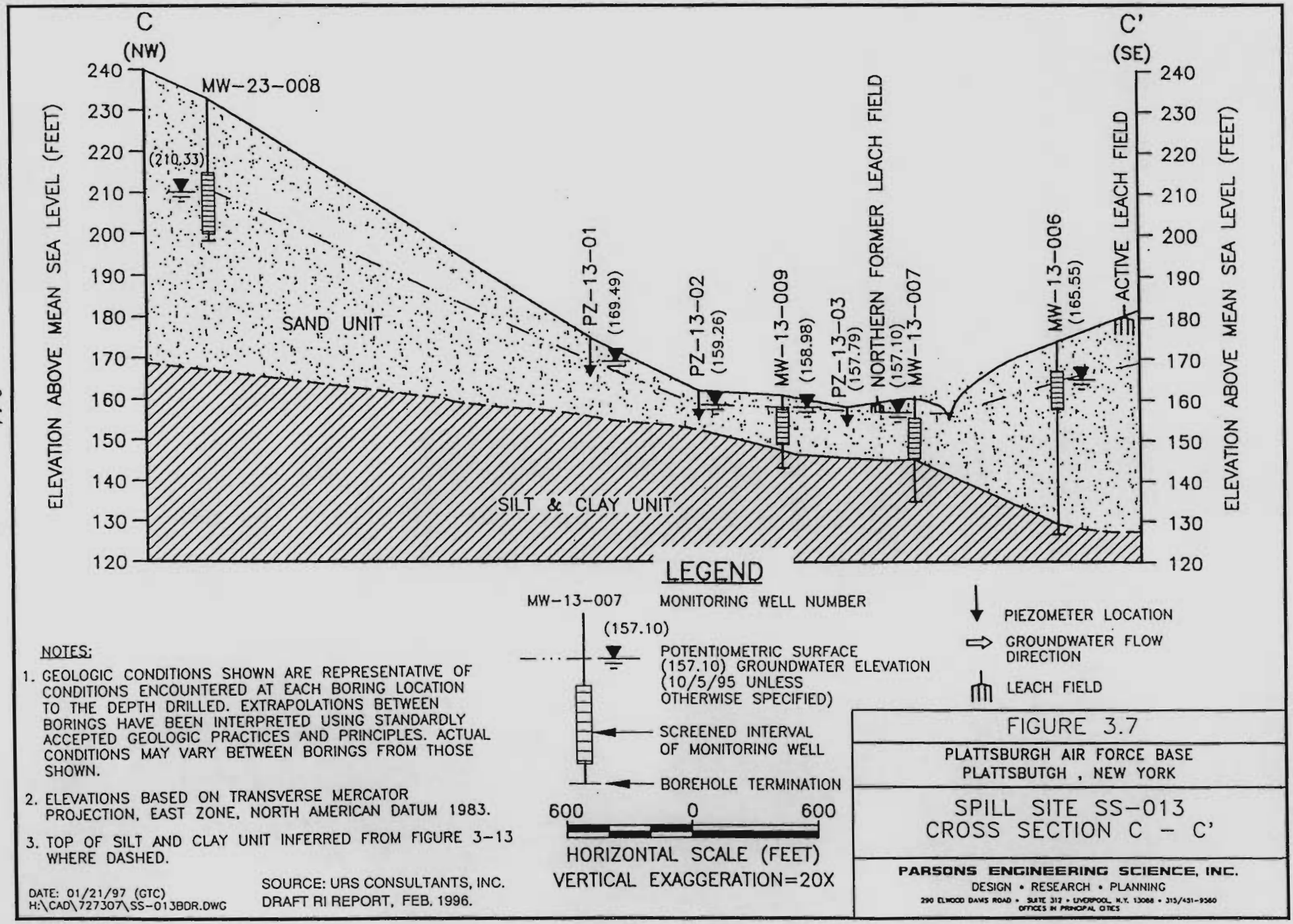
FIGURE 3.6

PLATTSBURGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
CROSS SECTION B – B'

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES

DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG



NOTES:

1. GEOLOGIC CONDITIONS SHOWN ARE REPRESENTATIVE OF 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.
2. ELEVATIONS BASED ON TRANSVERSE MERCATOR PROJECTION, EAST ZONE, NORTH AMERICAN DATUM 1983.
3. TOP OF SILT AND CLAY UNIT INFERRED FROM FIGURE 3-13 WHERE DASHED.

DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG

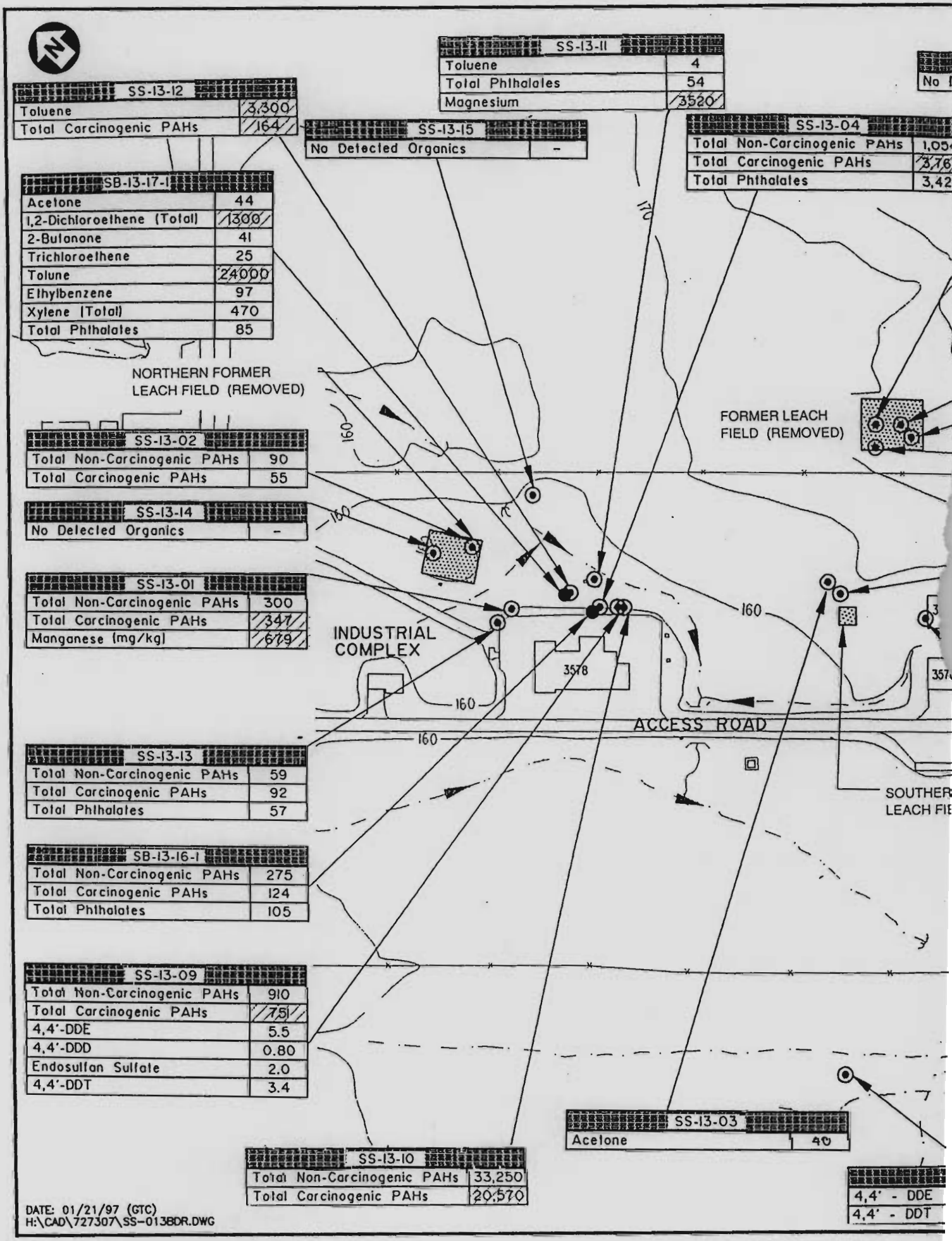
SOURCE: URS CONSULTANTS, INC. DRAFT RI REPORT, FEB. 1996.

FIGURE 3.7

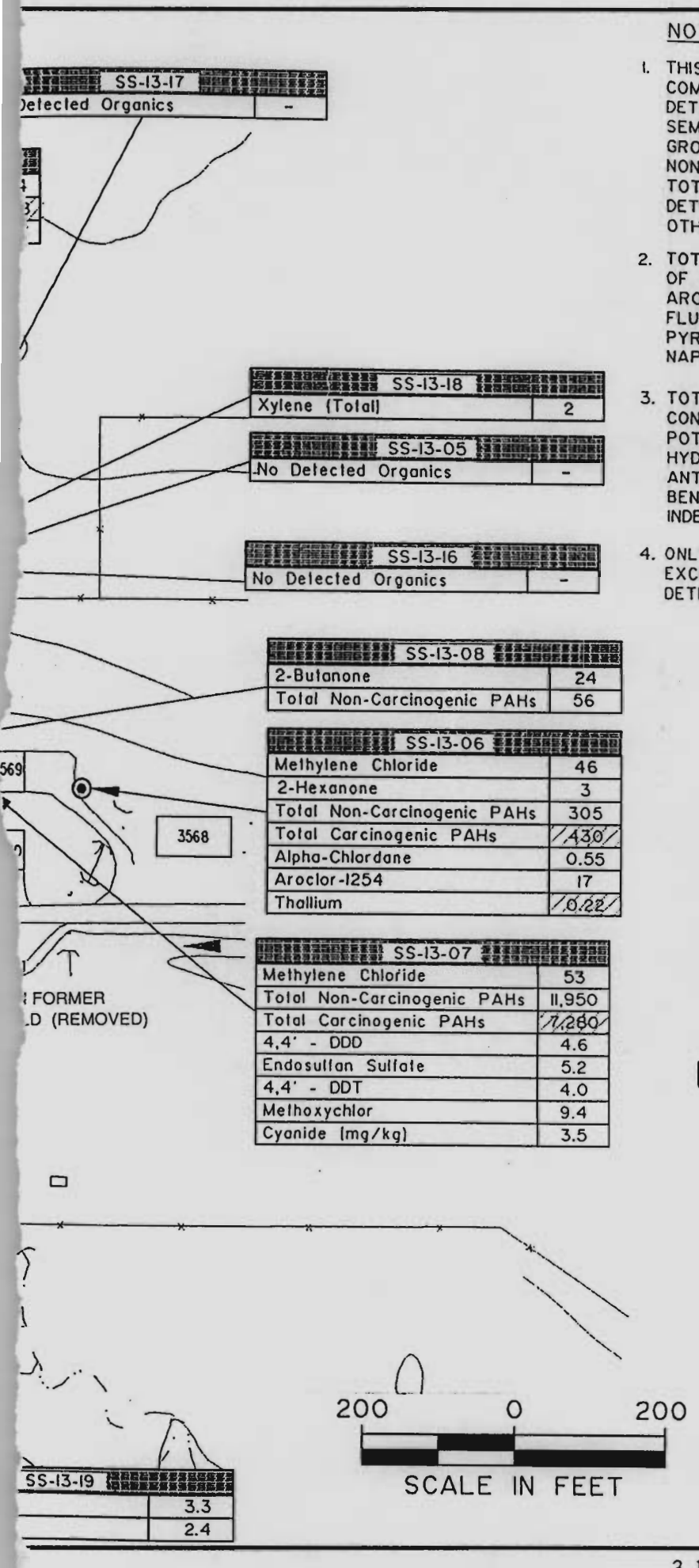
PLATTSBURGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
CROSS SECTION C - C'

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES



DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG



NOTES:

1. THIS FIGURE PRESENTS ALL VOLATILE ORGANIC COMPOUNDS, PESTICIDES, AND PCBS (SEE NOTE 4) DETECTED IN THE SURFACE SOIL SAMPLES. SEMIVOLATILE ORGANIC COMPOUNDS HAVE BEEN GROUPED INTO: TOTAL PHTHALATES, TOTAL NON-CARCINOGENIC PAHS (SEE NOTE 2); AND TOTAL CARCINOGENIC PAHS (SEE NOTE 3). ALL DETECTIONS ARE REPORTED IN µg/kg UNLESS OTHERWISE INDICATED.
2. TOTAL NON-CARCINOGENIC PAHS = THE TOTAL OF THESE NON-CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBON COMPOUNDS: ACENAPHTHENE, FLUORENE, PHENANTHRENE, ANTHRACENE, FLUORANTHENE, PYRENE, BENZO(G,H,I)PERYLENE, DIBENZOFURAN, AND NAPHTHALENE.
3. TOTAL CARCINOGENIC PAHS= THE TOTAL OF THE CONCENTRATIONS OF THESE CARCINOGENIC OR POTENTIALLY CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBON COMPOUNDS: CARBAZOLE, BENZO(A), ANTHRACENE, CHRYSENE, BENZO (B)FLUORANTHENE, BENZO(K)FLUORANTHENE, BENZO(A)PYRENE, INDENO(1,2,3-CD)PYRENE, AND DIBENZ(A,H)ANTHRACENE.
4. ONLY METALS DETECTIONS WHOSE CONCENTRATIONS EXCEEDED TBCs ARE REPORTED. ALL CYANIDE DETECTIONS ARE REPORTED.

