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NAS WHITING FIELD
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SITE ASSESSMENT REPORT SITE 1438-1439 NAS WHITING FIELD FL
4/1/1998
ABB ENVIRONMENTAL SERVICES, INC

45

SITE ASSESSMENT REPORT
SITE 1438-1439

NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA

UNIT IDENTIFICATION CODE: N60508
CONTRACT NO.: N62467-89-D-0317/110

APRIL 1998

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29418

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NAS WHITING FIELD
MILTON, FLORIDA

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SITE 1438-1439

APRIL 1998

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NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29418

QAL ...LITY ANALYTICAL ...ORATORIES, INC.

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

Project # CTO 110

Purchase Order # —

Project Name NAS Whiting Field

Company Name ABB Environmental Services

Project Manager or Contact & Phone # Terry Hansen - TLH

Report Copy to: Blake Svendsen - TLH

Requested Completion Date: Standard

Site ID UST Site 7 1438/39

Sample Disposal: Dispose ☐ Return ☐

☐ **LGN** One Innovation Drive, Suite C, Alachua, FL 32615-9586, (904) 462-3050 FAX (904) 462-1670

☐ **LRD** 5090 Caterpillar Road, Redding, CA 96003-1412, (916) 244-5227 FAX (916) 244-4109

☐ **LMG** 2567 Fairlane Drive, Montgomery, AL 36116-1622, (334) 271-2440 FAX (334) 271-3428

☐ **LKW** Canviro Analytical Laboratories, Inc., 50 Bathurst, Unit 12, Waterloo, Ontario, Canada N2V 2C5, (519) 747-2575 FAX (519) 747-3806

THIS AREA FOR LAB USE ONLY

Lab #	Page	of
Client Service	Price Source A P Q S	
Acct Code	Test Group	
Project Code	Ack. Gen.	
LIMS Ver	Login	Mult.
COC Review		

ANALYSES REQUESTED

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	QC ID (3 CHAR)	# OF CONTAINERS	40ml vials Dissolved Methane	125ml Amber Specific Petroleum dry residue	125ml Amber Total Bacteria	500ml H_2SO_4 TOC	1 liter H_2SO_4 TKN	1 liter Amber 8100 / Fingerprint	1 liter Solid Iron, SO_4 $NO_3/_2$ / NH_3, Total Phos			SAMPLE REMARKS	LAB 1 ID	LAB 2 ID
6/10/97	1210		X	X		U7G00301		8	2	1	1	1	1	1	1					
6/10/97	1535		X	X		U7G00101		8	2	1	1	1	1	1	1					
6/11/97	0845		X	X		U7G00201		8	2	1	1	1	1	1	1					

1 Bottle Broken (FY) open cap (FY)

Broken cap (FY)

Sampled By & Title (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
[signature]	6/11/97 0940	Send out	
Received By (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Received By (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Received By (Please sign and print name)	Date/Time	Shipped Via UPS Fed-Ex Other _____	Shipping #

HAZWRAP/NESSA: Y N

EDATA: Y N

QC LEVEL 1 2 3 OTHER _____

pH | Ice

Custody Seal | Temp

Batch Remarks: 97-06-009

* all samples had headspace
are good for dissolved IRON (FY)

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - Client

REV 5/95 LAB FORM 340

SITE ASSESSMENT REPORT

SITE 1438-1439

NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA

Unit Identification Code: N60508

Contract No. N62467-89-D-0317/110

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Nick Ugolini, Code 184NJU, Engineer-in-Charge

April 1998

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/110 are complete, accurate, and comply with all requirements of this contract.

DATE: April 9, 1998

NAME AND TITLE OF CERTIFYING OFFICIAL: Terry Hansen, P.G.
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Michael J. Williams, P.G.
Project Technical Lead

(DFAR 252.227-7036)

WF1438&9.SAR
FGW.03.98

FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks as well as conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable to today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Comprehensive Long Term Environmental Action, Navy (CLEAN) underground storage tank (UST) program. This program complies with Subtitle I of the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendments of 1984. In addition, the UST program complies with all appropriate State and local storage tank regulations as they pertain to each naval facility.

The UST program includes the following activities:

- registration and management of Navy and Marine Corps storage tank systems,
- contamination assessment planning,
- site field investigations,
- preparation of contamination assessment reports,
- remedial (corrective) action planning,
- implementation of the remedial action plans, and
- tank and pipeline closures.

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) manages the UST program while the U.S. Environmental Protection Agency and the

Florida Department of Environmental Protection oversee the Navy UST program at Naval Air Station (NAS) Whiting Field.

Questions regarding this report should be addressed to Mr. Jim Holland, Environmental Coordinator, NAS Whiting Field, Milton, Florida, at 904-623-7181, or to Mr. Nicholas Ugolini, SOUTHNAVFACENGCOM, Code 1843, at 843-820-5596.

EXECUTIVE SUMMARY

ABB Environmental Services, Inc. (ABB-ES), was contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to perform a site assessment at the former locations of Tanks 1438 and 1439 at Naval Air Station Whiting Field, Milton, Florida.

The site is the former location of two 218,384-gallon earth-mounded aviation gasoline storage tanks, a pumping station, and underground pipelines. Free product was reported in the excavation area during demolition of the tanks in 1985.

In November 1994, ABB-ES performed a preliminary contamination assessment (PCA) at the site. Soil was sampled at 25 locations for organic vapor analyzer (OVA) analysis to assess the extent of petroleum contamination to a depth approximately 35 feet below land surface (bls) using direct-push technology. Seven piezometers were installed to assess petroleum contamination in the perched water table at the northeast corner of the site. A copy of the PCA report is attached in Appendix A, Previous Investigations.

Based on the 1994 PCA data, a site assessment was performed at Site 1438-1439 to assess the vertical and horizontal extent of petroleum-contaminated soil and groundwater at the site. In addition to the 25 shallow soil borings sampled during the 1994 PCA, soil and groundwater screening samples were collected from 28 locations at the site in April and May 1997. The soil and groundwater screening data were used to plan the monitoring well installation and sampling program performed from May to October 1997.

Seven monitoring wells were installed and three soil samples were collected to assess the horizontal and vertical extent of petroleum-contaminated soil and groundwater at the site. Groundwater analytical results from five monitoring wells sampled during the Installation Restoration (IR) program remedial investigation and feasibility study (RI/FS) were used to assess the downgradient extent of petroleum-related contamination in groundwater. The findings, conclusions, and recommendations of the site assessment are summarized below.

Findings

- Soil at the site consists of interbedded clay, sandy clay, and very fine clayey sand overlying fine to coarse sand and gravel.

- OVA headspace readings of site soil samples ranged from 0 parts per million (ppm) to greater than 5,000 ppm. Excessively contaminated soil as defined in Chapter 62-770, Florida Administrative Code (FAC), was detected in the vicinity of the former locations of Tank 1439, the pumphouse, the associated fuel pipelines, and several of the valve pits.

- Soil sample and Synthetic Precipitation Leaching Procedure (SPLP) analytical results indicated that all petroleum contaminants of concern were detected in concentrations below Chapter 62-770, FAC, Soil Cleanup Target Levels (SCTLs).

- There is a shallow perched water zone in the northeast corner of the site. The perched water zone has little or no hydrogeological significance at the site.

- Groundwater at the site was encountered approximately 100 feet to 110 feet bls. The groundwater flow direction at the site is to the south-southwest.

- Free product was not detected in any soil borings, piezometers, or monitoring wells sampled at the site.

- Petroleum and nonpetroleum compounds including benzene, toluene, ethylbenzene, xylenes, naphthalene, ethylene dibromide, tetrachloroethene, and trichloroethene were detected in groundwater samples from site soil borings and monitoring wells. Concentrations of these compounds exceeded Chapter 62-770, FAC, Groundwater Cleanup Target Levels.

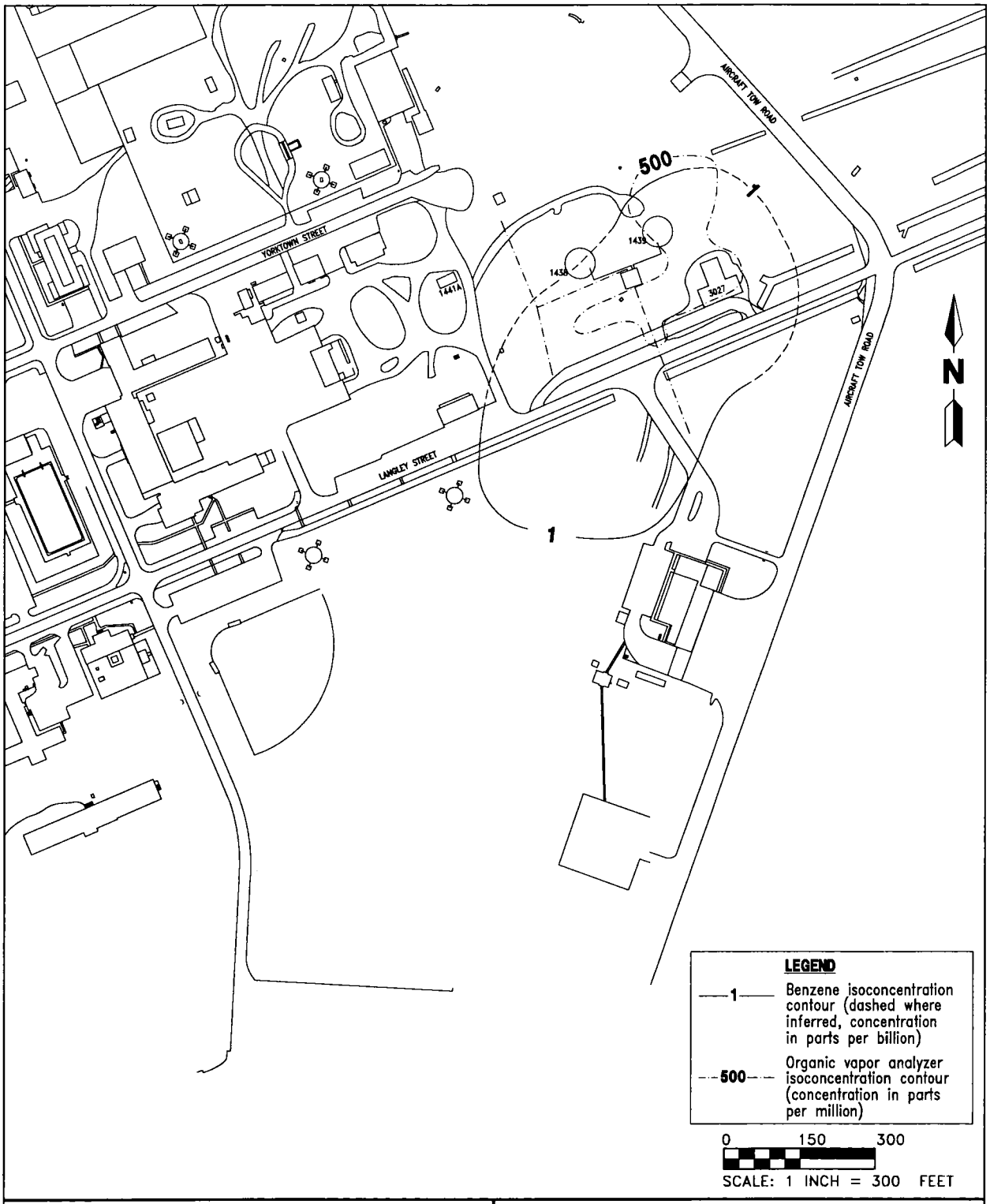
- Three potable wells are located within a 0.25-mile radius of the site. Petroleum contamination associated with Site 1438-1439 does not appear to have affected water quality in these three potable water wells.