LEGEND

- SURFACE SOIL SAMPLE
- SOIL BORING
- LEACH FIELDS
- —190— TOPOGRAPHIC CONTOUR
- SURFACE DRAINAGE AND FLOW DIRECTION
- EXCEEDS SEDIMENT TBC (FOR PAHs, AT LEAST ONE PAH COMPOUND DETECTION EXCEEDS TBCs)

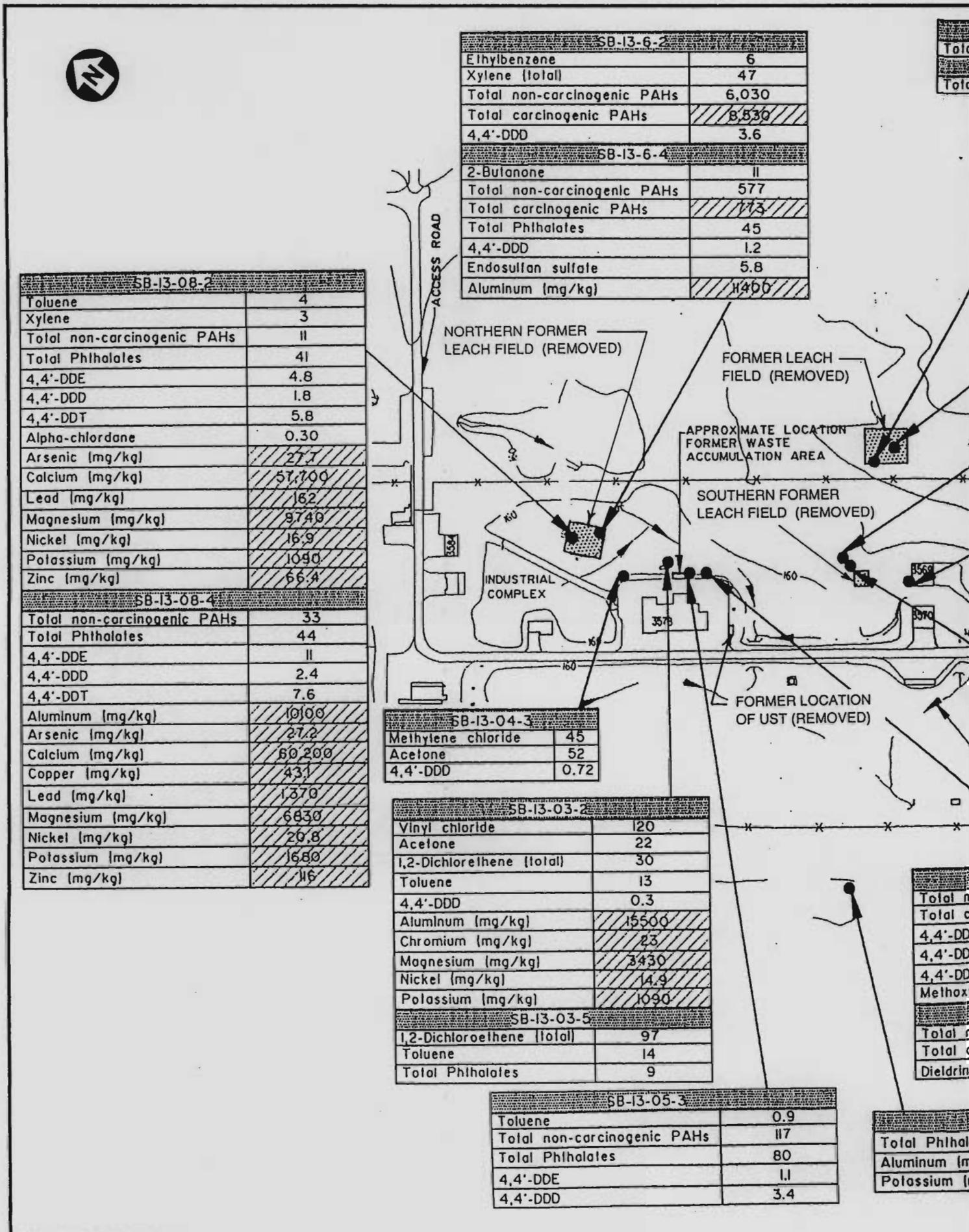
SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

FIGURE 3.8

PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
SURFACE SOIL RESULTS

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES



SB-13-6-2	
Ethylbenzene	6
Xylene (total)	47
Total non-carcinogenic PAHs	6,030
Total carcinogenic PAHs	8,530
4,4'-DDD	3.6

SB-13-6-4	
2-Butanone	11
Total non-carcinogenic PAHs	577
Total carcinogenic PAHs	773
Total Phthalates	45
4,4'-DDD	1.2
Endosulfan sulfate	5.8
Aluminum (mg/kg)	11400

SB-13-08-2	
Toluene	4
Xylene	3
Total non-carcinogenic PAHs	11
Total Phthalates	41
4,4'-DDE	4.8
4,4'-DDD	1.8
4,4'-DDT	5.8
Alpha-chlordane	0.30
Arsenic (mg/kg)	21.1
Calcium (mg/kg)	57,700
Lead (mg/kg)	162
Magnesium (mg/kg)	9740
Nickel (mg/kg)	16.9
Potassium (mg/kg)	1090
Zinc (mg/kg)	66.4

SB-13-08-4	
Total non-carcinogenic PAHs	33
Total Phthalates	44
4,4'-DDE	11
4,4'-DDD	2.4
4,4'-DDT	7.6
Aluminum (mg/kg)	10100
Arsenic (mg/kg)	27.2
Calcium (mg/kg)	60,200
Copper (mg/kg)	431
Lead (mg/kg)	1,370
Magnesium (mg/kg)	6830
Nickel (mg/kg)	20.8
Potassium (mg/kg)	1680
Zinc (mg/kg)	116

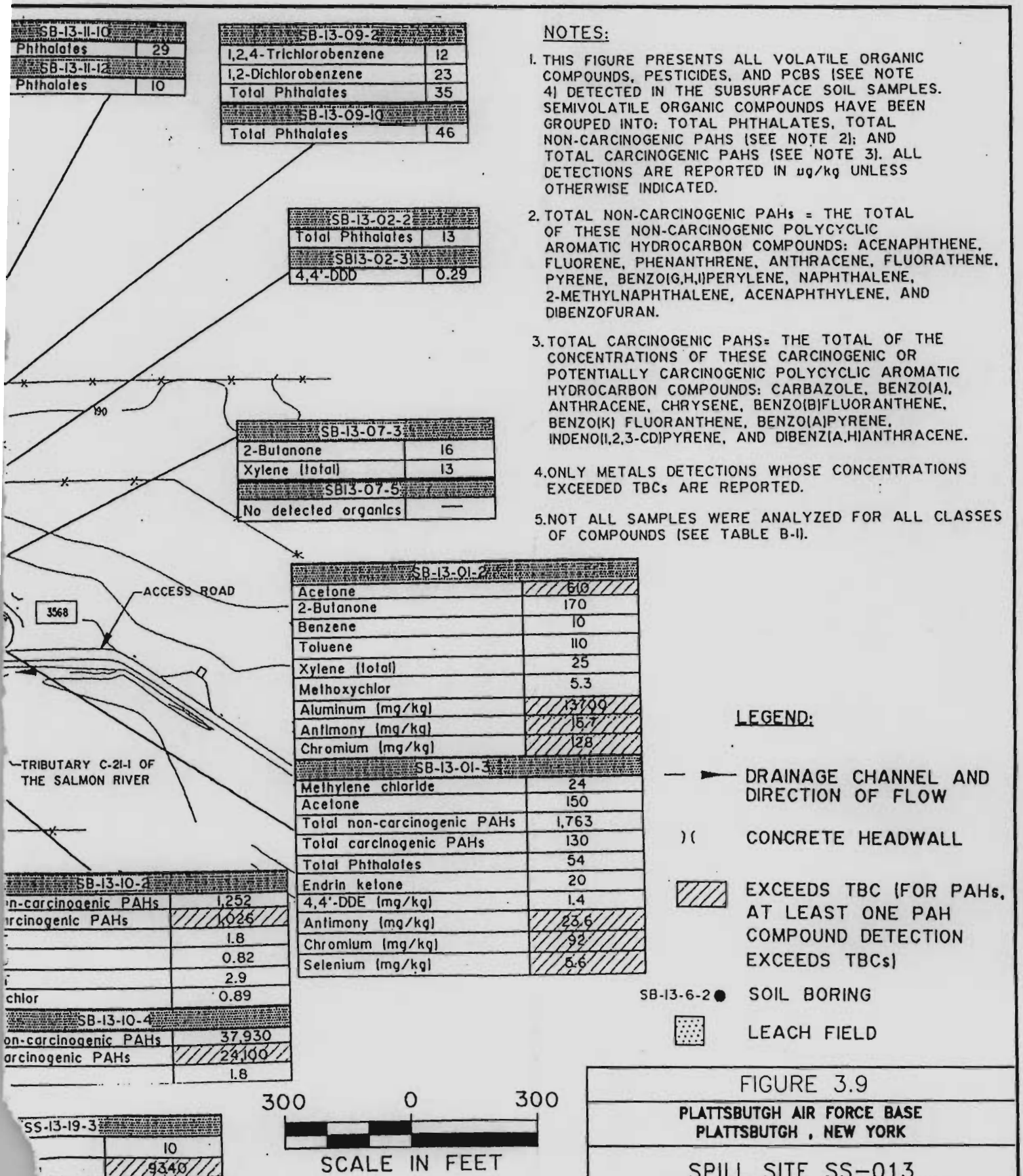
SB-13-04-3	
Methylene chloride	45
Acetone	52
4,4'-DDD	0.72

SB-13-03-2	
Vinyl chloride	120
Acetone	22
1,2-Dichloroethene (total)	30
Toluene	13
4,4'-DDD	0.3
Aluminum (mg/kg)	15500
Chromium (mg/kg)	23
Magnesium (mg/kg)	3430
Nickel (mg/kg)	14.9
Potassium (mg/kg)	1090

SB-13-03-5	
1,2-Dichloroethene (total)	97
Toluene	14
Total Phthalates	9

SB-13-05-3	
Toluene	0.9
Total non-carcinogenic PAHs	117
Total Phthalates	80
4,4'-DDE	1.1
4,4'-DDD	3.4

DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG



NOTES:

1. THIS FIGURE PRESENTS ALL VOLATILE ORGANIC COMPOUNDS, PESTICIDES, AND PCBS (SEE NOTE 4) DETECTED IN THE SUBSURFACE SOIL SAMPLES. SEMIVOLATILE ORGANIC COMPOUNDS HAVE BEEN GROUPED INTO: TOTAL PHTHALATES, TOTAL NON-CARCINOGENIC PAHS (SEE NOTE 2); AND TOTAL CARCINOGENIC PAHS (SEE NOTE 3). ALL DETECTIONS ARE REPORTED IN ug/kg UNLESS OTHERWISE INDICATED.
2. TOTAL NON-CARCINOGENIC PAHs = THE TOTAL OF THESE NON-CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBON COMPOUNDS: ACENAPHTHENE, FLUORENE, PHENANTHRENE, ANTHRACENE, FLUORATHENE, PYRENE, BENZO(G,H,I)PERYLENE, NAPHTHALENE, 2-METHYLNAPHTHALENE, ACENAPHTHYLENE, AND DIBENZOFURAN.
3. TOTAL CARCINOGENIC PAHS= THE TOTAL OF THE CONCENTRATIONS OF THESE CARCINOGENIC OR POTENTIALLY CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBON COMPOUNDS: CARBAZOLE, BENZO(A), ANTHRACENE, CHRYSENE, BENZO(B)FLUORANTHENE, BENZO(K) FLUORANTHENE, BENZO(A)PYRENE, INDENO(1,2,3-CD)PYRENE, AND DIBENZ(A,H)ANTHRACENE.
4. ONLY METALS DETECTIONS WHOSE CONCENTRATIONS EXCEEDED TBCs ARE REPORTED.
5. NOT ALL SAMPLES WERE ANALYZED FOR ALL CLASSES OF COMPOUNDS (SEE TABLE B-1).

LEGEND:

— ▶ DRAINAGE CHANNEL AND DIRECTION OF FLOW

)(CONCRETE HEADWALL

EXCEEDS TBC (FOR PAHs, AT LEAST ONE PAH COMPOUND DETECTION EXCEEDS TBCs)

SB-13-6-2 ● SOIL BORING

LEACH FIELD

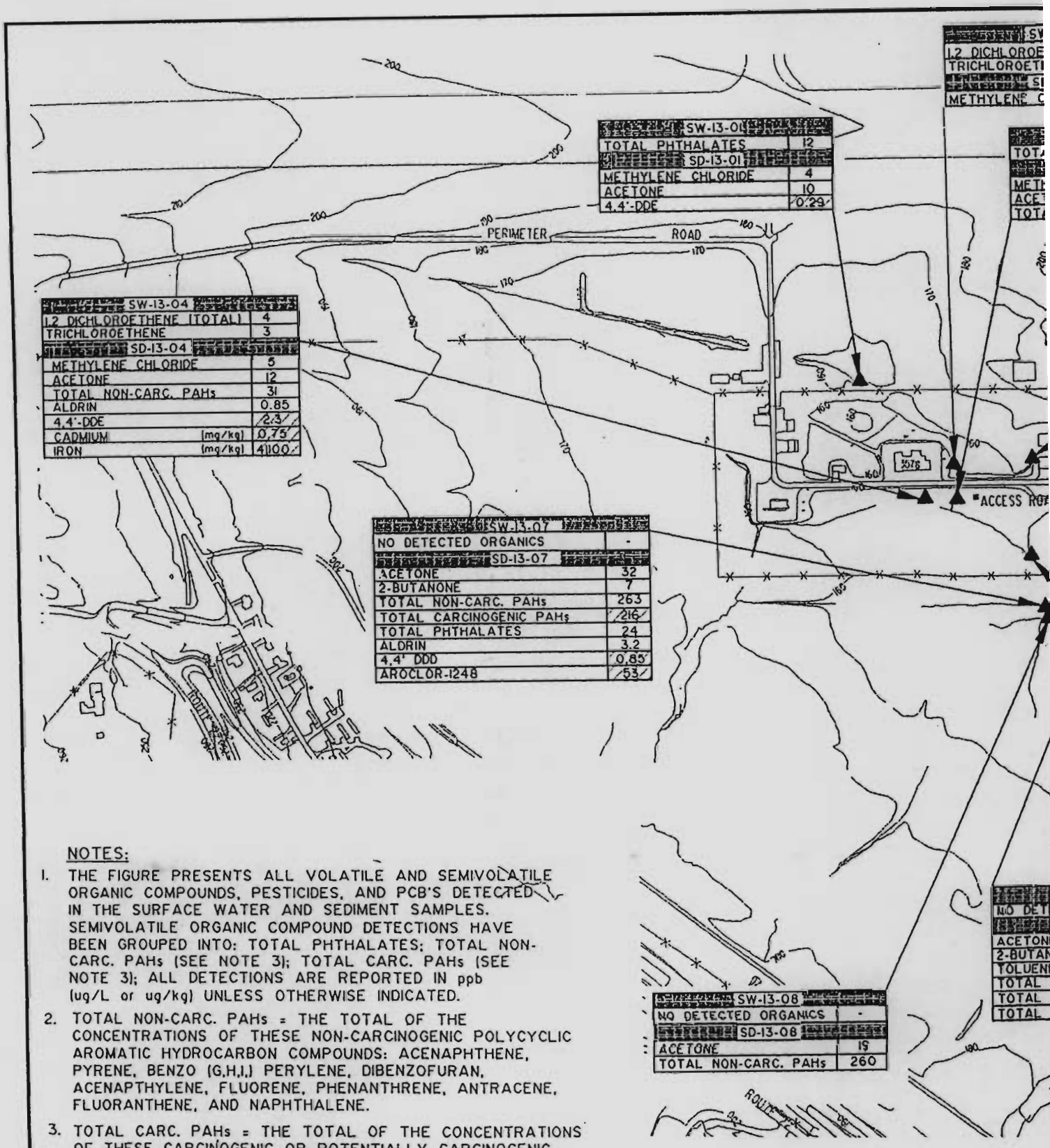
SOURCE: URS CONSULTANTS, INC. DRAFT RI REPORT, FEB. 1996.

FIGURE 3.9

PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
SUBSURFACE SOIL RESULTS

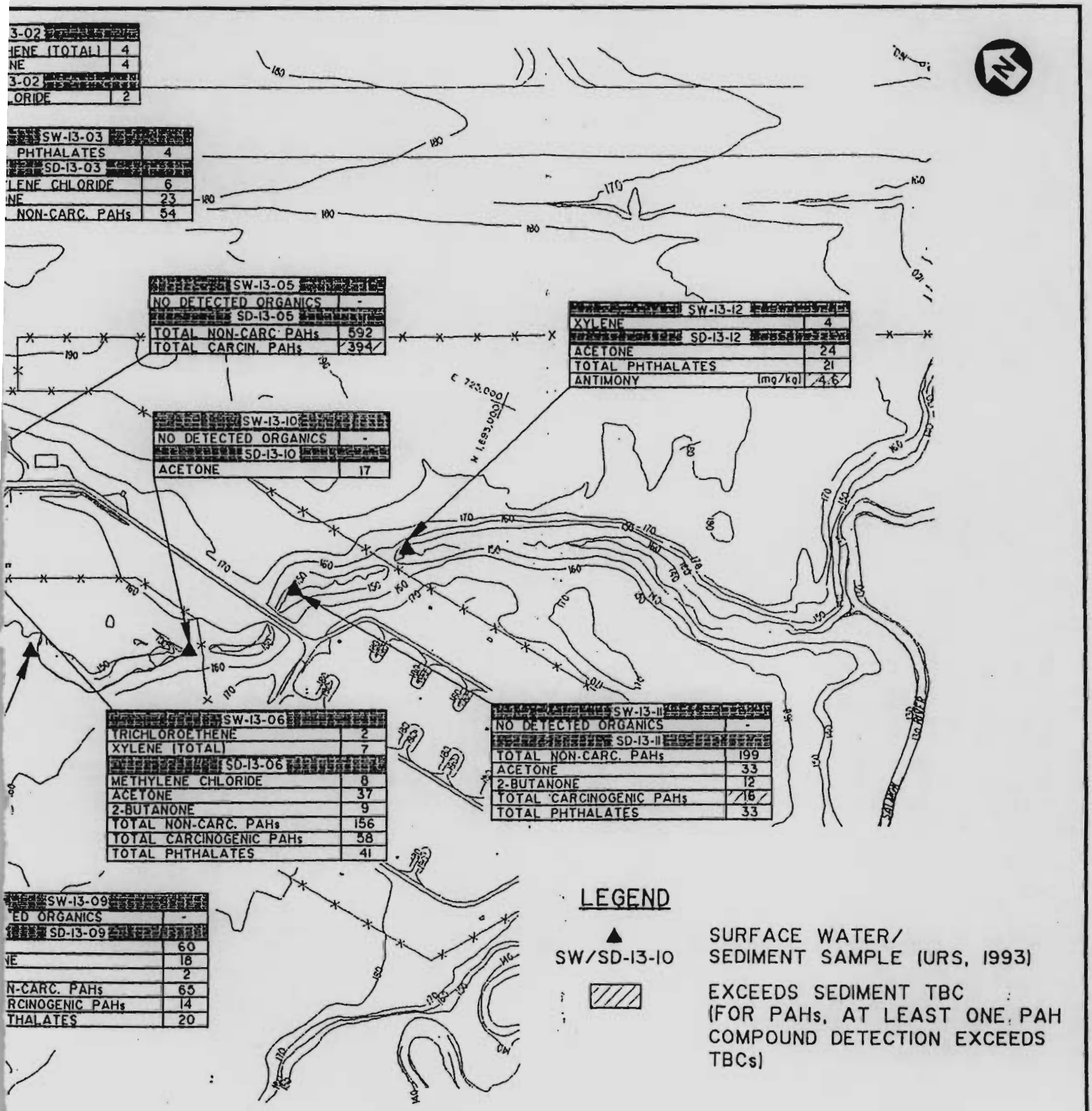
PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES



NOTES:

1. THE FIGURE PRESENTS ALL VOLATILE AND SEMIVOLATILE ORGANIC COMPOUNDS, PESTICIDES, AND PCB'S DETECTED IN THE SURFACE WATER AND SEDIMENT SAMPLES. SEMIVOLATILE ORGANIC COMPOUND DETECTIONS HAVE BEEN GROUPED INTO: TOTAL PHTHALATES; TOTAL NON-CARC. PAHs (SEE NOTE 3); TOTAL CARC. PAHs (SEE NOTE 3); ALL DETECTIONS ARE REPORTED IN ppb (ug/L or ug/kg) UNLESS OTHERWISE INDICATED.
2. TOTAL NON-CARC. PAHs = THE TOTAL OF THE CONCENTRATIONS OF THESE NON-CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBON COMPOUNDS: ACENAPHTHENE, PYRENE, BENZO (G,H,I,) PERYLENE, DIBENZOFURAN, ACENAPTHYLENE, FLUORENE, PHENANTHRENE, ANTRACENE, FLUORANTHENE, AND NAPHTHALENE.
3. TOTAL CARC. PAHs = THE TOTAL OF THE CONCENTRATIONS OF THESE CARCINOGENIC OR POTENTIALLY CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBON COMPOUNDS: CARBAZOLE, BENZO (A) ANTHRACENE, CHRYSENE, BENZO(B) FLUORANTHENE, BENZO (K) FLUORANTHENE, BENZO(A)PYRENE, INDENO (1,2,3-CD)PYRENE AND DIBENZ(A,H) ANTHRACENE.
4. NOT ALL SAMPLES WERE ANALYZED FOR ALL CLASSES OF COMPOUNDS. (SEE TABLE B-1)
5. ONLY METALS DETECTIONS THAT EXCEEDED TBCs ARE SHOWN. THE LOWEST EFFECT LEVEL TBC WAS USED FOR METALS IN SEDIMENT. SEE TABLE 4-5.

DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG



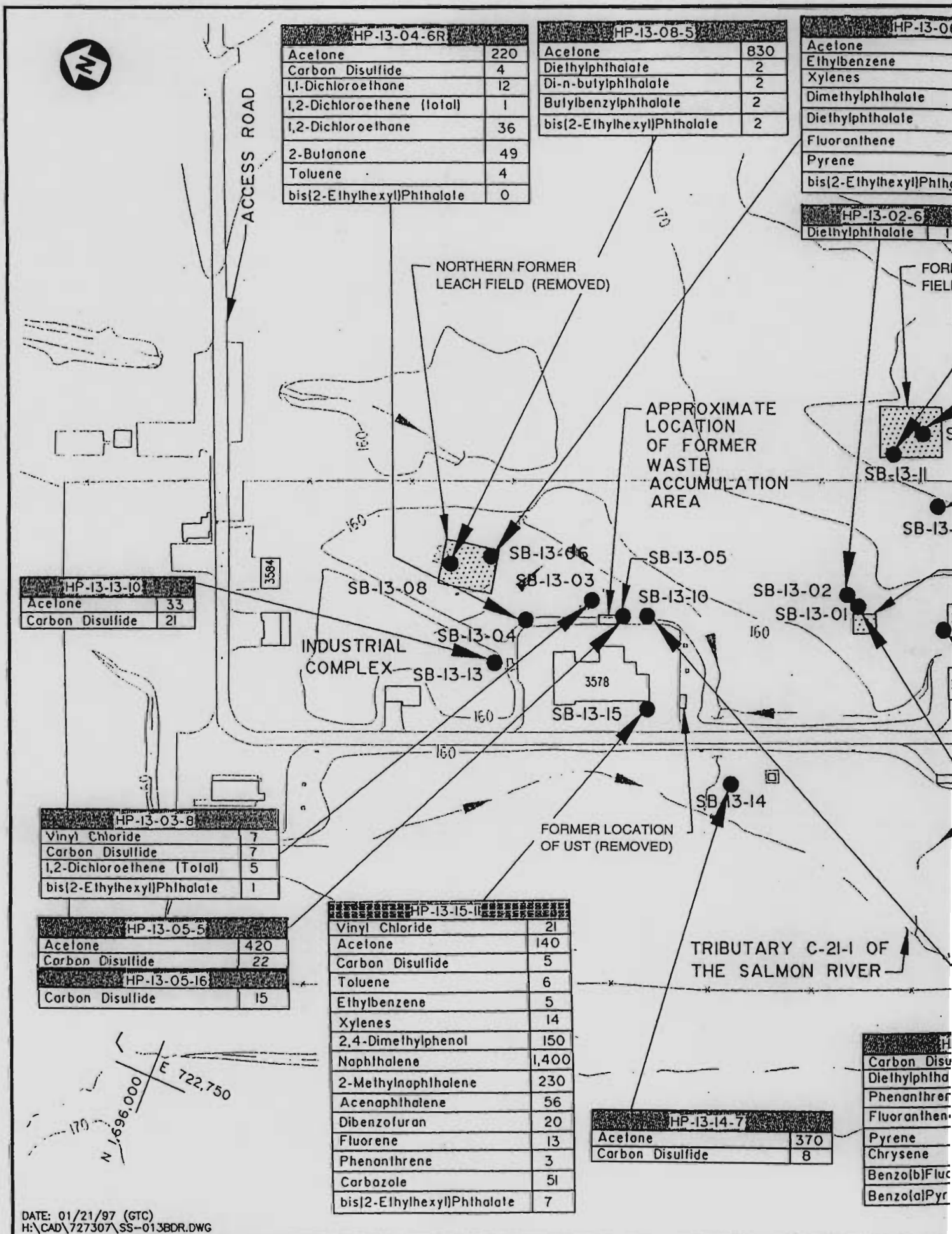
SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

FIGURE 3.10

PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
SURFACE WATER/SEDIMENT
RESULTS

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES


HP-13-04-6R
Acetone 220
Carbon Disulfide 4
1,1-Dichloroethane 12
1,2-Dichloroethene (total) 1
1,2-Dichloroethane 36
2-Butanone 49
Toluene 4
bis(2-Ethylhexyl)Phthalate 0
HP-13-08-5
Acetone 830
Diethylphthalate 2
Di-n-butylphthalate 2
Butylbenzylphthalate 2
bis(2-Ethylhexyl)Phthalate 2
HP-13-0
Acetone
Ethylbenzene
Xylenes
Dimethylphthalate
Diethylphthalate
Fluoranthene
Pyrene
bis(2-Ethylhexyl)Phth
HP-13-02-6
Diethylphthalate
ACCESS ROAD
NORTHERN FORMER LEACH FIELD (REMOVED)
APPROXIMATE LOCATION OF FORMER WASTE ACCUMULATION AREA
SB-13-11
SB-13-06
SB-13-05
SB-13-03
SB-13-08
SB-13-10
SB-13-02
SB-13-01
SB-13-04
SB-13-13
INDUSTRIAL COMPLEX
SB-13-15
SB-13-14
FORMER LOCATION OF UST (REMOVED)
TRIBUTARY C-21-1 OF THE SALMON RIVER
3584
3578
160
170
HP-13-13-10
Acetone 33
Carbon Disulfide 21
HP-13-03-8
Vinyl Chloride 7
Carbon Disulfide 7
1,2-Dichloroethene (Total) 5
bis(2-Ethylhexyl)Phthalate 1
HP-13-05-5
Acetone 420
Carbon Disulfide 22
HP-13-05-16
Carbon Disulfide 15
HP-13-15-11
Vinyl Chloride 21
Acetone 140
Carbon Disulfide 5
Toluene 6
Ethylbenzene 5
Xylenes 14
2,4-Dimethylphenol 150
Naphthalene 1,400
2-Methylnaphthalene 230
Acenaphthalene 56
Dibenzofuran 20
Fluorene 13
Phenanthrene 3
Carbazole 51
bis(2-Ethylhexyl)Phthalate 7
HP-13-14-7
Acetone 370
Carbon Disulfide 8
H
Carbon Disu
Diethylphtha
Phenanthrer
Fluoranthen
Pyrene
Chrysene
Benzo(b)Fluo
Benzo(a)Pyr
E 722,750
N 1,696,000
DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG

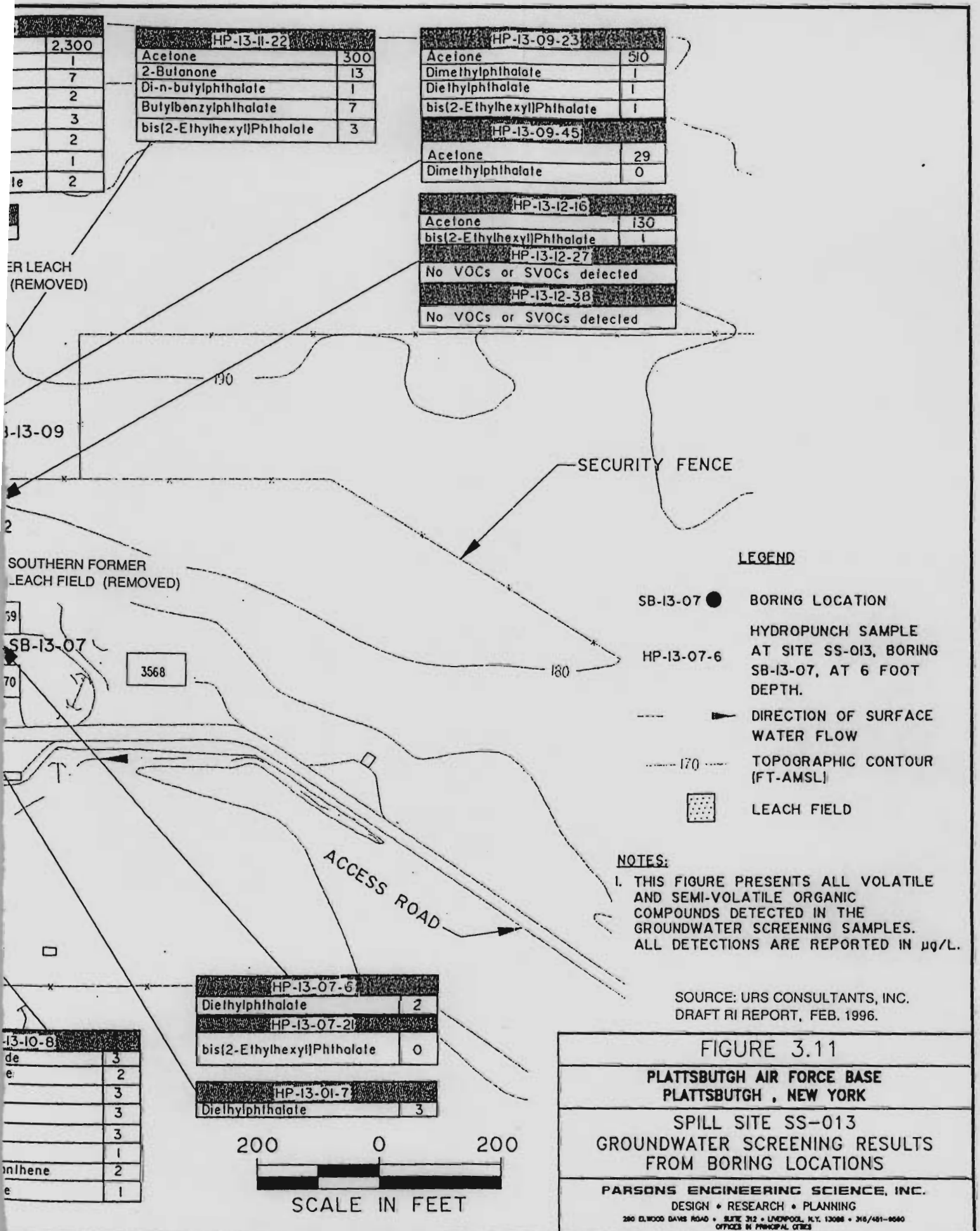
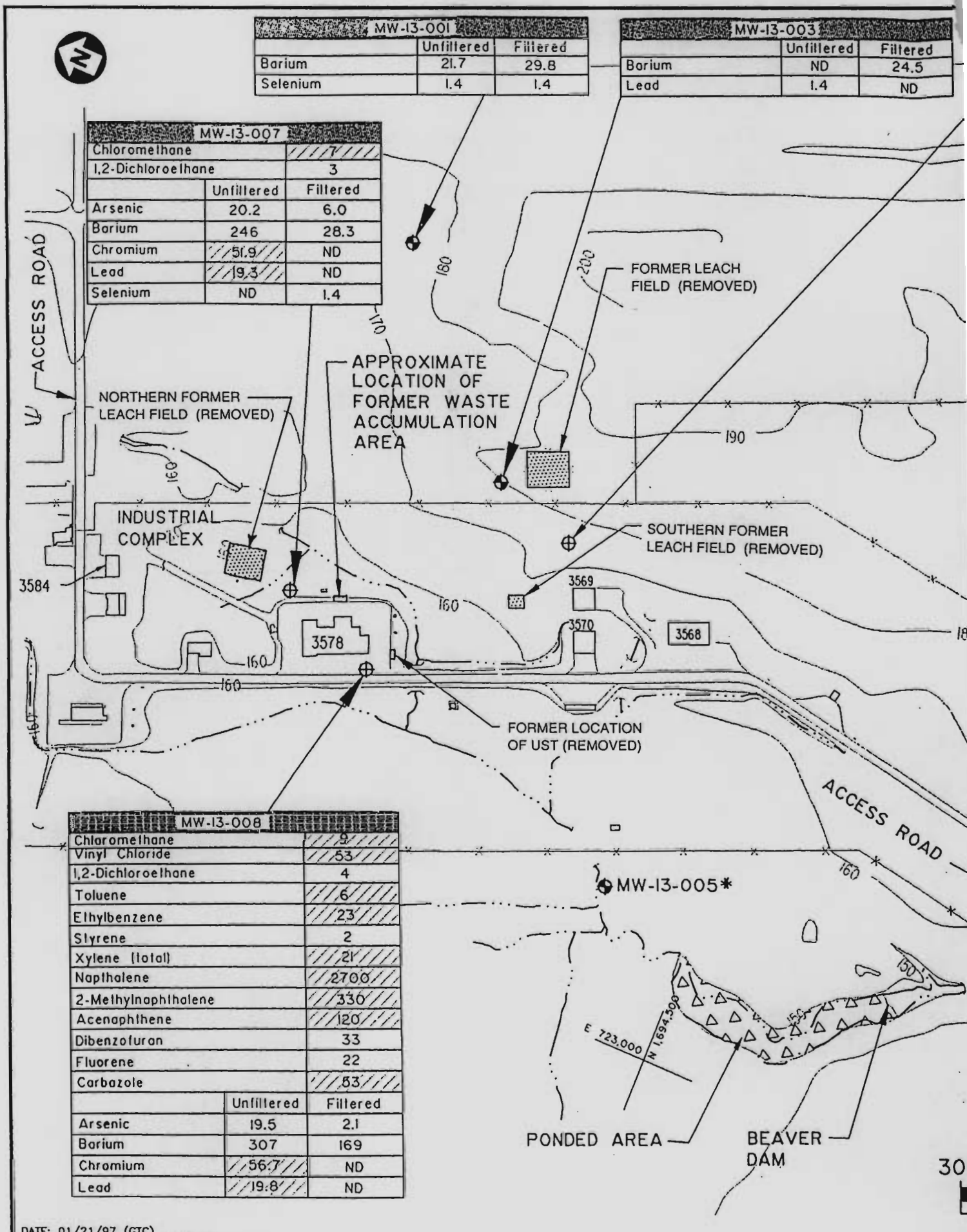


FIGURE 3.11

PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
GROUNDWATER SCREENING RESULTS
FROM BORING LOCATIONS

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES



DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG

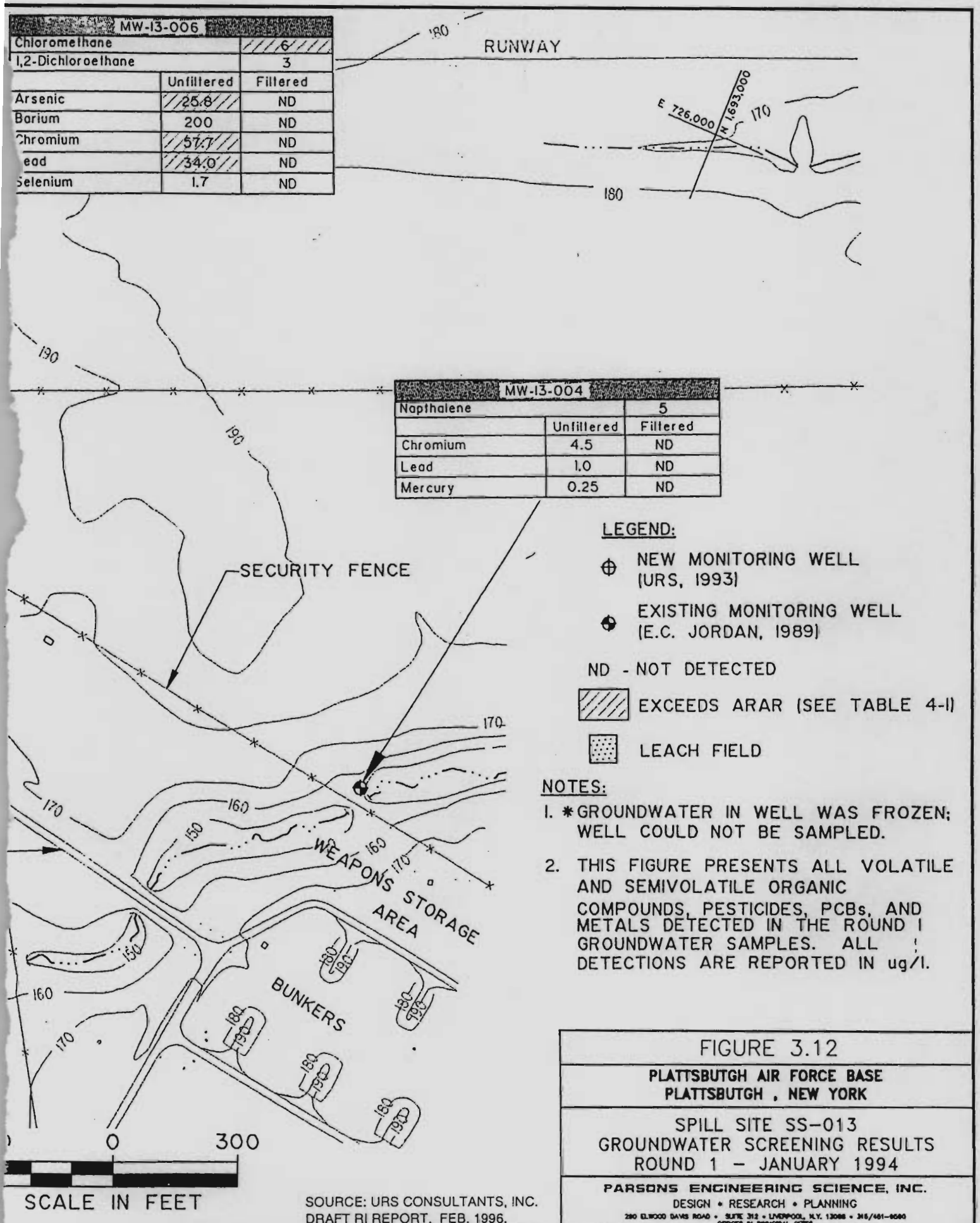
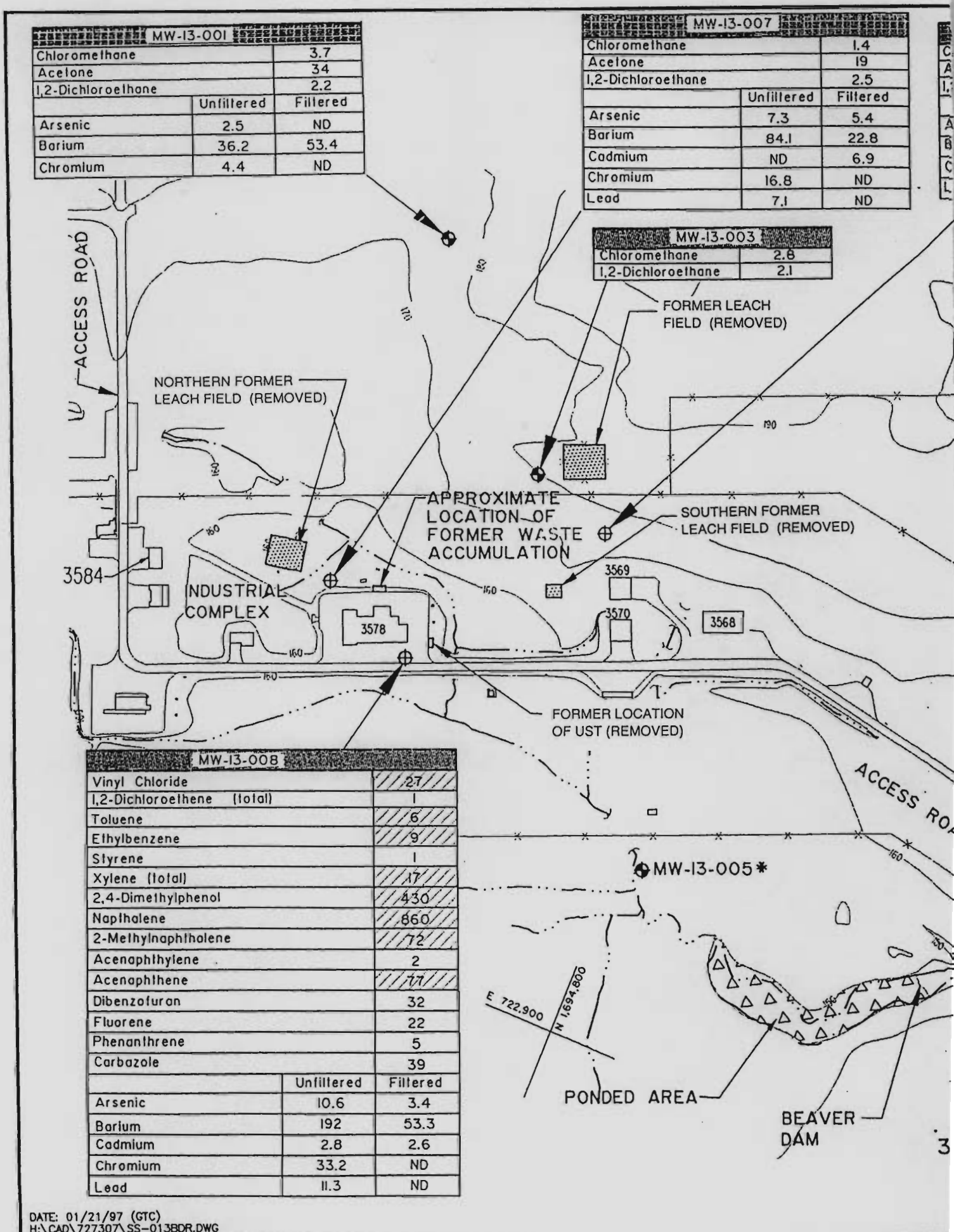


FIGURE 3.12

PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
GROUNDWATER SCREENING RESULTS
ROUND 1 – JANUARY 1994

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 313 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES



DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG

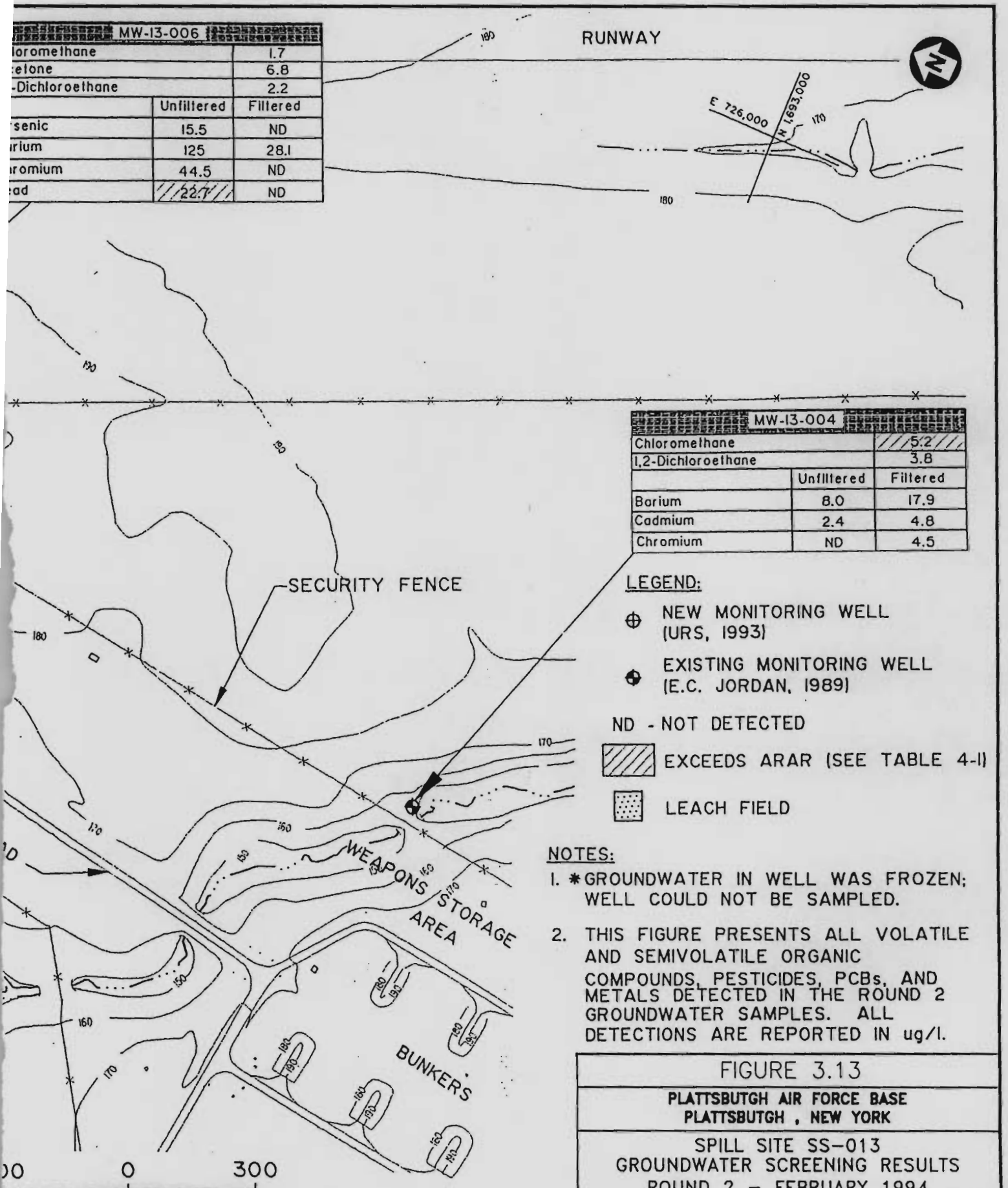
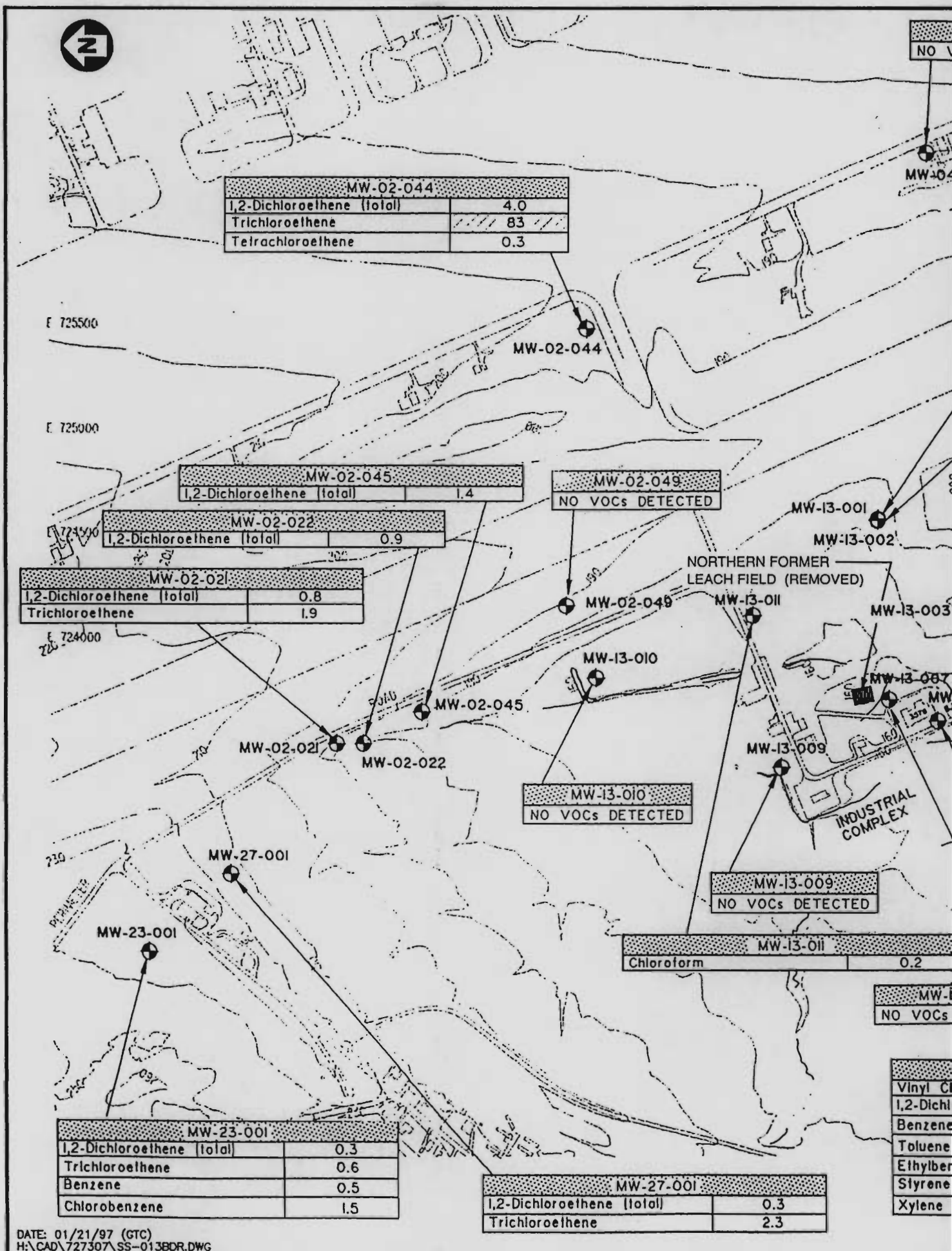


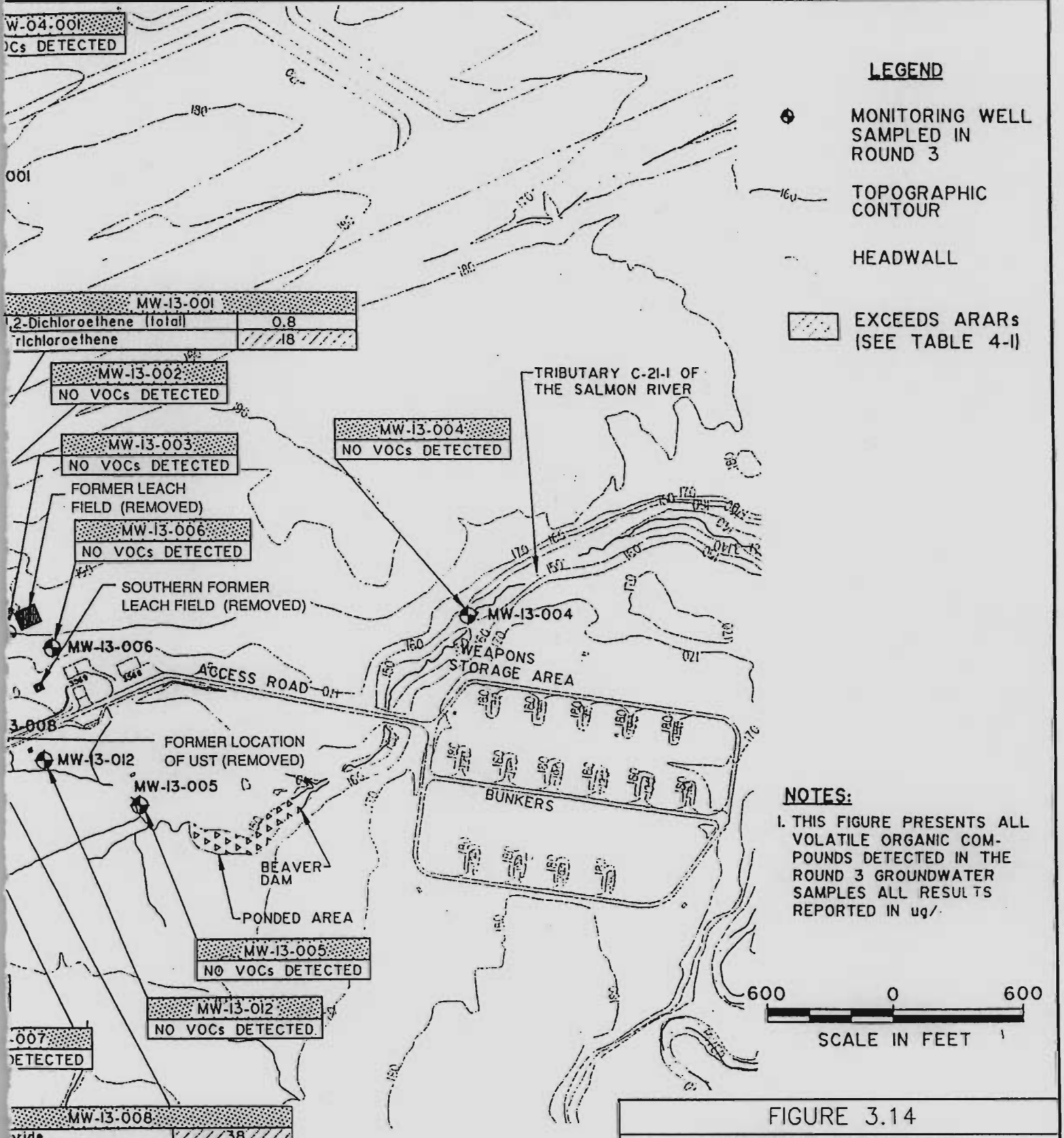
FIGURE 3.13

PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
GROUNDWATER SCREENING RESULTS
ROUND 2 – FEBRUARY 1994

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
200 ELWOOD DAVIS ROAD • SUITE 313 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES


MW-02-044
1,2-Dichloroethene (total) 4.0
Trichloroethene 83
Tetrachloroethene 0.3
MW-02-044
E 725500
E 725000
MW-02-045
1,2-Dichloroethene (total) 1.4
MW-02-022
1,2-Dichloroethene (total) 0.9
MW-02-021
1,2-Dichloroethene (total) 0.8
Trichloroethene 1.9
MW-02-049
NO VOCs DETECTED
MW-13-001
MW-13-002
NORTHERN FORMER LEACH FIELD (REMOVED)
MW-02-049
MW-13-011
MW-13-003
E 724000
MW-13-010
MW-02-045
MW-02-021
MW-02-022
MW-13-009
MW-13-010
NO VOCs DETECTED
INDUSTRIAL COMPLEX
MW-27-001
MW-13-009
NO VOCs DETECTED
MW-23-001
MW-13-011
Chloroform 0.2
MW-23-001
1,2-Dichloroethene (total) 0.3
Trichloroethene 0.6
Benzene 0.5
Chlorobenzene 1.5
MW-27-001
1,2-Dichloroethene (total) 0.3
Trichloroethene 2.3
DATE: 01/21/97 (GTC)
H:\CAD\727307\SS-013BDR.DWG



SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

FIGURE 3.14

PLATTSBUTGH AIR FORCE BASE
PLATTSBUTGH , NEW YORK

SPILL SITE SS-013
GROUNDWATER SCREENING RESULTS
ROUND 3 – OCTOBER 1995

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES

TABLE 3.1

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED ANALYTES IN SURFACE SOIL

ANALYTE	CLASS	*TBC VALUE	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	AVERAGE OF DETECTIONS	LOCATION OF MAXIMUM DETECTION
Methylene Chloride	VOC	100	2/22	46	53	49.5	SS-13-07
Acetone	VOC	200	2/22	40	44	42	SB-13-17-1
1,2-Dichloroethene (total)	VOC	300	1/22	1,300	1,300	1,300	SB-13-17-1
2-Butanone	VOC	300	2/22	24	41	32.5	SB-13-17-1
Trichloroethene	VOC	700	1/22	25	25	25	SB-13-17-1
2-Hexanone	VOC	—	1/22	3	3**	3	SS-13-06
Toluene	VOC	1,500	3/22	4	24,000	9,701	SS-13-17-1
Ethylbenzene	VOC	5,500	1/22	97	97	97	SB-13-17-1
Xylene (total)	VOC	1,200	2/22	2	470	236	SB-13-17-1
Naphthalene	SVOC	13,000	1/22	120	120	120	SS-13-07
Acenaphthene	SVOC	50,000	3/22	24	1,100	488	SS-13-10
Dibenzofuran	SVOC	6,200	3/22	10	540	250	SS-13-10
Diethylphthalate	SVOC	7,100	1/22	3,400	3,400	3,400	SS-13-04
Fluorene	SVOC	50,000	3/22	24	1,200	551.3	SS-13-10
Phenanthrene	SVOC	50,000	8/22	45	9,500	1,679.6	SS-13-10
Anthracene	SVOC	50,000	4/22	28	2,400	815.5	SS-13-10
Carbazole	SVOC	—	3/22	26	1,100	542	SS-13-10
Di-n-butylphthalate	SVOC	8,100	3/22	26	57	45.6	SS-13-13
Fluoranthene	SVOC	50,000	9/22	42	10,000	1,645.2	SS-13-10
Pyrene	SVOC	50,000	9/22	45	7,700	1,277.0	SS-13-10
Butylbenzylphthalate	SVOC	50,000	2/22	45	45	45	SB-13-17-1
Benzo(a)anthracene	SVOC	220	6/22	36	3,700	875.5	SS-13-10
Chrysene	SVOC	400	9/22	41	3,800	672.8	SS-13-10
bis(2-Ethylhexyl)phthalate	SVOC	50,000	3/22	40	60	48	SB-13-16-1
Benzo(b)fluoranthene	SVOC	1,100	9/22	41	2,900	709.2	SS-13-10
Benzo(k)fluoranthene	SVOC	1,100	6/22	40	3,100	716.3	SS-13-10
Benzo(a)pyrene	SVOC	61	7/22	59	3,200	797.4	SS-13-10
Indeno(1,2,3-cd)pyrene	SVOC	3,200	5/22	52	1,900	626.8	SS-13-10
Dibenz(a,h)anthracene	SVOC	41	4/22	23	670	322.8	SS-13-10
Benzo(g,h,i)perylene	SVOC	50,000	4/22	64	810	356	SS-13-10
4,4'-DDE	PEST	2,100	2/4	5.5	5.5	5.5	SS-13-09
4,4'-DDD	PEST	2,900	2/4	0.80	4.6	2.7	SS-13-07
Endosulfan sulfate	PEST	1,000	2/4	2.0	5.2	3.6	SS-13-07
4,4'-DDT	PEST	2,100	3/4	3.4	4.0	3.7	SS-13-07
Methoxychlor	PEST	10,000	1/4	9.4	9.4	9.4	SS-13-07
alpha-Chlordane	PEST	540	1/4	0.55	0.55	0.55	SS-13-06
Aroclor-1254	PCB	1,000	1/4	17	17	17	SS-13-06

Results reported in µg/kg (ppb).

* TBC values from NYSDEC TAGM HWR-94-4046

— - No TBC available.

▒▒▒▒▒▒▒▒▒▒ - Exceeds TBC.

**Maximum value obtained from duplicate sample.

VOC - Volatile Organic Compound

SVOC - Semivolatile Organic Compound

PEST - Pesticide

PCB - Polychlorinated biphenyls

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

TABLE 3.1 (CONT.)