Conclusions

Petroleum-contaminated soil and groundwater at Site 1438-1439 resulted from releases associated with fuel storage and transfer operations. Based on SPLP analytical results, excessively contaminated soil at the site is not a source of petroleum-contaminated groundwater. The shallow perched water zone in the northeast corner of the site is not contaminated and has no appreciable hydrogeological significance. Groundwater contamination is confined to the upper zone of the surficial aquifer and has migrated to the south-southwest in the direction of groundwater flow. Tetrachloroethene (PCE) and trichloroethene (TCE) detected in the downgradient monitoring well during the IR program RI/FS are believed to be related to releases from sources other than Site 1438-1439. The Executive Summary figure shows the extent of excessively contaminated soil and petroleum-contaminated groundwater at the site.

Recommendations

No Further Action without conditions or restrictions is recommended for Site 1438-1439 because petroleum contaminant concentrations in excessively contaminated soil at the site are less than State SCTLs. Site soil is not a continuing source of contamination and, therefore, does not require remediation. In accordance with the agreement established previously by the Navy and the Florida Department of Environmental Protection, petroleum-contaminated groundwater at the site will be addressed as part of the IR program basewide groundwater remedial action.



EXECUTIVE SUMMARY FIGURE

EXTENT OF PETROLEUM-CONTAMINATED GROUNDWATER AND EXCESSIVELY CONTAMINATED SOIL

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

ACKNOWLEDGMENTS

In preparing this report ABB Environmental Services, Inc., commends the support, assistance, and cooperation provided by the personnel of the Naval Air Station Whiting Field, Milton, Florida, and Southern Division, Naval Facilities Engineering Command.

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Naval Air Station Whiting Field
Milton, Florida

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Milton, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
BTEX	benzene, toluene, ethyl benzene, and xylenes
EDB	ethylene dibromide
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
ft/day	feet per day
GCTL	groundwater cleanup target level
gpm	gallons per minute
ID	inside diameter
IR	Installation Restoration
NAS	Naval Air Station
OVA	organic vapor analyzer
PCA	preliminary contamination assessment
PCAR	preliminary contamination assessment report
PCE	tetrachloroethene
ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride
SAR	site assessment report
SCTL	soil cleanup target level
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
SPLP	Synthetic Precipitation Leaching Procedure
TCE	trichloroethene
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency

CHAPTER 1.0

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), was contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to perform a site assessment and submit a Site Assessment Report (SAR) at the former location of Tanks 1438 and 1439, hereafter referred to as Site 1438-1439, at Naval Air Station (NAS) Whiting Field.

The scope of services for the site assessment described in this report is contained in Contract N62467-89-D-0307, *Statement of Work, NAS Whiting Field, Florida, Contamination Assessment at Site 1438-1439, UST-02* attached to Contract Task Order No. 110 (dated September 19, 1994) Modification 011002, and the *Plan of Action, Contamination Assessment, Phase II, Former Underground Storage Tanks 1438-1439, Naval Air Station Whiting Field, Milton, Florida*, and includes the following:

- advancing soil borings and performing organic vapor analyzer (OVA) analysis of site soil to assess the horizontal and vertical extent of excessively contaminated soil in the unsaturated zone at the site,
- collecting soil samples for analysis of Gasoline Analytical Group compounds and using U.S. Environmental Protection Agency (USEPA) Method 1312 Synthetic Precipitation Leaching Procedure (SPLP) to assess the extent of petroleum-contaminated soil at the site,
- installing and sampling groundwater monitoring wells to assess the vertical and horizontal extent of petroleum-contaminated groundwater at the site,
- collecting soil and groundwater samples to assess natural attenuation parameters at the site,
- collecting water-level data to estimate the groundwater flow direction and hydraulic gradient at the site,
- conducting a potable well inventory within a 0.25-mile radius of the site, and
- reducing and analyzing pertinent data gathered during the site assessment to complete this SAR.

In November 1994, ABB-ES performed a preliminary contamination assessment (PCA) at Site 1438-1439. Soil samples were collected from borings at 25 locations to assess the extent of petroleum contamination. Soil samples were screened with an OVA to a depth approximately 35 feet below land surface (bls) using direct-push technology. Seven piezometers were installed to assess petroleum contamination in a shallow perched water zone at the northeast corner of the site. A copy of the PCA report (PCAR) is attached in this SAR as Appendix A, Previous Investigations.

From April 1997 to January 1998, a site assessment was performed at Site 1438-1439 to complete the PCA performed in 1994 and meet the objectives of the State Petroleum Contamination Site Cleanup Criteria, stated in Rule 62-770.600, Florida

Administrative Code (FAC). Soil and groundwater samples were collected from a total of 31 soil borings at the site, and 7 monitoring wells were installed and sampled to assess the horizontal and vertical extent of petroleum compounds in soil and groundwater. The following sections of the report present the background information, data compilation, results, conclusions, and recommendations of the site assessment at Site 1438-1439.

CHAPTER 2.0

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION. Whiting Field is located in the northwest coastal area of Florida approximately 7 miles north of Milton and 20 miles northeast of Pensacola (Figure 2-1). NAS Whiting Field occupies 3,490 acres in north-central Santa Rosa County with easement rights to an additional 457 acres.

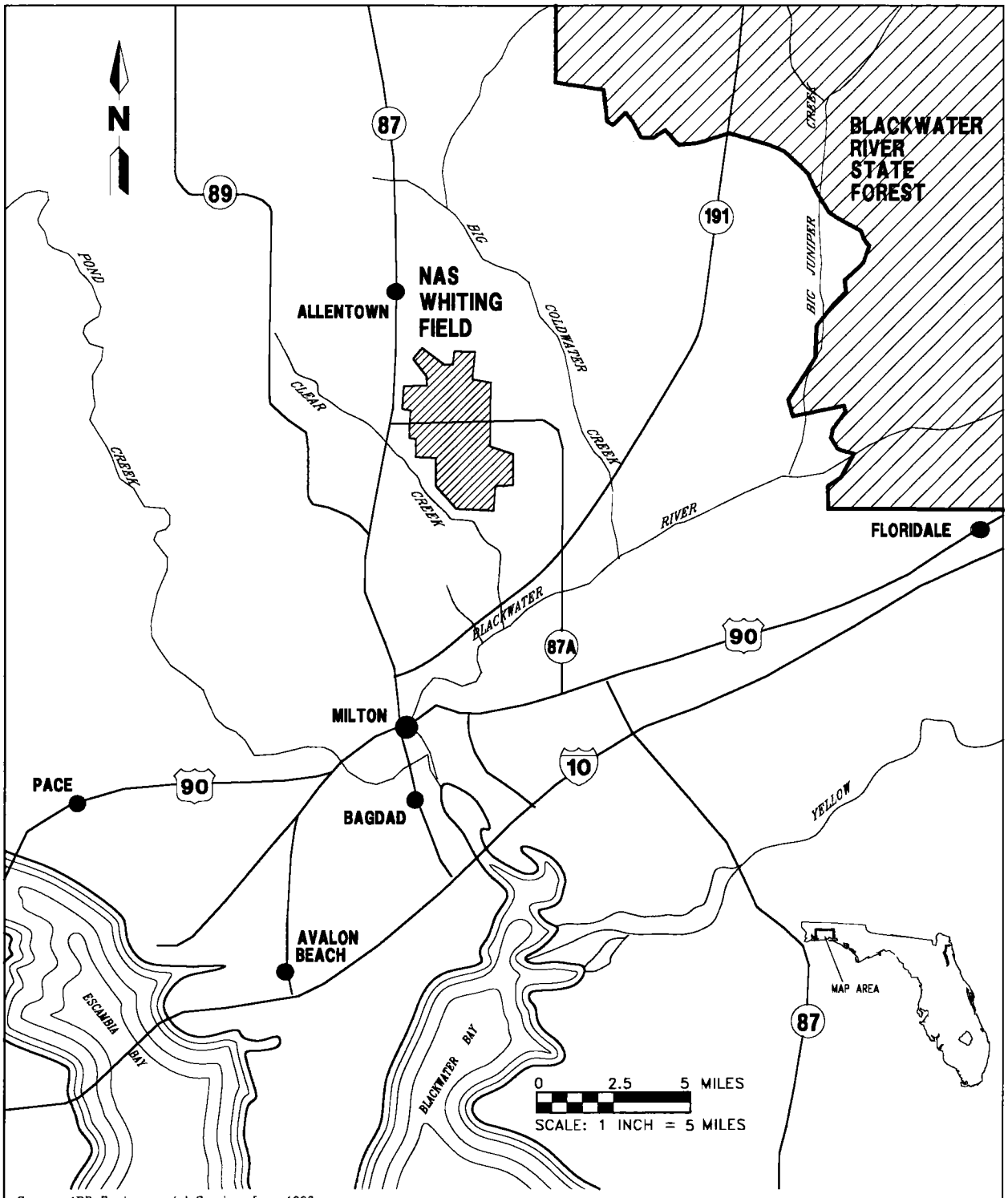
The station is the home base of Training Air Wing Five, whose mission is to administer, coordinate, and supervise flight and academic training. The station has two air fields; the North Field, where fixed wing training takes place, and the South Field which is used for helicopter training. Support facilities at the base are located between the north and south air fields (Figure 2-2).

Site 1438-1439, the former location of storage tanks 1438 and 1439, is located in the support facilities area on the east side of the aircraft tow road. The former locations of Tanks 1438 and 1439, the associated pipelines, and the pumphouse (Building 1470) are shown on Figure 2-3. The two storage tanks were constructed partially below ground surface and covered with fill dirt to form two large mounds. The tanks were constructed of type "B" concrete and were 61.5 feet in diameter and 23 feet tall. The top and toe of each mounded tank and the location of the tank, pumphouse, and pipelines have been drawn on an aerial photograph taken of the site area on March 25, 1961. The aerial photograph is used as a backdrop to provide a better understanding of previous site conditions.

Fuel for flight operations was transported to the site by tanker truck and railroad car and offloaded at concrete valve pits located adjacent to the truck stand and railroad tracks south of the pumphouse. Fuel was pumped from the valve pits via underground pipelines to Tanks 1438 and 1439. Fuel stored in Tanks 1438 and 1439 was then pumped through underground pipelines from the pumphouse to the north and south airfield fueling stations.

2.2 SITE HISTORY. Tanks 1438 and 1439 were installed in 1943. Each tank had a capacity to store 218,384 gallons of aviation gasoline. The tanks were decommissioned in 1980, at which time they were filled with water.

In 1985, Tank 1438, Tank 1439, and the pumphouse were demolished. According to the Whiting Field Public Works Center, Tank 1438 was demolished and removed from the site; however, Tank 1439 was collapsed and abandoned in place. During demolition, free product was discovered in the excavation pit. The fuel transmission pipelines running to both the north and south airfields were reportedly abandoned in place and filled with concrete. A Storage Tank Closure Report was not filed with the State of Florida when Tank 1438, Tank 1439, and the pumphouse were demolished. The current site layout, using general survey information such as buildings, roads, and storm drains superimposed on an aerial photograph of the site, is shown on Figure 2-4.