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED ANALYTES IN SURFACE SOIL

ANALYTE	CLASS	*TBC VALUE	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	AVERAGE OF DETECTIONS	LOCATION OF MAXIMUM DETECTION
Aluminum	MET	8510	19/19	1,750	7,620	3,260.0	SS-13-19
Antimony	MET	12.6	1/19	10.5	10.5	10.5	SS-13-04
Arsenic	MET	7.5	22/22	0.32	2.3	1.20	SS-13-11
Barium	MET	300	2/22	4.6	53.9	18.2	SS-13-01
Beryllium	MET	0.74	18/19	0.13	0.44	0.25	SS-13-11
Cadmium	MET	1.3	6/22	0.44	1	0.57	SS-13-04
Calcium	MET	30200	19/19	381	10900	3,017	SS-13-11
Chromium	MET	19.5	22/22	1.8	12.4	6.09	SS-13-04
Cobalt	MET	30	19/19	0.89	5.3	2.05	SS-13-01
Copper	MET	44.1	18/19	1.6	15.4	7.09	SS-13-11
Iron	MET	36,700	19/19	3860	10900	6,245.3	SS-13-01
Lead	MET	79.4	22/22	0.85	66.6	15.3	SS-13-01
Magnesium	MET	3340	19/19	497	3,520	1,272.7	SS-13-11
Manganese	MET	474	19/19	25.0	679	126.2	SS-13-01
Nickel	MET	13	19/19	2.2	8.1	4.4	SS-13-11
Potassium	MET	929	15/19	103	632	341.2	SS-13-02
Sodium	MET	520	13/19	20.3	76.2	38.8	SS-13-13
Thallium	MET	ND	1/19	0.22	0.22**	0.22	SS-13-06
Vanadium	MET	150	19/19	3.9	16.3	8.6	SS-13-01
Zinc	MET	63.4	19/19	7.0	43.8	24.2	SS-13-09
Cyanide	MET	—	1/19	3.5	3.5	3.5	SS-13-07

Results reported in mg/kg (ppm).
Sample SS-13-19 is the background sample.
* TBC values from NYSDEC TAGM HWR-94-4046
— - No TBC available.
▒▒▒ - Exceeds TBC.
**Maximum value obtained from duplicate sample.

MET - Metals.
ND - Not detected.

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

TABLE 3.2

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED ANALYTES IN SUBSURFACE SOIL

ANALYTE	CLASS	*TBC VALUE	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	AVERAGE OF DETECTIONS	LOCATION OF MAXIMUM DETECTION
Vinyl Chloride	VOC	200	1/20	120	120	120	SB-13-03-2
Methylene Chloride	VOC	100	2/20	24	45	34.5	SB-13-04-3
Acetone	VOC	200	4/20	22	510	206.5	SB-13-01-2
1,2-Dichloroethene (total)	VOC	300	2/20	30	97	63.5	SB-13-03-5
2-Butanone	VOC	300	3/20	11	170	65.7	SB-13-01-2
Benzene	VOC	60	1/20	10	10	10	SB-13-01-2
Toluene	VOC	1,500	5/20	0.9	110	28.4	SB-13-01-2
Ethylbenzene	VOC	5,500	1/20	6	6	6	SB-13-06-2
Xylene (total)	VOC	1,200	4/20	3	47	19	SB-13-06-2
1,2-Dichlorobenzene	SVOC	7,900	1/20	23	23	23	SB-13-09-2
1,2,4-Trichlorobenzene	SVOC	3,400	1/20	12	12	12	SB-13-09-2
Naphthalene	SVOC	13,000	2/20	98	100	99	SB-13-10-4
2-Methylnaphthalene	SVOC	36,400	1/20	120	120**	120	SB-13-01-3
Acenaphthylene	SVOC	41,000	1/20	94	94**	94	SB-13-01-3
Acenaphthene	SVOC	50,000	3/20	37	830	318.3	SB-13-10-4
Dibenzofuran	SVOC	6,200	2/20	9	48	28.5	SB-13-01-3
Diethylphthalate	SVOC	7,100	10/20	9	54	29.5	SB-13-01-3
Fluorene	SVOC	50,000	3/20	32	1,400	530.1	SB-13-10-4
Phenanthrene	SVOC	50,000	6/20	27	8,700	1,633.5	SB-13-10-4
Anthracene	SVOC	50,000	4/20	74	2,900	813.5	SB-13-10-4
Carbazole	SVOC	—	2/20	49	1,000	524.5	SB-13-10-4
Fluoranthene	SVOC	50,000	8/20	6	11,000	1,819.9	SB-13-10-4
Pyrene	SVOC	50,000	8/20	5	11,000	1,819.8	SB-13-10-4
Butylbenzylphthalate	SVOC	50,000	3/20	10	80	37	SB-13-05-3
Benzo(a)anthracene	SVOC	224	4/20	160	4,500	1,585	SB-13-10-4
Chrysene	SVOC	400	5/20	130	4,500	1,304	SB-13-10-4
Benzo(b)fluoranthene	SVOC	1,100	4/20	130	3,400	1,225	SB-13-10-4
Benzo(k)fluoranthene	SVOC	1,100	4/20	120	3,900	1,415	SB-13-10-4
Benzo(a)pyrene	SVOC	61	4/20	120	4,100	1,485	SB-13-10-4
Indeno(1,2,3-cd)pyrene	SVOC	3,200	4/20	57	2,700	925	SB-13-10-4
Dibenz(a,h)anthracene	SVOC	14	1/20	450	450	450	SB-13-06-2
Benzo(g,h,i)perylene	SVOC	50,000	2/20	600	2,100	1,350	SB-13-10-2
Dieldrin	PEST	44	1/20	1.8	1.8	1.8	SB-13-10-4
4,4'-DDE	PEST	2,100	5/20	1.1	11	4.02	SB-13-08-4
4,4'-DDD	PEST	2,900	9/20	0.29	3.6	1.6	SB-13-06-2
Endosulfan sulfate	PEST	1,000	1/20	5.8	5.8	5.8	SB-13-06-4
4,4'-DDT	PEST	2,100	3/20	2.9	7.6	5.4	SB-13-08-4
Methoxychlor	PEST	10,000	2/20	0.89	5.3	3.1	SB-13-01-2
Endrin ketone	PEST	—	1/20	20	20	20	SB-13-01-3
alpha-Chlordane	PEST	540	1/20	0.3	0.3	0.3	SB-13-08-2

Results reported in µg/kg (ppb).

* TBC values from NYSDEC TAGM HWR-94-4046

— - No TBC available.

- Exceeds TBC.

**Maximum value obtained from reanalyzed sample.

VOC - Volatile Organic Compound.

SVOC - Semivolatile Organic Compound.

PEST - Pesticide.

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

TABLE 3.2 (CONT.)

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED ANALYTES IN SUBSURFACE SOIL

ANALYTE	CLASS	*TBC VALUE	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	AVERAGE OF DETECTIONS	LOCATION OF MAXIMUM DETECTION
Aluminum	MET	8,510	20/20	1,080	15,500.0	4,839	SB-13-03-2
Antimony	MET	12.6	3/20	6.7	23.6	15.3	SB-13-01-3
Arsenic	MET	7.5	19/20	0.33	27.7	4.2	SB-13-08-2
Barium	MET	300	19/20	2.1	102.0**	23.6	SB-13-03-2
Beryllium	MET	0.74	3/20	0.28	0.62	0.4	SB-13-03-2
Cadmium	MET	1.3	1/20	0.47	0.47	0.47	SB-13-08-2
Calcium	MET	30,200	20/20	335	60,200	10,174.8	SB-13-08-4
Chromium	MET	19.5	20/20	1.7	128	17.1	SB-13-01-2
Cobalt	MET	30	16/20	0.61	9.2	2.8	SB-13-03-2
Copper	MET	44.1	14/20	1.7	43.1	12.5	SB-13-08-4
Iron	MET	36,700	20/20	1,180	25,900	6,923.5	SB-13-03-2
Lead	MET	79.4	19/20	0.49	1,370	82.8	SB-13-08-4
Magnesium	MET	3,340	20/20	218	9,740	2,032.3	SB-13-08-2
Manganese	MET	474	19/20	18.2	441	99.9	SB-13-08-4
Nickel	MET	13	12/20	2.1	20.8	7.6	SB-13-08-4
Potassium	MET	929	14/20	123	1,680	564.2	SB-13-08-4
Selenium	MET	2	3/20	1.2	5.6	2.7	SB-13-01-3
Sodium	MET	520	16/20	28.0	155	62.9	SB-13-08-4
Vanadium	MET	150	12/20	5.1	43.9	14.3	SB-13-03-2
Zinc	MET	63.4	20/20	1.5	115	20.2	SB-13-08-4

Results reported in mg/kg (ppm).

MET - Metals.

* TBC values from NYSDEC TAGM HWR-94-4046

— - No TBC available.

- Exceeds TBC.

**Maximum value obtained from duplicate sample.

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

TABLE 3.3

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED ANALYTES IN SURFACE WATER SAMPLES

ANALYTE	ARAR VALUE	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	AVERAGE OF DETECTIONS	LOCATION OF MAXIMUM DETECTION
1,2-Dichloroethene (total)	-	2/12	4	4	4	SW-13-02
Trichloroethene	11	3/12	2	4	3	SW-13-02
Xylene (total)	-	2/12	4	7	5.5	SW-13-06
bis(2-Ethylhexyl)phthalate	-	2/12	4	12	8	SW-13-01
Barium	-	4/4	19.2	34.8	24.2	SW-13-07
Chromium	3773.94	1/4	10.6	10.6**	10.6	SW-13-12
Silver	20.72	2/4	2.0	2.5	2.3	SW-13-01

Results reported in µg/l (ppb).

** Duplicate sample taken and sample with greater detection value was used.

ARAR value from Draft RI Report, URS Consultants, Feb., 1996.

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

TABLE 3.4

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED ANALYTES IN SEDIMENT SAMPLES

ANALYTE	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	AVERAGE OF DETECTIONS	LOCATION OF MAXIMUM DETECTION
Methylene Chloride	5/12	2	8	5	SD-13-06
Acetone	10/12	10	60	26.7	SD-13-09
2-Butanone	4/12	7	18	11.5	SD-13-09
Toluene	1/12	2	2	2.0	SD-13-09
Naphthalene	1/12	17	17	17	SD-13-05
Acenaphthene	1/12	20	20	20	SD-13-05
Dibenzofuran	1/12	10	10	10	SD-13-05
Diethylphthalate	2/12	20	24	22	SD-13-07
Fluorene	1/12	17	17	17	SD-13-05
Phenanthrene	6/12	13	180	53.7	SD-13-05
Anthracene	1/12	18	18	18	SD-13-05
Carbazole	1/12	87	87	87	SD-13-05
Fluoranthene	8/12	19	200	70.9	SD-13-05
Pyrene	8/12	12	140	69.5	SD-13-08
Benzo(a)anthracene	3/12	28	66	49.3	SD-13-07
Chrysene	5/12	14	75	39.8	SD-13-05
Di-n-octylphthalate	3/12	21	41	31.7	SD-13-06
Benzo(b)fluoranthene	2/12	34	72	53	SD-13-05
Benzo(k)fluoranthene	1/12	50	50	50	SD-13-05
Benzo(a)pyrene	2/12	52	56	54	SD-13-05
Benzo(g,h,i)perylene	1/12	93	93	93	SD-13-11
Aldrin	2/4	0.85	3.2	2.0	SD-13-07
4,4'-DDE	2/4	0.29	2.3	1.3	SD-13-04
4,4'-DDD	1/4	0.85	0.85	0.85	SD-13-07
Aroclor-1248	1/4	53	53	53	SD-13-07

Results reported in µg/kg (ppb).

- One or more detections of this compound exceeded a sample specific TBC value.

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

TABLE 3.4 (CONT.)

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED INORGANIC ANALYTES IN SEDIMENT SAMPLES

ANALYTE	LOWEST EFFECT LEVEL µg/g	SEVERE EFFECT LEVEL µg/g	LEL EXCEEDENCE µg/g	SEL EXCEEDENCE µg/g	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	AVERAGE OF DETECTIONS	LOCATION OF MAXIMUM DETECTION
Aluminum	-	-	-	-	4/4	1,590	3,480	2,355	SD-13-07
Antimony	2.0 (L)	25.0 (L)	SD-13-12 (4.6)		1/4	4.6	4.6**	4.6	SD-13-12
Arsenic*	6.0 (P)	33.0 (P)			4/4	0.37	5.4	2.3	SD-13-04
Barium*	-	-	-	-	4/4	6.8	68.3	28.8	SD-13-04
Cadmium*	0.6 (P)	9.0 (L)	SD-13-04 (0.75)		1/4	0.75	0.75	0.75	SD-13-04
Calcium	-	-	-	-	4/4	872	4,990	2,788	SD-13-07
Chromium*	26.0 (P)	110.0 (P)			4/4	3.6	7.2	5.4	SD-13-07
Cobalt	-	-	-	-	4/4	0.84	3.2	1.9	SD-13-04
Copper	16.0 (P)	110.0 (P)			1/4	2.4	2.4	2.4	SD-13-07
Iron	20,000 (P)	40,000 (P)		SD-13-04 (41,100)	4/4	3,700	41,100	14,400	SD-13-04
Lead*	31.0 (P)	110.0 (L)			4/4	1.1	5.0	2.5	SD-13-07
Magnesium	-	-	-	-	4/4	509	1,390	925.5	SD-13-07
Manganese	460.0 (P)	1100.0 (L)		SD-13-04 (2570)	4/4	83.2	2,570	785.3	SD-13-04
Nickel	16.0 (P)	50.0 (L)			1/4	2.0	2.0**	2.0	SD-13-12
Potassium	-	-	-	-	1/4	218	218	218	SD-13-07
Sodium	-	-	-	-	4/4	25.5	275	148.6	SD-13-04
Vanadium	-	-	-	-	3/4	5.7	11.6	8.0	SD-13-07
Zinc	120.0 (P,L)	270.0 (L)	-	-	4/4	8.2	51.7	25.4	SD-13-04

Results reported in mg/kg (ppm) unless otherwise noted. - Exceeds either Lowest or Severe Effect Level.

* RCRA metals.