Source: ABB Environmental Services Inc., 1992

FIGURE 2-1
FACILITY LOCATION MAP

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

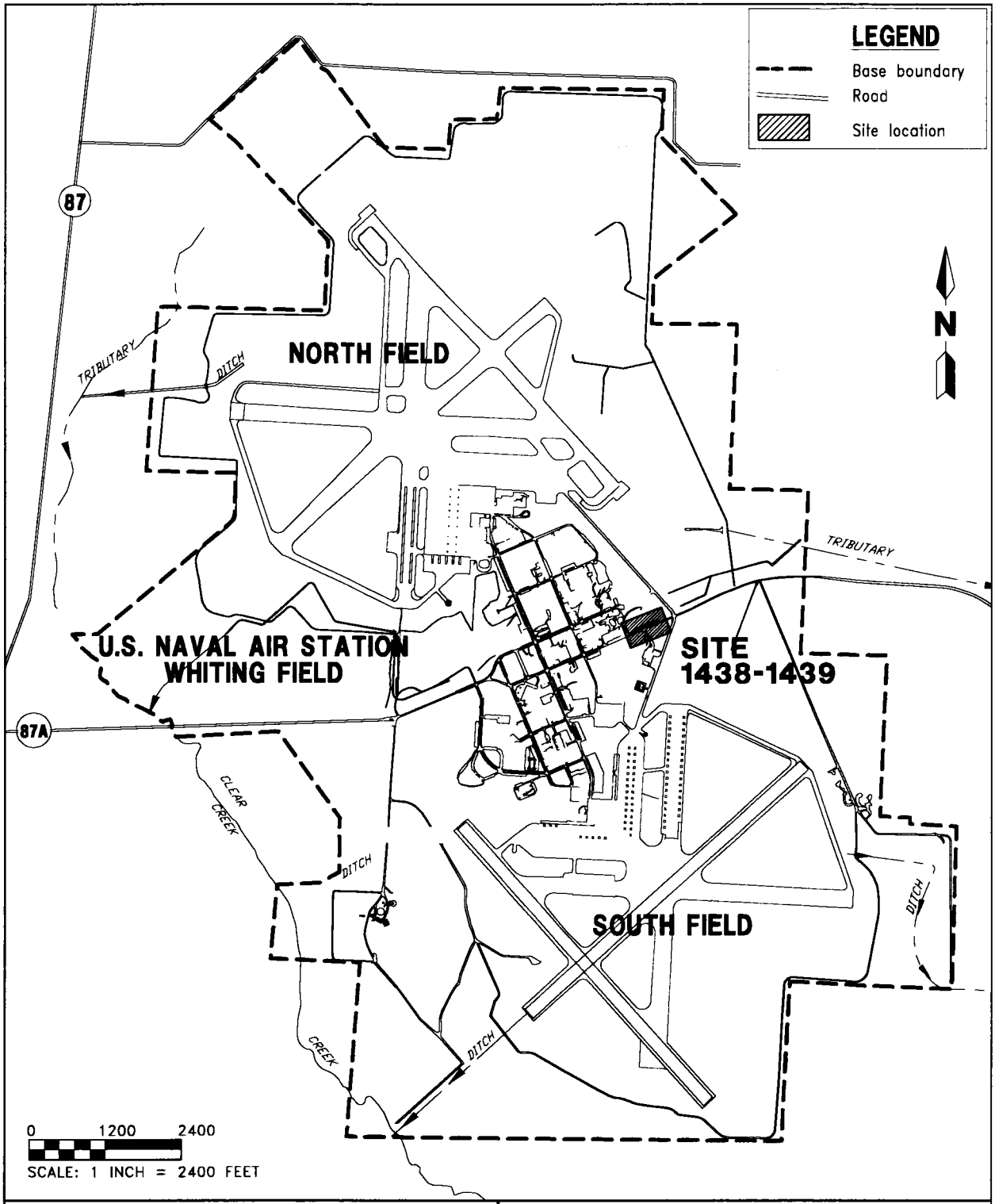

FIGURE 2-2
SITE VICINITY MAP

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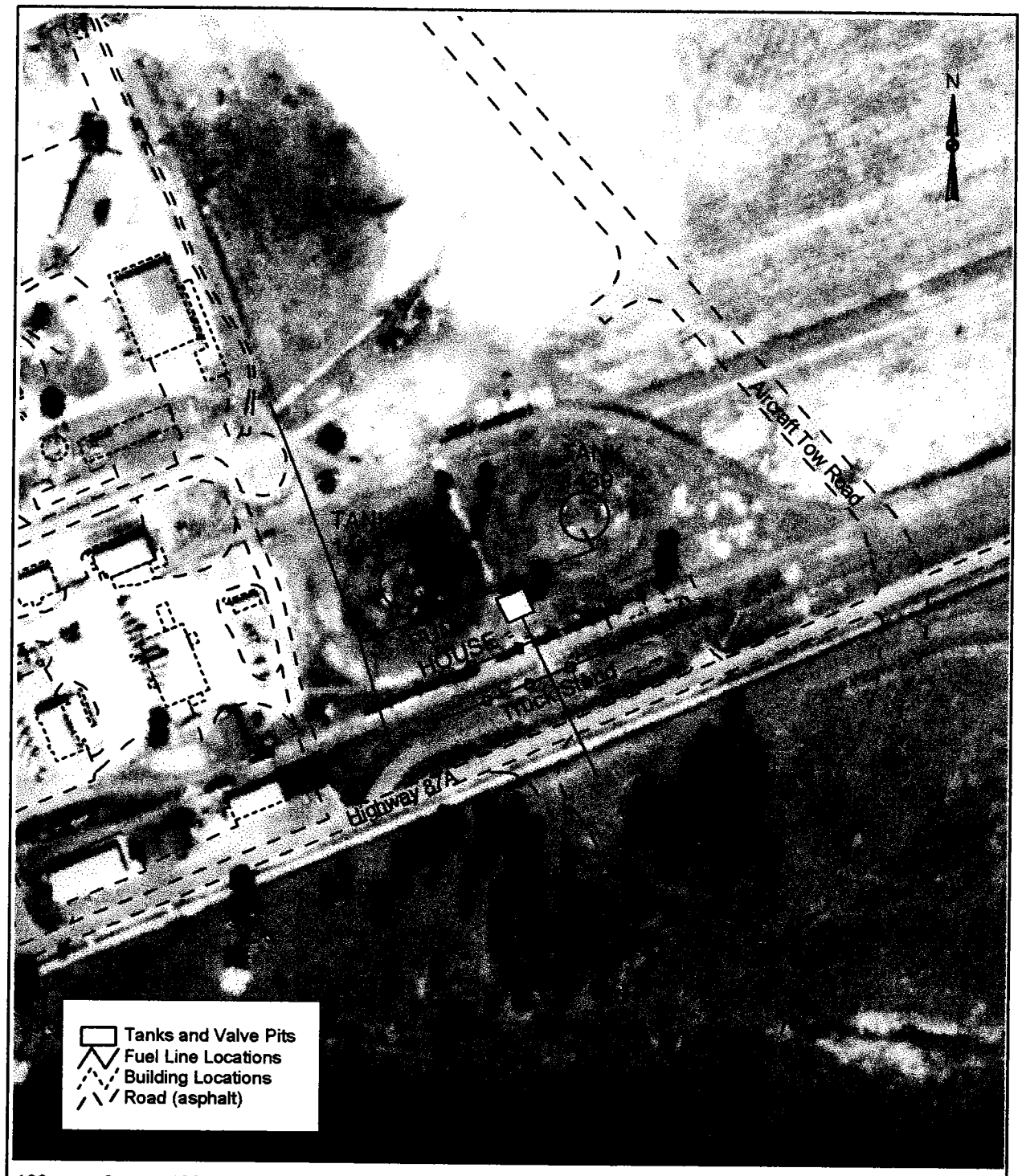
SITE ASSESMENT REPORT, SITE 1438-1439

NAVAL AIR STATION
WHITING FIELD
MILTON, FLORIDA



100 0 100 200 300 Feet **Scale: 1 inch = 200 feet**

FIGURE 2-3
SITE LAYOUT,
MARCH 25, 1961

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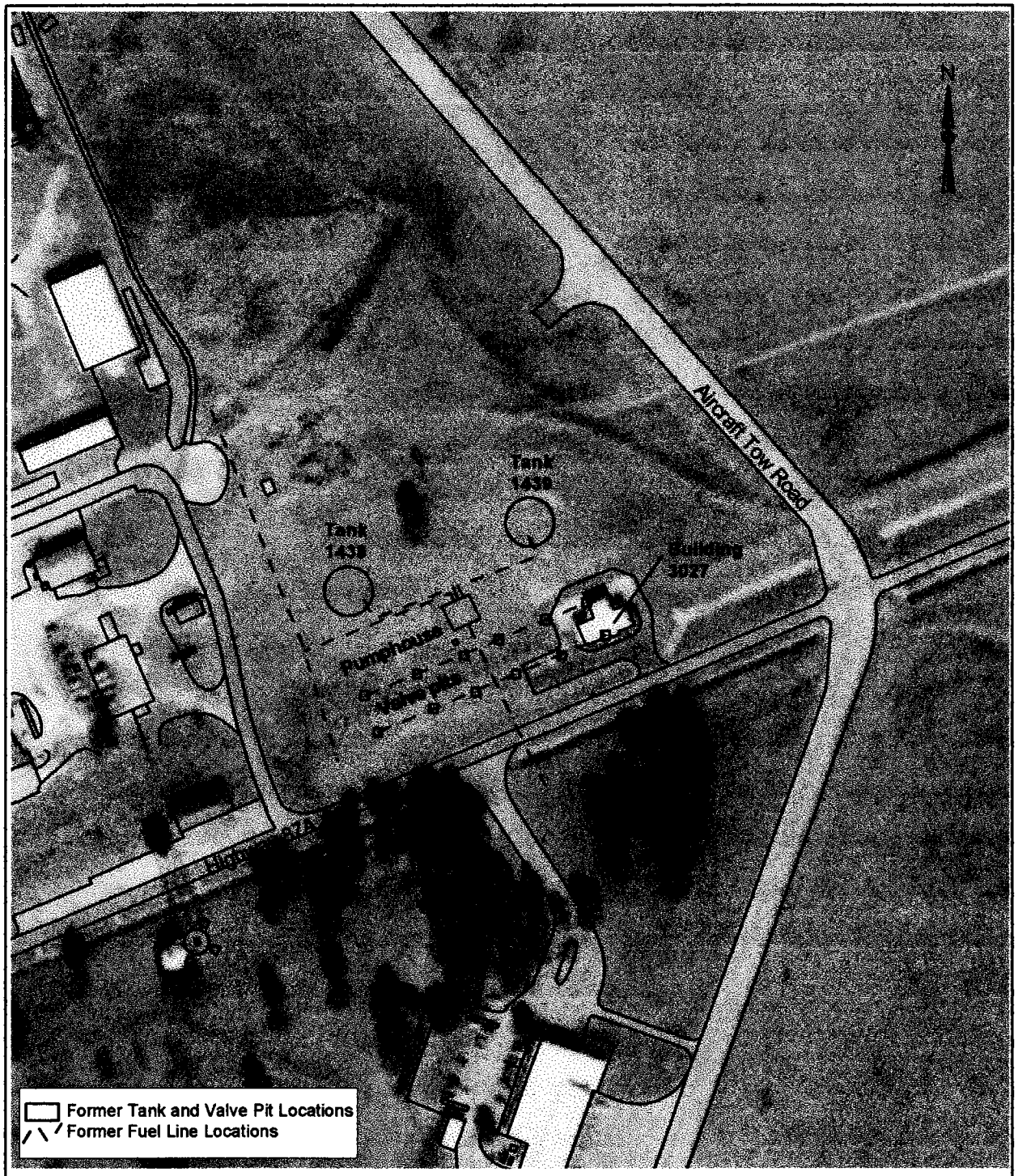
SITE ASSESSMENT REPORT,
SITE 1438-1439

NAVAL AIR STATION
WHITING FIELD
MILTON, FLORIDA



100 0 100 200 300 Feet

Scale: 1 inch = 200 feet

FIGURE 2-4
SITE LAYOUT,
JANUARY 27, 1990

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SITE ASSESSMENT REPORT,
SITE 1438-1439

NAVAL AIR STATION
WHITING FIELD
MILTON, FLORIDA

CHAPTER 3.0

3.0 SITE CONDITIONS

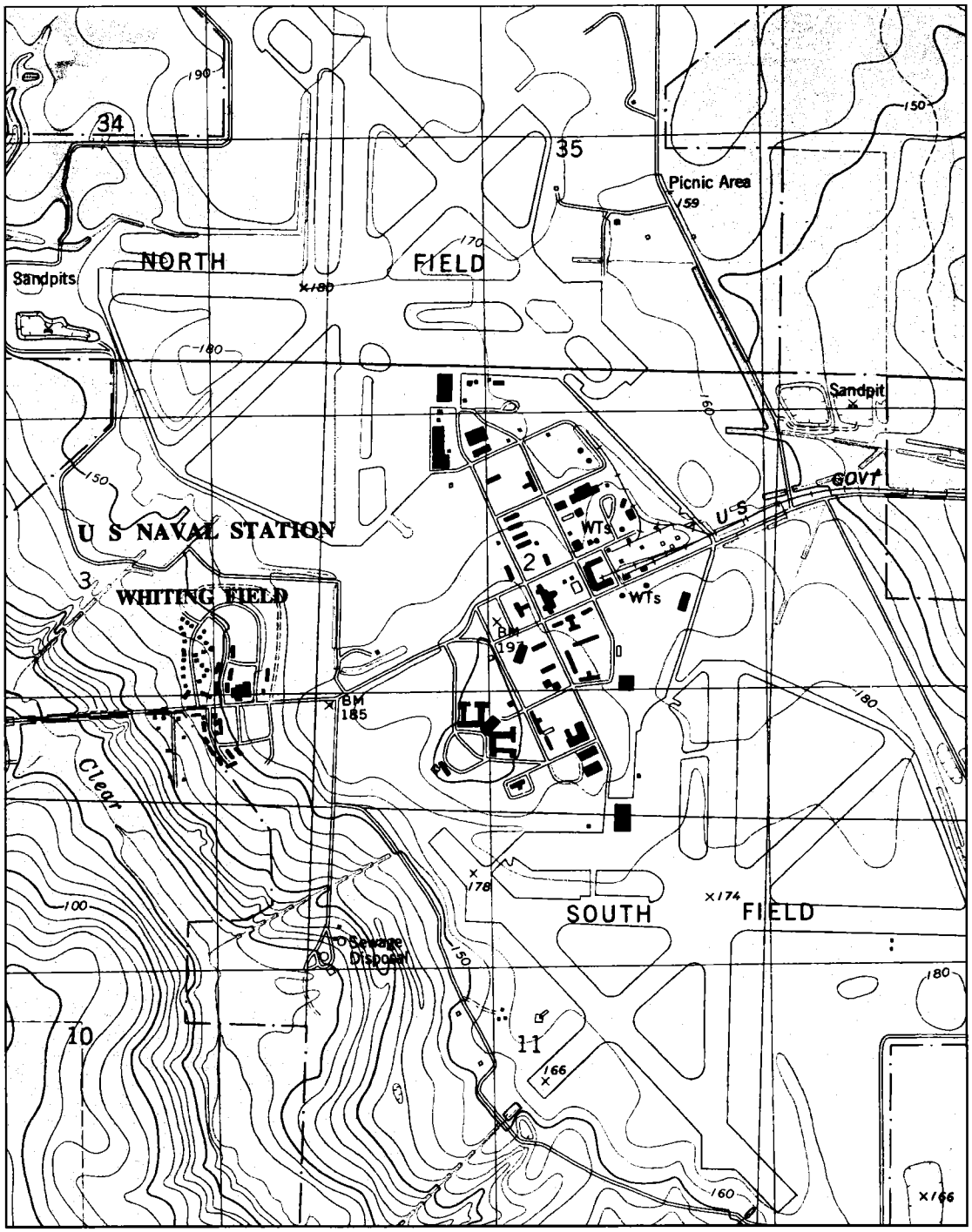
3.1 PHYSIOGRAPHY. NAS Whiting Field lies within the Western Highland physiographic region of Florida. The area is characterized by southward sloping hills and plateaus that have been cut by numerous streams. Elevations generally range from 50 to 200 feet above mean sea level. Surface water runoff at Whiting Field is conveyed to Big Coldwater Creek to the east by a system of concrete drainage ditches installed when the base was constructed in the early 1940s. A topographic map of the Whiting Field area is presented in Figure 3-1.

3.2 HYDROGEOLOGY.

3.2.1 Regional There are three major aquifers in the NAS Whiting Field area. The uppermost aquifer, the sand-and-gravel aquifer, exists under both artisan and nonartisian conditions, depending on the presence or absence of semiconfining clay lenses. The two other aquifers, the Upper Floridan and the Lower Floridan, are deep artisan aquifers of the Floridan aquifer system. Virtually all groundwater withdrawn in Escambia and Santa Rosa counties comes from the lower part of the sand-and-gravel aquifer (Geraghty & Miller, 1986).

3.2.2 Site Specific The site is capped by low permeability sediments consisting principally of clayey sand and sandy clay. The sediments range in thickness from approximately 25 to 35 feet. Beneath the low permeability sediments the lithology generally consists of very fine- to coarse-grained sand layers with randomly interbedded lenses and layers of gravel and clay.

The sand-and-gravel aquifer is recharged by infiltration of rainwater at the surface. A clay layer of variable thickness and lateral extent at NAS Whiting Field forms localized zones of perched water. In the northeastern part of Site 1438-1439, the clay layer ranges from 6 inches to 5 feet in thickness and is encountered approximately 10 to 15 feet bls. Although this clay layer creates localized perched water conditions, it does not appear to significantly retard rainfall infiltration or influence the overall groundwater flow direction at the site. A cross section of the site is shown on Figure 3-2. Complete lithologic logs for all site soil borings and monitoring wells are presented in Appendix B, Soil Boring and Monitoring Well Lithologic Logs.



Source: U.S. Geological Survey Topographic Map, Milton North Quadrangle, Photorevised 1987, 7.5 Minute Series
Scale: 1:24,000

FIGURE 3-1

TOPOGRAPHIC MAP OF THE NAVAL AIR STATION WHITING FIELD AREA

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SITE ASSESSMENT REPORT
SITE 1438-1439

NAVAL AIR STATION
WHITING FIELD
MILTON, FLORIDA

Figure 3-2 Geologic Cross Section, A to A′

CHAPTER 4.0

4.0 METHODOLOGIES AND EQUIPMENT

4.1 SOIL BORING AND SAMPLING PROGRAM. From April 7 to April 29, 1997, 28 soil borings (07B026 through 07B053) were advanced to the water table (approximately 110 feet bls) to supplement the TerraProbe℠ soil assessment data collected during the 1994 PCA. Soil boring locations 07B026 through 07B053 were surveyed on August 19, 1997, by a Florida registered professional land surveyor. Soil boring and TerraProbe℠ soil sampling locations are superimposed on an aerial photograph of the site taken on February 25, 1961, before the tanks were demolished (Figure 4-1). Soil sampling locations were superimposed on the aerial photograph to show that areas most likely to be affected by past fuel releases at the site were represented in the sampling program. Soil samples from soil boring 07B026 were collected at 2-foot intervals from the surface to 108 feet bls so that a complete lithological description of the site sediments could be obtained. Soil samples from the majority of the other borings were collected continuously to 20 feet bls, then at 5-foot intervals thereafter until the water table was encountered.

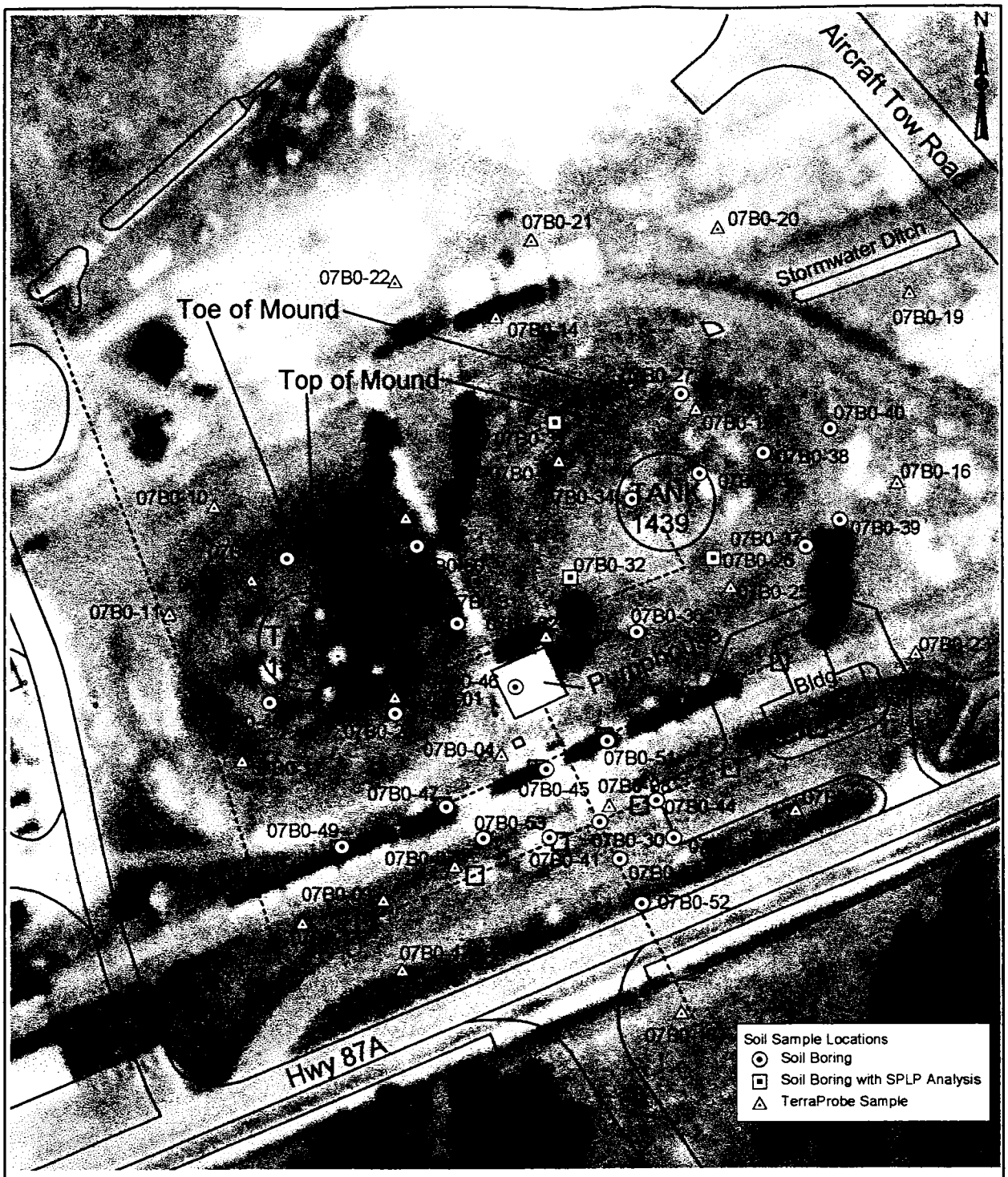
Soil samples were collected to accomplish the following:

- assess the horizontal and vertical extent of petroleum-contaminated soil in the unsaturated zone,
- assess the thickness and lateral extent of the shallow clay layer and its effect on the migration or retardation of petroleum products released at the site,
- assess natural attenuation parameters in the site vicinity,
- characterize the subsurface sediments and other subsurface materials (demolition rubble, fill material, etc.), and
- aid in the placement of subsequent soil borings and monitoring wells.

All soil samples were screened using an OVA equipped with a flame ionization detector in accordance with Chapter 62-770, Florida Administrative Code (FAC), requirements. In addition, five soil samples were collected and analyzed for natural attenuation parameters. Some soil borings were discontinued before the water table was reached because several successive OVA readings were less than 1 part per million and the boring location indicated contaminated soil was unlikely to be encountered deeper.

Three soil samples were collected for comparison to Chapter 62-770, FAC, Table IV target levels in accordance with the method described in Rule 62-770.600(3)(e), FAC. Using a hand-operated stainless steel bucket auger, the soil samples were collected at a depth interval of 4 to 6 feet bls adjacent to soil boring locations SB-26, SB-32, and SB-35. The selected boring locations corresponded to areas of low, medium, and high OVA readings.

4.2 GROUNDWATER SCREENING PROGRAM. Groundwater samples were collected from seven representative boreholes and transported to a State-certified analytical laboratory for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) using a modification of USEPA Method 602. The groundwater screening



50 0 50 100 150 Feet

Scale: 1 inch = 100 feet

FIGURE 4-1
SOIL BORING AND TERRAPROBE℠
SOIL SAMPLING LOCATIONS

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION
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MILTON, FLORIDA

results were used to determine monitoring well placement. Groundwater screening analytical results are discussed in Subsection 5.2.2 of this report.

4.3 MONITORING WELL INSTALLATION PROGRAM. From May 5 to May 10, 1997, four shallow monitoring wells (WHF-1438-1S through WHF-1438-4S) were installed at the site. Following sampling and review of the groundwater analytical data, two additional shallow monitoring wells (WHF-1438-5S and WHF-1438-6S) and one deep monitoring well (WHF-1438-2D) were installed from September 23 to September 26, 1997, to complete the horizontal and vertical assessment of groundwater contamination. Monitoring wells (WHF)-5-8S, WHF-5-8D, WHF-5-9S, WHF-5-9D, and WHF-33-5, which had been installed as part of the Installation Restoration (IR) program, were used to assess the downgradient extent of contamination at the site. Site monitoring well locations are shown on Figure 4-2.

The shallow water table monitoring wells were drilled with 4.25-inch inside diameter (ID) hollow-stem augers to total depths ranging from approximately 113 to 122 feet bls. Depth to water measured during well installation ranged from approximately 101 to 114 feet bls. Fifteen feet of 2-inch-ID, 0.010-inch slotted, polyvinyl chloride (PVC) well screen was installed in each of the boreholes with the top of the well screen positioned approximately 5 feet above the water table. PVC riser pipe of the same size was installed above the well screen such that the well extended to land surface. The wells were completed flush to the ground surface with steel covers and well vaults. A 20/30 grade silica sand filter pack was installed around each well screen to a height approximately 2 feet above the top of the screen. Approximately 1 foot of 30/65 silica sand was installed on top of the filter pack as a seal. The remainder of the well annulus was grouted to land surface with Portland Type I cement and 5 percent bentonite grout mixture. Shallow monitoring well construction details are presented on Figure 4-3.

The deep (vertical extent) monitoring well (WHF-1438-2D) was constructed by initially drilling with a 10-inch-diameter, mud-rotary drill bit to 122 feet bls and grouting in place 6-inch-ID PVC surface casing below the upper zone of the shallow aquifer. Before resuming drilling operations, the grout around the 6-inch-ID casing was allowed to set for 24 hours. The well was then completed mud-rotary by drilling out the bottom of the grouted surface casing with a 5.875-inch-diameter drill bit. The well boring was advanced to a total depth of 153 feet. A 5-foot section of 2-inch-ID, 0.010-slot, PVC well screen was set to the total depth of the well boring with a section of 2-inch-ID PVC riser extending to land surface. A 20/30 silica sand filter pack was installed around the well screen to a height of approximately 2 feet above the top of the screen. Approximately 2 feet of 30/65 silica sand was installed as a seal on top of the filter pack. The annular space between the 6-inch surface casing and 2-inch riser was grouted to land surface with a mixture of Portland Type I cement and 5 percent bentonite. Deep monitoring well construction details are presented on Figure 4-4.

All shallow and deep wells were completed flush to the ground surface. Well boring and construction logs for the monitoring wells are presented in this report as Appendix B, Soil Boring and Monitoring Well Lithologic Logs.

Following installation, the wells were developed with a centrifugal pump until groundwater quality parameters (pH, conductivity, temperature, and appearance) indicated that a good hydraulic connection with the aquifer had been achieved. Well development was considered complete when groundwater quality parameters