**Maximum value obtained from duplicate sample.

Sources:

(L) Long and Morgan (1990)

(P) Persaud et al. (1992)

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

TABLE 3.5

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED ANALYTES IN GROUNDWATER SCREENING SAMPLES

ANALYTE	CLASS	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION	DETECTED MAXIMUM CONCENTRATION	AVERAGE OF DETECTIONS	LOCATION OF MAXIMUM DETECTION
Vinyl Chloride	VOC	2/20	7	21	14	HP-13-15-11
Acetone	VOC	11/20	29	2,300	480.2	HP-13-06-6
Carbon Disulfide	VOC	8/20	3	22	10.6	HP-13-05-5
1,1-Dichloroethane	VOC	1/20	12	12**	12	HP-13-04-6
1,2-Dichloroethene (total)	VOC	2/20	1	5	3	HP-13-03-8
1,2-Dichloroethane	VOC	1/20	36	36**	36	HP-13-04-6
2-Butanone	VOC	2/20	13	49**	31	HP-13-04-6
Toluene	VOC	2/20	4	6	5	HP-13-15-11
Ethylbenzene	VOC	2/20	1	5	3	HP-13-15-11
Xylene (total)	VOC	2/20	7	14	10.5	HP-13-15-11
2,4-Dimethylphenol	SVOC	1/20	150	150	150	HP-13-15-11
Naphthalene	SVOC	1/20	1,400	1,400	1,400	HP-13-15-11
2-Methylnaphthalene	SVOC	1/20	230	230	230	HP-13-15-11
Dimethylphthalate	SVOC	2/20	1	2	1.5	HP-13-06-6
Acenaphthene	SVOC	1/20	56	56	56	HP-13-15-11
Dibenzofuran	SVOC	1/20	20	20	20	HP-13-15-11
Diethylphthalate	SVOC	7/20	1	3	2.1	HP-13-06-6/HP-13-01-7
Fluorene	SVOC	1/20	13	13	13	HP-13-15-11
Phenanthrene	SVOC	2/20	3	3	3	HP-13-10-8/HP-13-15-11
Carbazole	SVOC	1/20	51	51	51	HP-13-15-11
Di-n-butylphthalate	SVOC	2/20	1	2	1.5	HP-13-08-5
Fluoranthene	SVOC	2/20	2	3	2.5	HP-13-10-8
Pyrene	SVOC	2/20	1	3	2	HP-13-10-8
Butylbenzylphthalate	SVOC	2/20	2	7	4.5	HP-13-11-22
Chrysene	SVOC	1/20	1	1	1	HP-13-10-8
bis(2-Ethylhexyl)phthalate	SVOC	7/20	1	7	2.4	HP-13-15-11
Benzo(b)fluoranthene	SVOC	1/20	2	2	2	HP-13-10-8
Benzo(a)pyrene	SVOC	1/20	1	1	1	HP-13-10-8

Results reported in µg/l (ppb).

VOC - Volatile Organic Compound.
SVOC - Semivolatile Organic Compound.
**Maximum value obtained from reanalyzed sample.

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

TABLE 3.6

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED ANALYTES IN GROUNDWATER SAMPLES

ANALYTE	CLASS	ARAR VALUE (µg/l)	ROUND - 1					ROUND - 2				
			FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/l)	DETECTED MAXIMUM CONCENTRATION (µg/l)	AVERAGE OF DETECTIONS (µg/l)	LOCATION OF MAXIMUM DETECTION	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/l)	DETECTED MAXIMUM CONCENTRATION (µg/l)	AVERAGE OF DETECTIONS (µg/l)	LOCATION OF MAXIMUM DETECTION
Chloromethane	VOC	5	3/5	6	8	7.3	MW-13-008	4/5	1.4	5.2	2.8	MW-13-004
Vinyl Chloride	VOC	2	1/5	53	53	53	MW-13-008	1/5	27	27	27	MW-13-008
Acetone	VOC	50	ND	—	—	—	—	2/5	6.8	19	12.9	MW-13-007
1,2-Dichloroethene (total)	VOC	5	ND	—	—	—	—	1/5	1	1	1	MW-13-008
1,2-Dichloroethane	VOC	5	3/5	3	4	3.3	MW-13-008	4/6	2.1	3.8	2.65	MW-13-004
Toluene	VOC	5	1/5	6	6	6	MW-13-008	1/5	6	6	6	MW-13-008
Ethylbenzene	VOC	5	1/5	23	23	23	MW-13-008	1/5	9	9	9	MW-13-008
Styrene	VOC	5	1/5	2	2	2	MW-13-008	1/5	1	1	1	MW-13-008
Xylene (total)	VOC	5	1/5	21	21	21	MW-13-008	1/5	17	17	17	MW-13-008
2,4-Dimethylphenol	SVOC	1	—	—	—	—	—	1/5	430	430	430	MW-13-008
Naphthalene	SVOC	10	2/5	5	2,700	1,352.5	MW-13-008	1/5	860	860	860	MW-13-008
2-Methylnaphthalene	SVOC	50	1/5	330	330	330	MW-13-008	1/5	72	72	72	MW-13-008
Acenaphthylene	SVOC	50	—	—	—	—	—	1/5	2	2	2	MW-13-008
Acenaphthene	SVOC	20	1/5	120	120	120	MW-13-008	1/5	77	77	77	MW-13-008
Dibenzofuran	SVOC	50	1/5	33	33	33	MW-13-008	1/5	32	32	32	MW-13-008
Fluorene	SVOC	50	1/5	22	22	22	MW-13-008	1/5	22	22	22	MW-13-008
Phenanthrene	SVOC	50	—	—	—	—	—	1/5	5	5	5	MW-13-008
Carbazole	SVOC	50	1/5	83	83	83	MW-13-008	1/5	39	39	39	MW-13-008
Arsenic (Unfiltered)	MET	25	3/5	19.5	25.8	21.8	MW-13-006	3/5	7.3	15.5	11.1	MW-13-006
Barium (Unfiltered)	MET	1,000	3/5	200	307	251.0	MW-13-008	4/5	8	192	102.3	MW-13-008
Cadmium (Unfiltered)	MET	5	—	—	—	—	—	2/5	2.4	2.8	2.6	MW-13-008
Chromium (Unfiltered)	MET	50	4/5	4.5	87.7	42.7	MW-13-006	3/5	16.8	44.5	31.5	MW-13-006
Lead(Unfiltered)	MET	15	5/5	1.4	34	15	MW-13-006	3/5	7.1	22.7	13.7	MW-13-006
Mercury(Unfiltered)	MET	2	1/5	0.25	0.25	0.25	MW-13-004	—	—	—	—	—
Selenium(Unfiltered)	MET	10	1/5	1.7	1.7	1.7	MW-13-006	—	—	—	—	—
Arsenic(Filtered)	MET	25	2/5	2.1	6.3**	4.2	MW-13-007	2/5	3.4	5.4	4.4	MW-13-007
Barium(Filtered)	MET	1,000	3/5	24.5	169	74	MW-13-008	4/5	17.9	53.3	30.5	MW-13-008
Cadmium(Filtered)	MET	5	—	—	—	—	—	3/5	2.6	6.9	4.8	MW-13-007
Chromium(Filtered)	MET	50	—	—	—	—	—	1/5	4.5	4.5	4.5	MW-13-004
Selenium(Filtered)	MET	10	1/5	1.4	1.4	1.4	MW-13-001,007	—	—	—	—	—

* - Average of Round 1 and Round 2 results.
ARAR value from Draft RI Report
- Exceeds ARAR.
ND - Not detected.
**Maximum value obtained from duplicate sample.

VOC - Volatile Organic Compound.
SVOC - Semivolatile Organic Compound.
MET - Metals.
µg/l is equivalent to (ppb).

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

TABLE 3.6 (CONT.)

MUNITIONS MAINTENANCE SQUADRON (SS-013) - REMEDIAL INVESTIGATION
DETECTED ANALYTES IN GROUNDWATER SAMPLES

ANALYTE	CLASS	ARAR VALUE (µg/l)	ROUND - 3				
			FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/l)	DETECTED MAXIMUM CONCENTRATION (µg/l)	AVERAGE OF DETECTIONS (µg/l)	LOCATION OF MAXIMUM DETECTION
Vinyl Chloride	VOC	2	1/21	38	38	38	MW-13-008
1,2-Dichloroethene (total)	VOC	5	8/21	0.3	4.0	1.3	MW-02-044
Chloroform	VOC	7	1/21	0.2	0.2	0.2	MW-13-011
Trichloroethene	VOC	5	5/21	0.6	83	21.2	MW-02-044
Benzene	VOC	0.7	2/21	0.5	4.1	2.3	MW-13-008
Tetrachloroethene	VOC	5	1/21	0.3	0.3	0.3	MW-02-044
Toluene	VOC	5	1/21	4.7	4.7	4.7	MW-13-008
Chlorobenzene	VOC	5	1/21	1.5	1.5	1.5	MW-23-001
Ethylbenzene	VOC	5	1/21	4.4	4.4	4.4	MW-13-008
Styrene	VOC	5	1/21	1.0	1.0	1.0	MW-13-008
Xylene (total)	VOC	5	1/21	15.0	15.0	15.0	MW-13-008

ARAR value from Draft RI Report

- Exceeds ARAR.

VOC - Volatile Organic Compound

µg/l is equivalent to (ppb).

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

SECTION 4

THREATS TO PUBLIC HEALTH, WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

4.1 THREATS TO PUBLIC HEALTH, WELFARE OR THE ENVIRONMENT

4.1.1 Hazard Identification

As reported previously in this document, environmental sampling has shown elevated levels of VOCs, SVOCs and metals. Compounds detected include benzo anthracenes, benzo(a)pyrene, benzo fluoranthrenes, chrysene, toluene, magnesium, and aluminum in surface and subsurface soil samples at the FWAA. However, when magnesium, aluminum and other metals were detected in the soil near the FWAA, the concentrations were not greater than two times the background concentration (Table 4.1). Direct human contact with these contaminants is possible due to the shallow depth of occurrence.

For the purposes of this Action Memorandum, chemical contamination is discussed in the context of the potential for additional degradation of groundwater which may be used for public consumption. The potential for contamination to leach from soils into the groundwater is what has prompted this removal action.

4.1.2 Description of Contaminants

For the purposes of this Action Memorandum, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthrene, and toluene have been chosen as the representative contaminants at this site, due to their toxicity, presence in the subsurface, and inclusion in NYSDEC TAGM HWR-94-4046. Following soil excavation, confirmatory soil samples will be collected and analyzed for these compounds and total VOCs to ensure that soil containing elevated concentrations of VOCs and SVOCs has been removed.

4.1.2.1 Toxicity

The primary references for toxicity data for all compounds included:

- USEPA, 1994. Integrated Risk Information System (IRIS). On-line data base. March.
- USEPA, 1994a. Health Effects Assessment Summary Tables (HEAST). Office of Emergency and Remedial Response. March.

Benzo(a)anthracene, Benzo(a)pyrene, and Benzo(b)fluoranthrene: In general ingestion, inhalation, and dermal contact with high molecular weight PAHs including benzo(a)anthracene, benzo(a)pyrene and benzo(b)fluoranthrene have been shown to

produce tumors in laboratory animals. Reports in humans show that individuals exposed by inhalation or dermal contact for long periods to mixtures of PAHs can develop cancer. However, the relationship of exposure to any individual PAH with the onset of cancer is unclear. The USEPA has placed benzo(a)anthracene, benzo(a)pyrene and benzo(b)fluoranthrene in weight-of-evidence and Group B2, indicating that they are probable human carcinogens.

Toluene: In general, toluene acts primarily on the central nervous system. Reports in humans show that individuals exposed to toluene by inhalation for long periods can result in temporary euphoria, headaches, dizziness, convulsions, nausea, brain damage, and central nervous system impairment. Dermal contact with toluene by humans may cause skin damage. Oral exposure to toluene by animals resulted in brain damage in some cases. The USEPA has placed toluene in weight-of evidence Group D, indicating that it is not classifiable as to human carcinogenicity.

4.1.2.2 Fate and Transport

The primary reference for the fate and transport information was:

- Howard, P.H., 1990. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Vol. II: Solvents. Lewis Publishers, Inc. Chelsea, Michigan.

Benzo(a)anthracene, Benzo(a)pyrene and Benzo(b)fluoranthrene: In general, high molecular weight PAHs including benzo(a)anthracene, benzo(a)pyrene and benzo(b)fluoranthrene adsorb to soil particles and resist movement through soil. The primary removal mechanism for high molecular weight PAHs in soil is biodegradation. PAHs in surface water are removed by volatilization, binding to particles and sediments, bioaccumulation, and sorption onto aquatic biota. Half-lives for benzo(a)anthracene and benzo(a)pyrene have been estimated at greater than 100 hours. High molecular weight PAHs present in the atmosphere are generally sorbed to particles and may be transported great distances by the wind. They are subject to photodegradation as well as wet or dry deposition.

Toluene: Much of the toluene released to surface soil will be lost to volatilization. It is mobile in soils and will leach to groundwater. Biodegradation occurs slowly in soil and groundwater, but is inhibited by high concentrations. Under ideal conditions of low concentration and acclimated microbial populations, rapid biodegradation may occur. Losses from surface water occur due to volatilization and biodegradation. It will not significantly adsorb to sediment or bioconcentrate in aquatic organisms. In the atmosphere it will degrade or be washed out with rain.

4.1.3 Contaminant Action Levels

At the present time, there are no federal standards for soil cleanup. Therefore, other criteria will be used to evaluate site contamination. Cleanup of the vadose zone soils at the FWAA at PAFB will be considered complete when the maximum allowable soil concentrations for benzo(a)anthracene, benzo(a)flouranthrene, benzo(a)pyrene, toluene,

and total VOCs specified in column a, Table 1, Appendix A of NYSDEC TAGM HWR-94-4046 are met. No contaminant action levels are presented for metals based on the lack of any exceedence greater than two times the background concentrations for PAFB.

The recommended cleanup objectives (RCOs) for the representative compounds found at the FWAA are the maximum allowable soil concentrations as specified under NYSDEC TAGM HWR-94-4046 and are as follows:

4.1.3.1 Benzo(a)anthracene (RCO = 30 µg/kg)

Benzo(a)anthracene was detected during the 1996 Remedial Investigation at a maximum concentration of 4,500 µg/kg at location SB-13-10-4. This value exceeds the 30 µg/kg allowable contaminant concentration in soil provided in TAGM 4046.

4.1.3.2 Benzo(a)pyrene (RCO = 110 µg/kg)

Benzo(a)pyrene was detected during the 1996 Remedial Investigation at a maximum concentration of 4,100 µg/kg at location SB-13-10-4. This value exceeds the 110 µg/kg allowable concentration as provided in TAGM 4046.

4.1.3.3 Benzo(b)fluoranthene (RCO = 11 µg/kg)

Benzo(b)fluoranthene was detected during the 1996 Remedial Investigation at a maximum concentration of 3,400 µg/kg at location SB-13-10-4. This value exceeds the 11 µg/kg allowable concentration as provided in TAGM 4046.

4.1.3.4 Toluene (RCO = 15 µg/kg)

Toluene was detected during the 1996 Remedial Investigation at a maximum concentration of 24,000 µg/kg at location SB-13-17-1. This value exceeds the 15 µg/kg allowable concentration as provided in TAGM 4046.

4.1.3.5 Total Volatile Organic Compounds (RCO = 10,000 µg/kg)

TAGM 4046 limits soil cleanup objectives for total VOCs to less than or equal to 10 mg/kg (10,000 µg/kg). Total VOCs were detected during the 1996 RI above this limit at four locations (i.e. SB-13-6-2, SS-13-10, SB-13-17-1, and SS-13-07).

4.1.4 Conclusions

Field investigations at the FWAA indicate elevated levels of certain VOCs, SVOCs, and metals. The soil cleanup objectives for VOCs and SVOCs in TAGM 4046 are based on protection of groundwater. Comparing the various VOC and SVOC concentrations detected in site soil samples to these objectives indicates that there is a potential for several of the VOCs and SVOCs present at the FWAA to leach into groundwater at concentrations that would exceed the NYSDEC groundwater and New York State Department of Health drinking water standards.