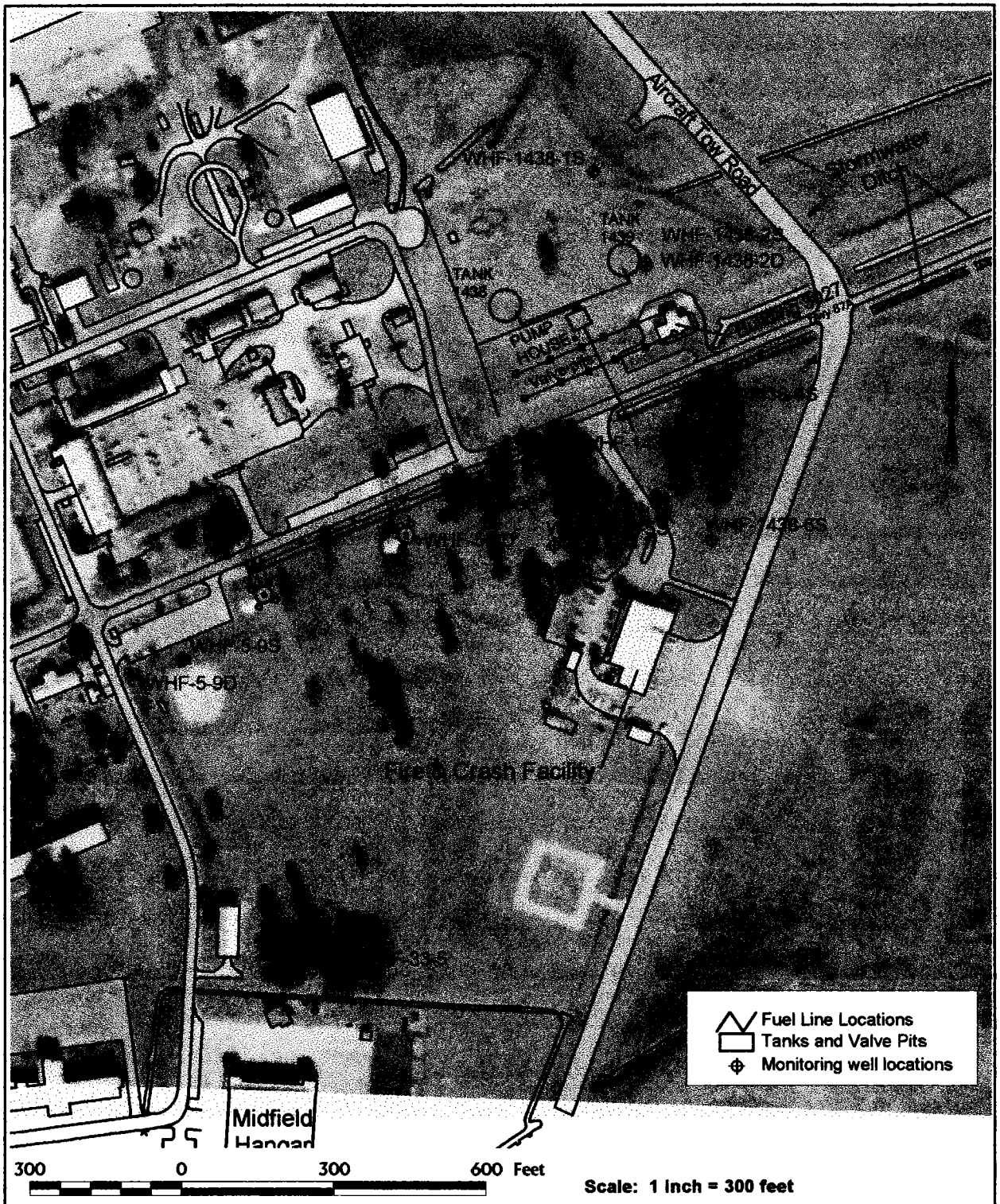

FIGURE 4-2
MONITORING WELL LOCATION MAP

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

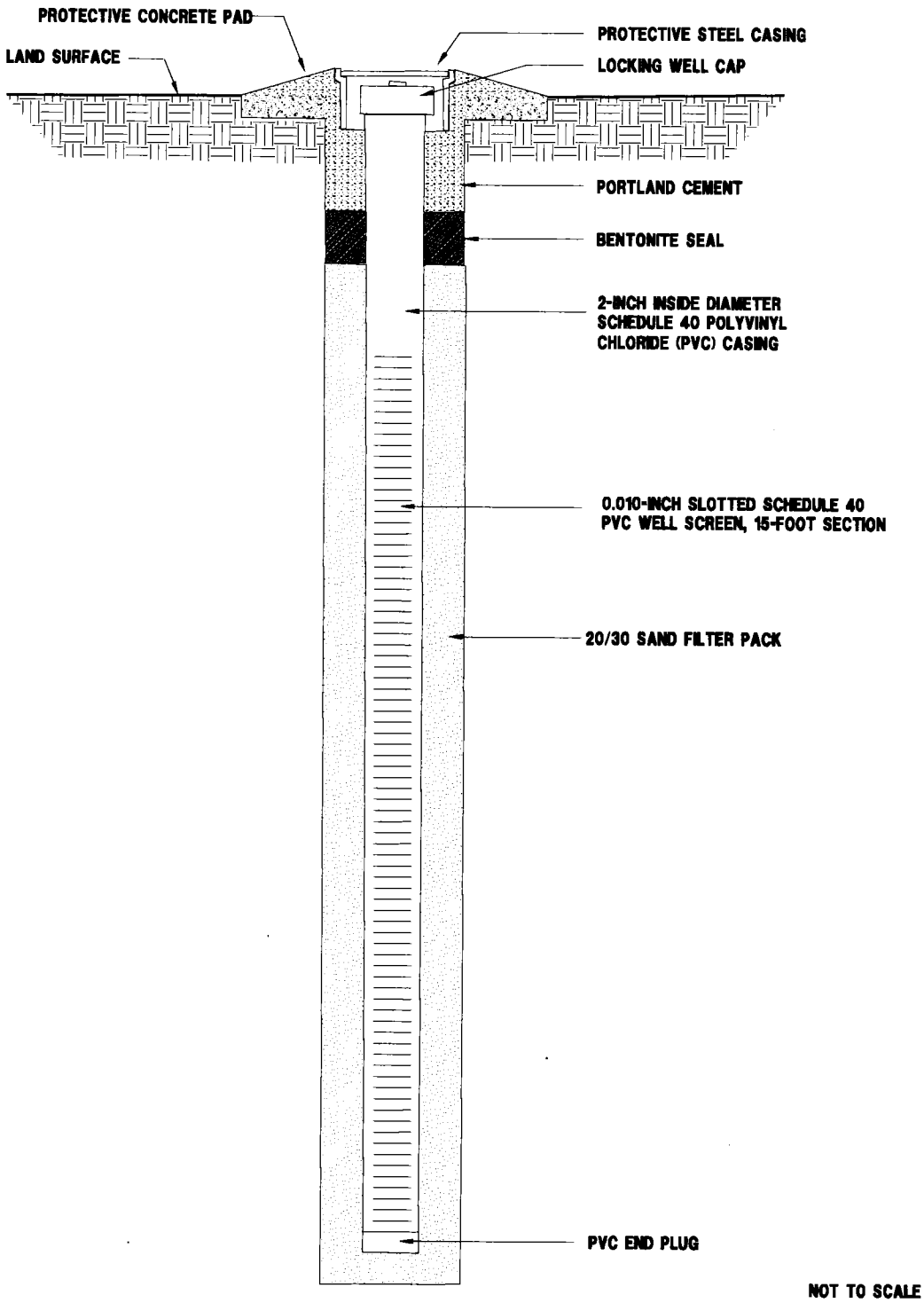

FIGURE 4-3
TYPICAL SHALLOW MONITORING WELL INSTALLATION DETAIL

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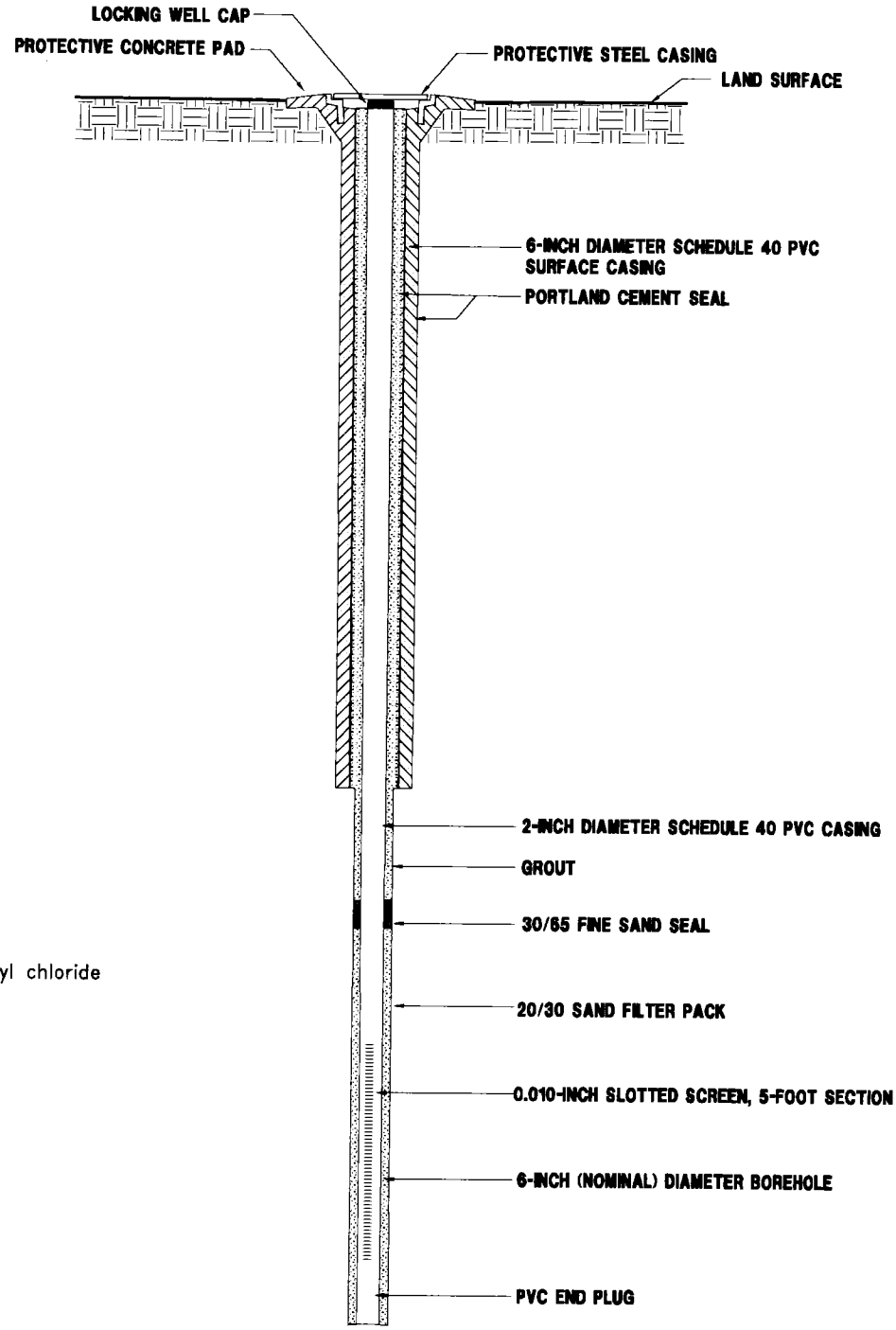
SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA



NOTE:
PVC Polyvinyl chloride

NOT TO SCALE

FIGURE 4-4
TYPICAL DEEP MONITORING WELL INSTALLATION DETAIL

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

stabilized and the well discharge became relatively clear. Investigation-derived wastes produced during the drilling program were properly containerized and disposed of at the facility.

4.4 GROUNDWATER ELEVATION SURVEY. The elevation and slope of the water table were calculated by measuring the depth to groundwater in each monitoring well and subtracting the measured depth from the surveyed top-of-casing elevation. Groundwater levels were measured using an electronic water-level indicator with an accuracy to 0.01 foot.

Top-of-casing elevations and monitoring well locations were surveyed on August 19, 1997, by a Florida registered professional land surveyor and October 29, 1997, by ABB-ES personnel. All monitoring well locations are referenced to the Florida State Plane Coordinate System (North Florida Zone) and North American Datum. Top-of-casing elevations are referenced to the National Geodetic Vertical Datum of 1929.

CHAPTER 5.0

5.0 CONTAMINATION ASSESSMENT RESULTS

5.1 WATER TABLE ELEVATIONS AND GROUNDWATER FLOW DIRECTION. A small perched water zone was encountered in the northeastern corner of the site at depths ranging from approximately 7 to 9 feet bls. The groundwater is perched on a clay layer 10 to 15 feet bls that appears to terminate along the steep embankment beside the aircraft tow road. The groundwater flow direction in the perched water zone is toward the north-northeast (ABB-ES, 1995; Appendix A, Previous Investigations).

Groundwater levels in site monitoring wells were measured in August 1997 and January 1998 to estimate the groundwater flow direction in the sand-and-gravel aquifer. Table 5-1 lists the monitoring wells and dates measured, top-of-casing elevations, depths to groundwater, and screen intervals. Water table elevation contour maps for August 1997 and January 1998 (Figures 5-1 and 5-2) indicate the groundwater flow direction in the aquifer is toward the south-southwest. The average hydraulic conductivity (K) of 9.77 feet per day (ft/day) in the site vicinity is based on aquifer data from monitoring wells WHF-33-5 (14.28 ft/day) and WHF-5-85 (5.26 ft/day) collected during previous investigations at NAS Whiting Field (ABB-ES, 1998, Table 3-4). The average hydraulic gradient (i) at the site (0.009 foot/foot) was calculated using the water table elevations in monitoring wells WHF-1438-1S and WHF-1438-3S in August 1997. The distance between monitoring wells WHF-1438-1S and WHF-1438-3S is approximately 560 feet. The average seepage velocity (V_s) of 0.09 ft/day (32.8 feet/year) was obtained by multiplying the average hydraulic conductivity by the average hydraulic gradient ($V_s = Ki$).

Table 5-1
Water Table Elevation Data

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Monitoring well	Well Depth (feet bls)	Screen Interval (feet bls)	Top-of-Casing Elevation[1]	Depth to Water[2] (8/7-9/97)	Water-Level Elevation[1] 8/7-9/97)	Depth to Water[2] (1/26/98)	Water-Level Elevation[1] (1/26/98)
WHF-1438-01S	112.5	97 to 112	172.05	100.89	71.16	101.89	70.16
WHF-1438-02S	122.0	102 to 117	174.35	103.93	70.42	104.78	69.57
WHF-1438-02D	153.0	148 to 153	174.44	NI	NI	104.75	69.69
WHF-1438-03S	112.0	95 to 110	175.54	105.98	69.56	106.58	68.96
WHF-1438-04S	117.0	100 to 115	174.17	114.05	60.12	105.11	69.06
WHF-1438-05S	117.0	102 to 117	176.66	NI	NI	108.92	67.74
WHF-1438-06S	116.0	101 to 116	175.01	NI	NI	106.63	68.38
WHF-5-8S	128.2	110 to 125	177.44	108.38	69.06	108.98	68.46
WHF-5-8D	174.2	164 to 174	177.86	109.50	68.36	109.94	67.92
WHF-5-9S	128.7	118 to 128	175.55	109.22	66.33	109.20	66.35
WHF-5-9D	180.5	170 to 180	175.97	109.83	66.14	109.58	66.39
WHF-33-5	125.9	110 to 125	178.39	112.79	65.60	112.91	65.48

[1] Reference elevation = National Geodetic Vertical Datum of 1929.
[2] Depth to water measuring point = top-of-well casing.

Notes: bls = below land surface.
NI = not installed at time of measurement.

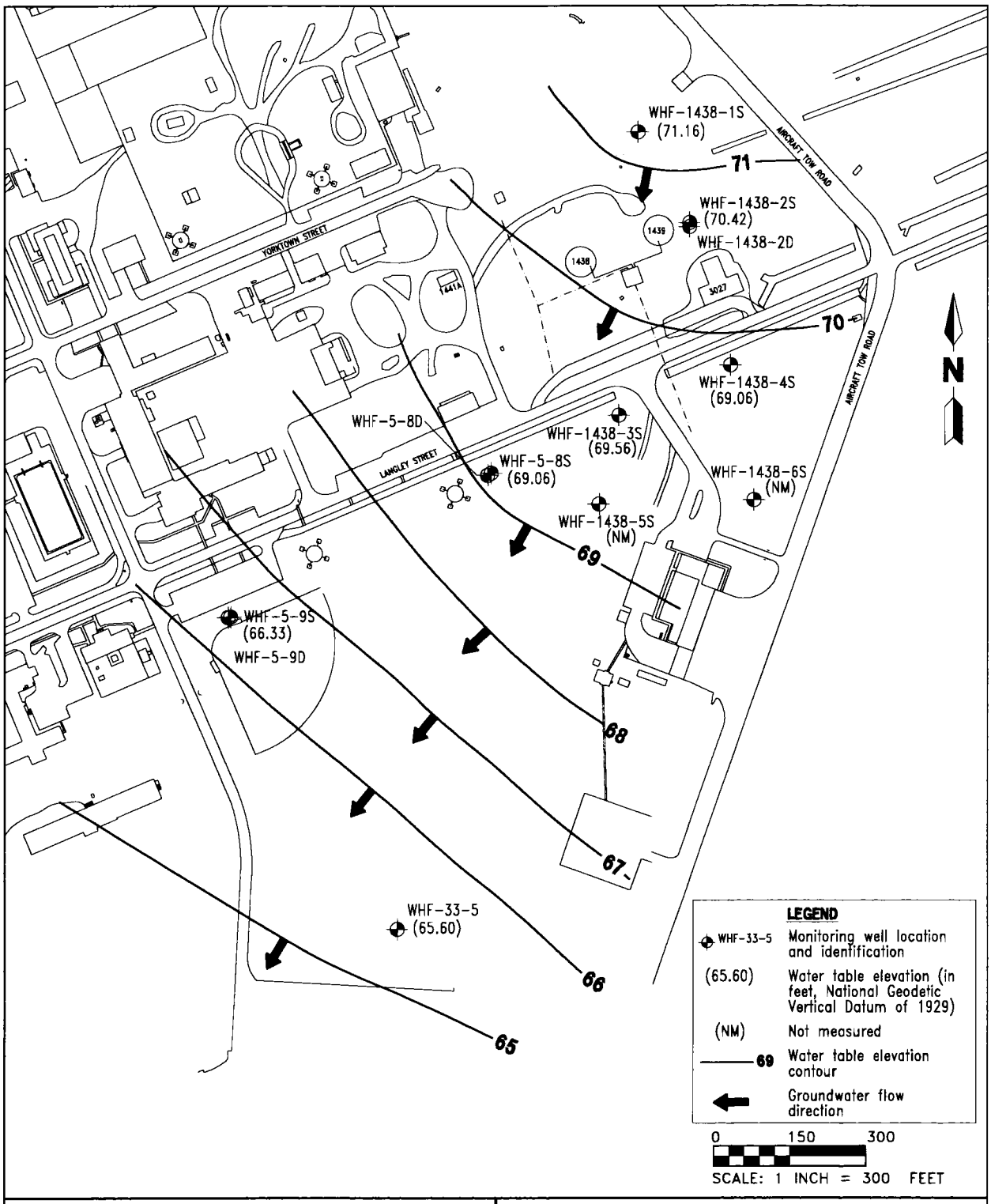

FIGURE 5-1

WATER TABLE ELEVATION CONTOUR MAP, AUGUST 7-9, 1997

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

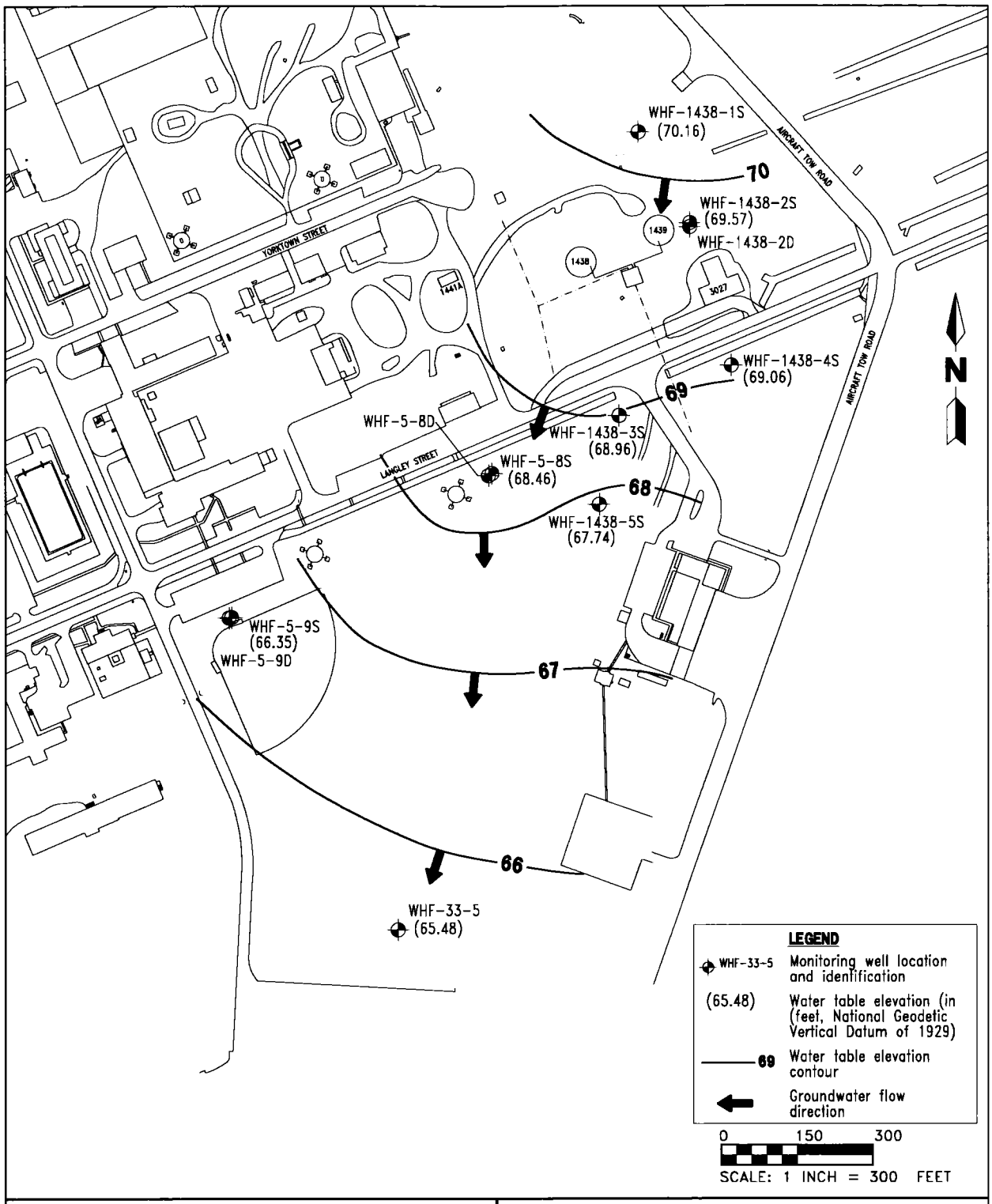

FIGURE 5-2

WATER TABLE ELEVATION CONTOUR MAP, JANUARY 26, 1998

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

5.2 POTABLE WELL INVENTORY. An inventory of potable water wells near NAS Whiting Field was conducted as part of the Hazard Ranking System scoring performed by ABB-ES in May 1991 (ABB-ES, 1991).

All potable and industrial water supplies in the NAS Whiting Field vicinity are obtained from the sand-and-gravel aquifer, which extends from the surface to approximately 300 feet bls. Screened intervals of most production wells are approximately 150 to 350 feet bls, depending on the surface elevation and the presence of clay lenses. At NAS Whiting Field, potable water is currently supplied by three production wells: the north (W-N4), south (W-S2), and west (W-W3) production wells. All three of these wells are within a 0.25-mile radius of the site (Figure 5-3).

Current average pumping capacities from the facility production wells include W-N4, 600 gallons per minute (gpm); W-W3, 700 gpm; and W-S2, 500 gpm (ABB-ES, 1993). At the request of the Florida Department of Environmental Protection (FDEP), supply well W-S2 was shut down on August 28, 1986, because benzene concentrations in the groundwater exceeded the Florida primary drinking water standard of 1 part per billion (ppb). Production wells W-N4 and W-W3 were also shut down on September 25, 1986, because trichloroethene (TCE) concentrations in groundwater samples exceeded 3 ppb. The wells were reactivated after installation of groundwater treatment systems. The treatment systems consist of a granular activated carbon filter at the wellhead followed by chlorination, pH adjustment, and addition of a sequestering agent to reduce iron precipitation. A granular activated carbon filter unit was installed at supply well W-W3 to remove TCE from the groundwater (ABB-ES, 1993).

NAS Whiting Field operated with service from only the north production well throughout most of 1987. Testing of an activated carbon adsorption filtration system to treat water from supply well W-W3 began on November 3, 1987.

Upon completion of the operational tests on December 1, 1987, supply well W-W3 was returned to service. At supply well W-S2, an activated carbon filtration system was installed in early 1990. Pumping rates, well depths, and screen intervals for the three base production wells are shown in Table 5-2 (Locklear, 1983).

Table 5-2
Production Rates for NAS Whiting Field Supply Wells

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Well Designation	Pumping Rate (gpm)	Total Depth (feet bls)	Screen Interval (feet bls)
W-N4	600	230	156 to 230
W-W3	700	263	179 to 263
W-S2	500	234	160 to 234

Notes: gpm = gallons per minute.
bls = below land surface.