Because the maximum concentrations of metals in site soils near the former waste accumulation area were not greater than two times the background levels for PAFB, this action memorandum has not considered metals to be contaminants of concern. If higher metals concentrations are detected in the additional soil samples to be collected prior to excavation at the site, they will be addressed at that time.

The samples collected at the FWAA during the 1993 through 1995 Remedial Investigation efforts were analyzed for VOCs, SVOCs, pesticides/PCBs, and metals. The cleanup levels for the FWAA are based on TAGM HWR-94-4046 for selected VOCs and SVOCs. Based on the lack of significant metals, pesticides or PCB exceedences near the former waste accumulation area, the cleanup objectives are limited to the representative VOCs and SVOCs listed in Section 4.1.3 of this Action Memorandum for this removal action.

TABLE 4.1

BACKGROUND INORGANIC SURFACE SOIL CONSTITUENT CONCENTRATIONS PLATTSBURGH AIR FORCE BASE

CHEMICAL	BACKGROUND CONCENTRATION (mg/kg or ppm)
Aluminum	8510
Antimony	12.6
Arsenic	3.4
Barium	101
Beryllium	0.74
Cadmium	1.3
Calcium	30200
Chromium	19.5
Cobalt	9.2
Copper	44.1
Iron	36700
Lead	79.4
Magnesium	3340
Manganese	474
Mercury	0.65
Nickel	12.6
Potassium	929
Selenium	1.65
Sodium	520
Vanadium	90.2
Zinc	63.4

Note:

Background concentration shown are the 95% Upper Tolerance Limit (UTL) on the mean concentrations of 27 Surface Soil samples collected in "background" (Non-IRP) areas of Plattsburgh Air Force Base. If the calculated 95% UTL exceeded the maximum detected background concentration, then the maximum detected concentration was used as the final 95% UTL (Background Concentration shown above).

Source:

URS Consultants Inc., 1995. Background Surface Soil & Groundwater Survey for the Plattsburgh Air Force Base.

SOURCE: URS CONSULTANTS, INC.
DRAFT RI REPORT, FEB. 1996.

SECTION 5

ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment. If this removal action is not implemented, there is a potential for the contaminants to leach through the soil, reach the groundwater and migrate off-site. This may increase the potential for contact with off-site receptors, through the use of contaminated groundwater as a potable water source. The intention of the proposed action is to remedy the potential for release of contaminants to the local groundwater and the possible migration of the contamination off-site.

SECTION 6

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 FWAA by removing the VOCs and SVOCs present in vadose zone soils. The preferred alternative for the vadose zone soils is based on available site information and will include excavation and proper treatment/disposal of the excavated soil. If the soil is found to be RCRA hazardous via TCLP analysis, it will be sent off-site for proper treatment/disposal. If the excavated soil is found to be RCRA non-hazardous, it will be either landfarmed onsite or sent for appropriate off-site treatment/disposal. The decision to either landfarm the soil or send it off-site for treatment/disposal will be based on the volume of soil and the status of the on-site landfarm during implementation of this removal action.

If on-site landfarming of the soil is to be implemented, the excavated soil will be treated in a separate area of the base landfarm that is currently located at the former Alert Area on the flightline. The soil would be segregated completely from all other contaminated soil at the base landfarm area. Once treatment of the soil is complete (i.e., meets NYSDEC TAGM HWR-94-4046 for all VOCs and SVOCs), the soil would be used as fill material within the former base boundaries

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 or, depending on the size of the excavation, at least one sample per every 50 feet along the perimeter and per every 625 square feet (25-foot centers) of the bottom of the excavation. The samples will be analyzed for the representative VOCs via EPA Method 8020 and for the representative semi-volatile organic compounds via EPA Method 8270.

6.1.2 Treatment Area

Soils will be remediated to TAGM 4046 cleanup levels for the representative VOCs and SVOCs (toluene, total VOCs, benzo(a)anthracene, benzo(a)flouranthrene, and benzo(a)pyrene). These cleanup objectives are outlined in Section 4 of this document. Data obtained from the RI indicates benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthrene and toluene were most frequently detected near the FWAA. Metals are not considered as contaminants of concern near the FWAA because there are no indications that metals concentrations in the soil exceed two times the maximum background concentrations for PAFB. Additional soil samples will be collected from the FWAA and analyzed for all TAGM list VOCs, SVOCs and metals as part of the removal

action. If metals are found to exceed twice the PAFB background, the Air Force would address metals at that time.

6.1.3 Detailed Description

Based on the limited number of soil samples collected in the area near the former waste accumulation area, additional soil samples will be collected adjacent to the former solvent storage pad at the FWAA to better delineate the extent of contamination prior to the removal action. This investigation will consist of collecting a total of four soil samples, one from within five feet of each side of the former solvent storage pad. Soil borings will be installed to near the groundwater table. Soil samples exhibiting evidence of contamination will be analyzed for target contaminants including TAGM list VOCs, SVOCs and metals. Soil that exceeds the RCO values outlined in Section 4 of this document will be excavated and treated as described below.

Based on the existing information, the soil in the shaded areas shown on Figure 6.1 will be excavated to the top of groundwater encountered during the proposed removal action. The concrete pad will be removed from the excavation area and will be disposed of in a NYSDEC approved hazardous waste landfill. The limits shown on Figure 6.1 are based on RI data. However, it is proposed that excavation proceed until the TAGM RCOs as listed in Section 4 of this document are reached.

The excavated soil will be stockpiled and tested for RCRA toxicity characteristics via TCLP analysis. One composite sample will be collected for every 250 cubic yards of excavated soil. If the soil is found to be hazardous, it will be sent off-site for appropriate treatment/disposal. If the soil is found to be non-hazardous, it will either be landfarmed on-site for sent off-site for appropriate treatment/disposal. The decision of landfarming or off-site treatment/disposal of the non-hazardous soil will be based on the volume of soil and the current status of the base landfarm. The Air Force will confer with the NYSDEC and EPA prior to selection of treatment/disposal option for the non-hazardous excavated soil.

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 detector and field analysis kits for PAHs and toluene). 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 or, depending on the size of the excavation, at least one sample per every 50 feet along the perimeter and per every 625 square feet (25-foot centers)of the bottom of the excavation. The samples will be analyzed the representative volatile organic compounds via EPA Method 8020 and for the representative semi-volatile organic compounds via EPA Method 8270 as listed in Section 4.1.3 of this Action Memorandum. The samples will be analyzed on a 48-hour turnaround basis to expedite the removal action. Once the RCOs for the selected VOCs and SVOCs have been reached at the excavation side walls, excavation will be discontinued, and the excavation backfilled with clean fill from a

periodically tested and confirmed-clean borrow pit. The site will then be seeded and mulched.

6.1.4 Disposal of Waste

Soils excavated from the FWAA 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 the FWAA and prevent contaminants from leaching into the groundwater or further contaminating local surface water or sediments. The main objective of the remedial action is to remediate the soils containing toluene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthrene and other VOCs and SVOCs.

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 and SVOCs, its cost effectiveness, and its implementability.

6.1.7 Engineering Evaluation/Cost Analysis (EE/CA)

An engineers evaluation and cost analysis was not performed for this site. "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).

- (Title 49, Parts 171 through 179, Code of Federal Regulations).
- TAGM HWR-94-4046 Determination of Soil Cleanup Objectives and Cleanup Levels (Revised) January 24, 1994.
- NYSDEC Air Regulations (Title 6, NYCRR Part 200).
- NYSDEC Air Regulations (Title 6, NYCRR Part 201).
- NYSDEC Air Regulations (Title 6, NYCRR Part 211).
- NYSDEC Air Regulations (Title 6, NYCRR Part 212).
- NYSDEC Air Regulations (Title 6, NYCRR Part 257).
- Air Guide 1 - Guidelines for the Control of Toxic Ambient Air Contaminants.

6.1.8.2 Removal Action

The National Oil and Hazardous Substance Pollution Contingency Plan (NCP) Section 300.415 lists eight factors which shall be considered in determining the appropriateness of a removal action. The following factors apply to the FWAA:

- 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;
- Actual or potential contamination of drinking water supplies or sensitive ecosystems (i.e. surface water or sediments); hazardous substances or pollutants in soils may migrate to areas with sensitive ecosystems; and
- Other situations or factors that may pose threats to the public health or welfare or the environment (i.e., the possibility for groundwater contamination).

The following factors do not apply to the FWAA:

- 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;
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released do not exist at the site;
- 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 Final Action Memorandum for the FWAA at Site SS-013

by the USEPA and NYSDEC. To meet time objectives, the following schedule is proposed:

- March 1997 — Submit Action Memorandum to USEPA and NYSDEC.
- April 1997 — Begin and complete excavation of all FWAA contaminated soils and backfill.
- July 1997 — Submit Draft Closure Report to NYSDEC and USEPA.
- August 1997 — Submit Final Closure Report to NYSDEC and USEPA.

6.2 ESTIMATED COSTS

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

- The area to be remediated as shown in Figure 6.1.
- The volume of soil to be excavated and placed in the landfarming management area is estimated at 100 cubic yards.
- The work will be done by one prime contractor who may subcontract some work items.

The total cost estimated for the removal action is between $ 200,000 and $ 400,000.

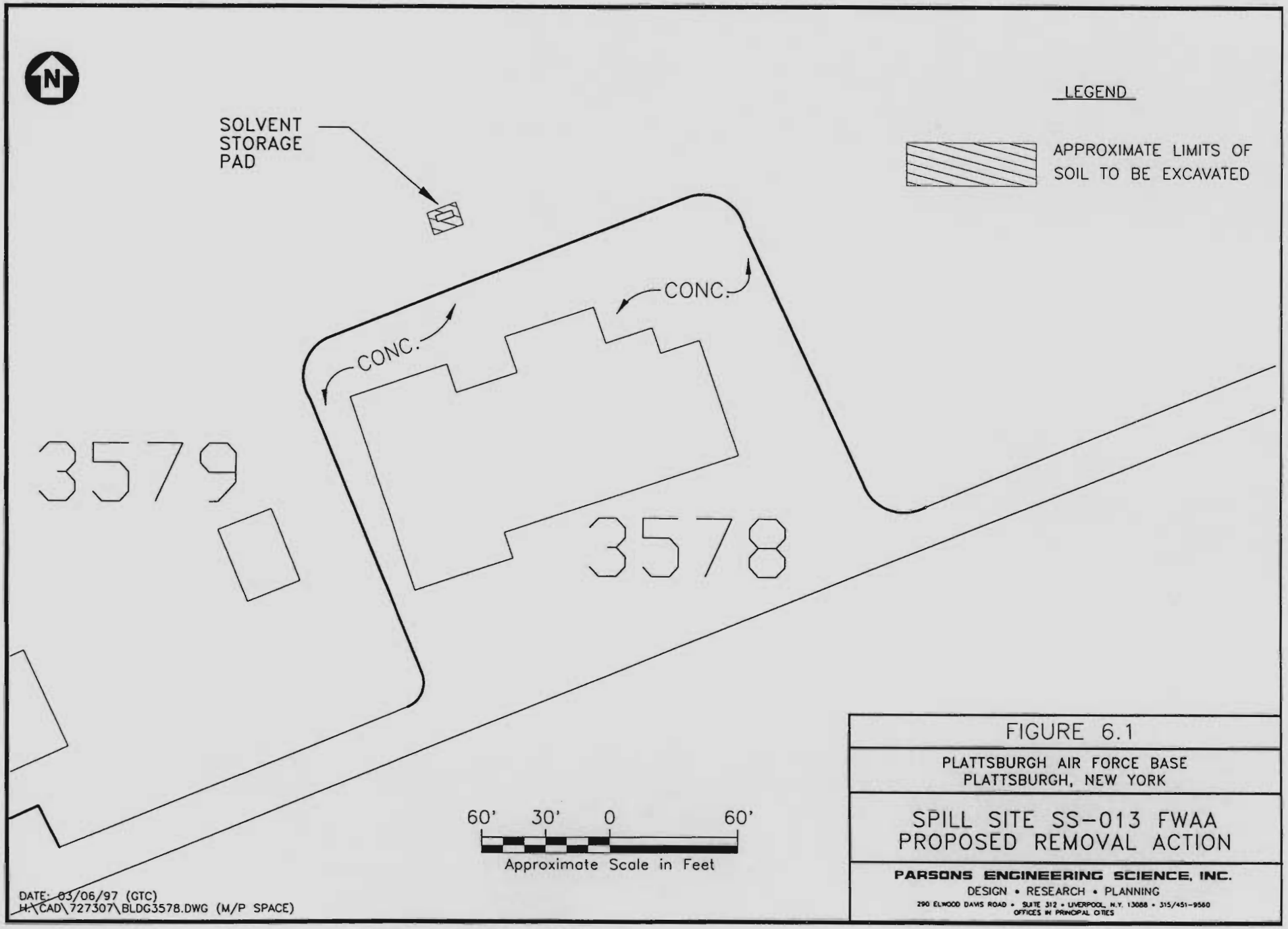


FIGURE 6.1

PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

SPILL SITE SS-013 FWAA
PROPOSED REMOVAL ACTION

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING
290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, N.Y. 13088 • 315/451-9560
OFFICES IN PRINCIPAL CITIES

SECTION 7

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

As previously discussed, there is a potential for VOCs and SVOCs 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. Should this occur, exposure to human populations, animals, or the food chain could occur.

SECTION 8

REFERENCES

ABB Environmental Services, Inc., and URS Consultants, Inc., 1993. Draft Final FT-002 Groundwater Remedial Investigation Report: Plattsburgh Air Force Base, Plattsburgh, New York, May.

Giese, G.L., and Hobba, W.A., Jr., 1970. Water Resources on the Champlain-Upper Hudson Basins in New York State: New York State Office of Planning Coordination, Albany, New York.

Howard, P.H., 1990. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Vol. II: Solvents. Lewis Publishers, Inc., Chelsea, Michigan.

Malcolm Pirnie, Inc., 1993. Draft Remedial Investigation Report Attachment I Sites: SS-005, SS-006, SS-017, and SS-018.

NYSDEC Division of Hazardous Waste Remediation, 1994. Technical and Administrative Guidance Memorandum, "Determination of Soil Cleanup Objectives and Cleanup Levels". HWR-94-4046, January.

Radian Corporation, 1985. Installation Restoration Program - Phase 1 Records Search Plattsburgh AFB, New York, April.

URS Consultants, Inc., 1996 Munitions Maintenance Squadron (SS-013) Remedial Investigation Report, Plattsburgh Air Force Base Installation Restoration Program, Volume 1 of 2, March.

URS Consultants, Inc., 1995. Background Surface Soil and Groundwater Survey for the Plattsburgh Air Force Base.

U.S. Environmental Protection Agency, 1990. Superfund Removal Procedures, Action Memorandum Guidance, OSWER Directive 9360.3-01.

U.S. Environmental Protection Agency, 1994. Integrated Risk Information System (IRIS). On-line Data Base. March.

U.S. Environmental Protection Agency, 1994a. Health Effects Assessment Summary Tables (HEAST). Office of Emergency Remedial Response. March.