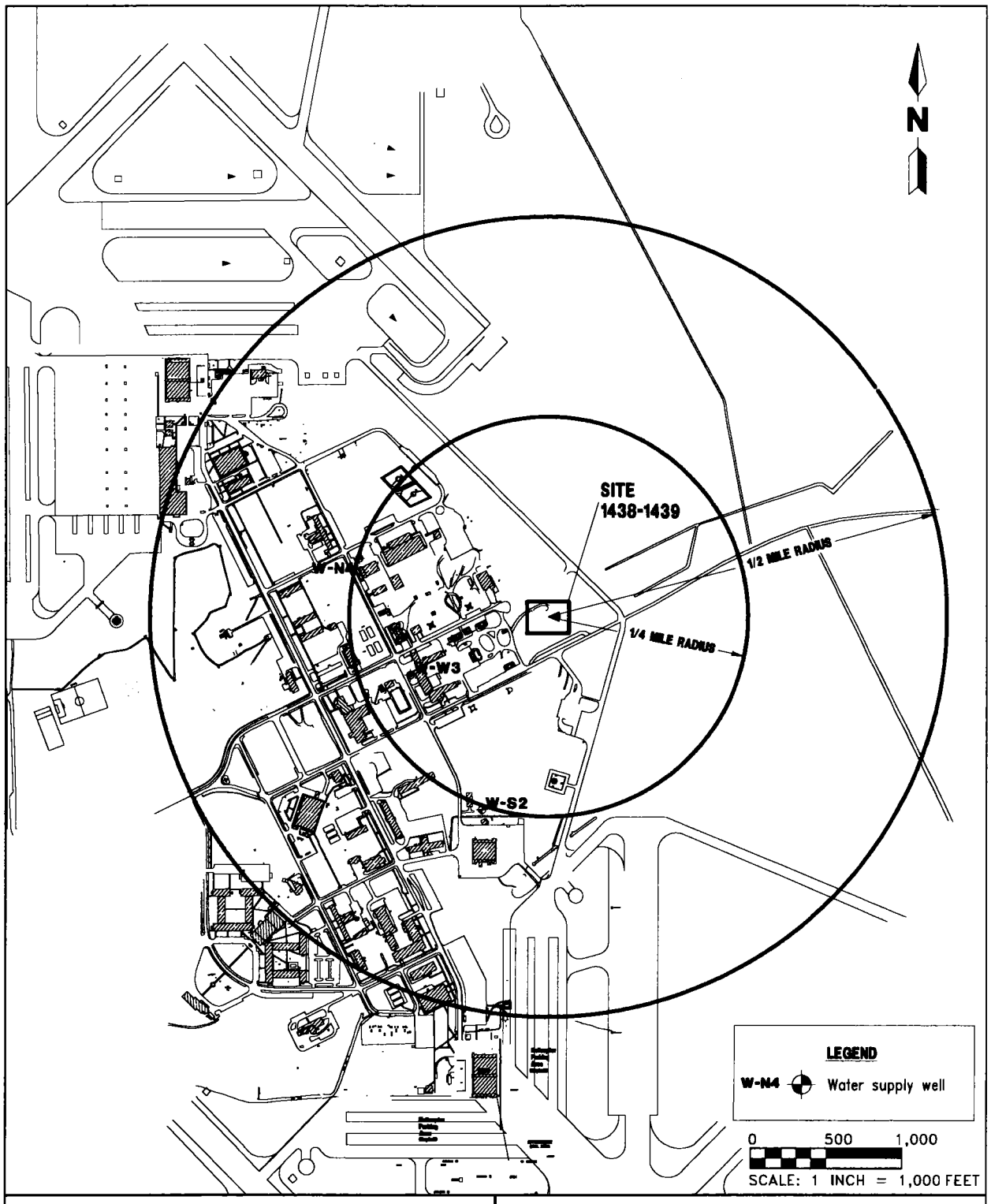

FIGURE 5-3

ACTIVE NAVY PRODUCTION WELLS AT NAVAL AIR STATION WHITING FIELD

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

5.3 CONTAMINANT PLUME DEFINITION AND CHARACTERIZATION.

5.3.1 Soil Sampling and Analysis Soil samples were collected during the PCA from November 8 to 17, 1994, and during the site assessment from April 7 to 29, 1997, and September 25 and 26, 1997, from soil borings using standard split-spoon and hollow-stem auger drilling methods. Sampling intervals varied according to the location and subsurface conditions encountered. All soil samples were analyzed using OVA headspace techniques. For screening purposes, one soil sample collected April 10, 1997, was analyzed for Gasoline Analytical Group parameters. Soil data from the 1994 PCA are summarized in the PCAR in Appendix A, Previous Investigations. A summary of the 1997 OVA screening data is presented in this report in Appendix C, Table C-1, Summary of Organic Vapor Analyzer Results, April 1997. A map showing the OVA screening data from the 0 to 20 feet bls depth interval is presented on Figure 5-4.

For the Gasoline Analytical Group, excessively contaminated soil is defined in Rule 62-770.200(8), FAC, as soil that causes a corrected hydrocarbon measurement of 500 parts per million (ppm) or higher. Corrected hydrocarbon measurements greater than 500 ppm were detected in 10 of 25 soil sampling locations (07B001, 07B002, 07B004, 07B005, 07B007, 07B008, 07B009, 07B014, 07B015, and 07B025) collected during the 1994 PCA and in 11 of 25 soil sampling locations (07B026, 07B027, 07B030, 07B033, 07B034, 07B038, 07B042, 07B045, 07B047, 07B051, and 07B054) collected during the 1997 site assessment. OVA measurements greater than 500 ppm were not detected in soil samples collected below 55 feet bls. With few exceptions (07B030, 07B034, and 07B054), OVA measurements in the samples collected below 60 feet bls were less than 50 ppm.

On September 25 and 26, 1997, a total of three soil samples (U7B03505, U7B32A05, and U7B02605) was collected in areas of high, medium, and low OVA readings. The soil samples were analyzed for Gasoline Analytical Group compounds (USEPA Methods 8020 and 8100) in accordance with Chapter 62-770, FAC. The three soil samples were also analyzed to determine petroleum contaminant leaching potential in soil as defined in Chapter 62-770, FAC, Table IV, using USEPA Method 1312 (SPLP). The April 10, 1997, and September 25 and 26, 1997, soil sample and SPLP analytical results are attached in Appendix D, Laboratory Analytical Data, and summarized in Tables 5-3 and 5-4.

Soil sample analytical results (Table 5-3) indicate that benzene, toluene, ethylbenzene, total xylenes, lead, and TRPH were detected at the site. None of the compounds detected exceeded the Chapter 62-770, FAC, Table IV (Direct Exposure 1#) Soil Cleanup Target Levels (SCTLs). SPLP analytical results (Table 5-4) indicate that none of the compounds detected in the soil samples exceeded the State SCTLs for leachability based on the values listed in Chapter 62-770, FAC, Table V[a] (Groundwater Cleanup Target Levels for Resource Protection/Recovery). The SPLP data verify that excessively contaminated soil at the site is not a continuing source of groundwater contamination.

5.3.2 Groundwater Sampling and Analysis Groundwater samples were collected in the perched water zone from five shallow (less than 20 feet bls) piezometers November 8 through 17, 1994. Groundwater samples were analyzed using a portable field gas chromatograph for site screening purposes and shipped to a State-certified analytical laboratory for comparison purposes. Groundwater screening results are summarized in Table 5-2 in the PCAR attached in Appendix A, Previous Investigations.

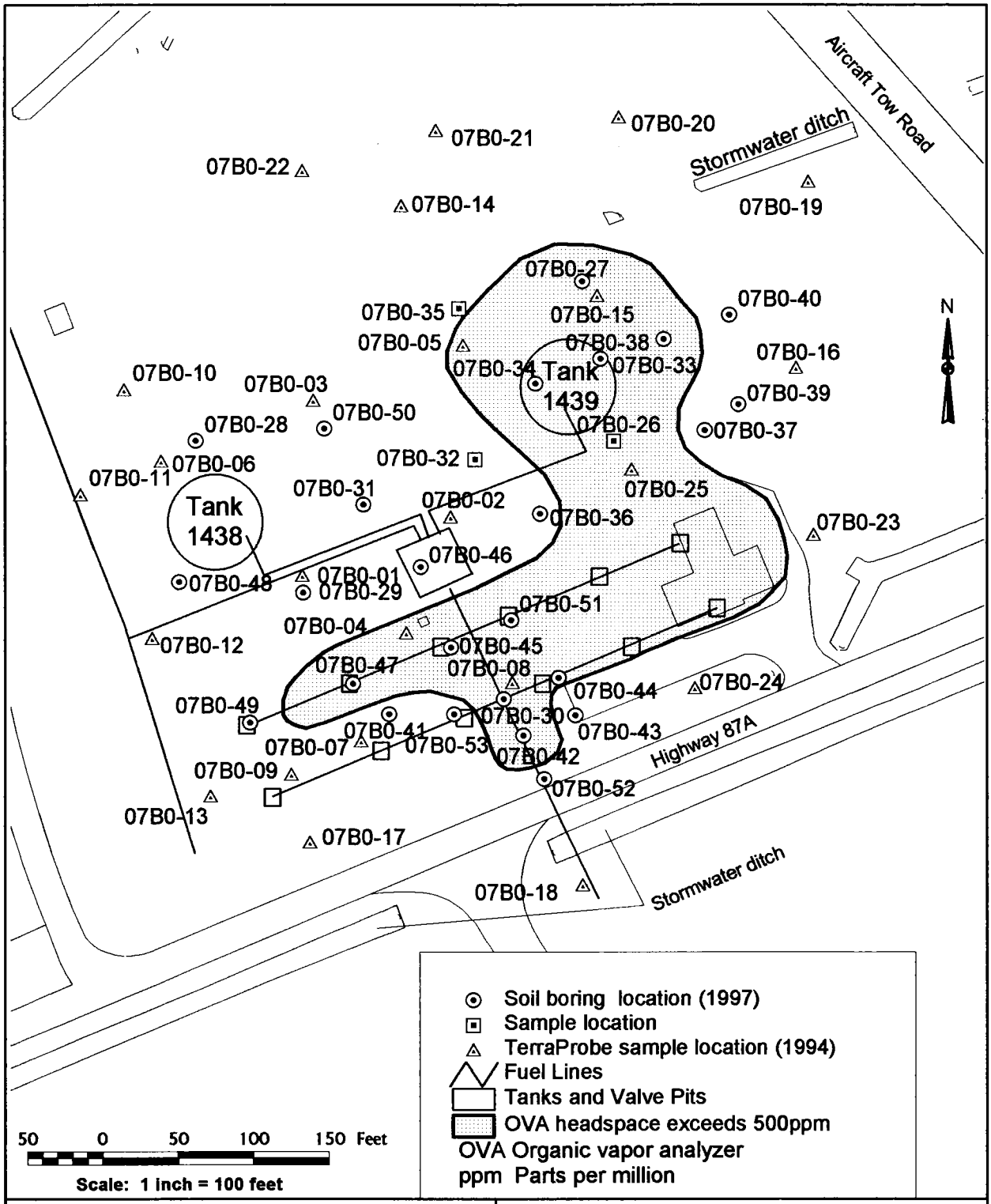

FIGURE 5-4
EXCESSIVELY CONTAMINATED SOIL DISTRIBUTION MAP, LAND SURFACE TO 20 FEET BELOW LAND SURFACE, 1994 AND 1997

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

Table 5-3
Summary of Soil Sample Analytical Results,
April 10, and September 25 and 26, 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Compound	Sample Identifier, Boring Designation, and Date Sampled				
	07B02701[1] 07B027 4/10/97 (0 ppm)	U7B03505 07B035 9/25/97 (<1 ppm)	U7B32A05 07B032 9/26/97 (1784 ppm)	U7B02605 07B026 9/26/97 (>5,000 ppm)	SCTL
Benzene	<0.0011	<0.0013	0.025	<0.029	1.1
Ethylbenzene	<0.0011	<0.0013	0.070	11.0	240
MTBE	<0.0011	<0.0013	<0.0022	<0.29	350
Toluene	<0.0011	<0.0013	0.0039	<0.29	300
Total xylenes	<0.0011	0.004	0.067	<0.87	290
Ethylene dibromide	<0.21	NS	NS	NS	None
TRPH	3.3	NS	NS	NS	350
Lead	0.73	NS	NS	NS	500
Total PAH	<0.053	<0.062	<0.056	[2]<1.1	>0.10

[1] Soil sample collected from 60 to 64 feet below land surface.
[2] Detection limit exceeds target level of 0.10 ppm for benzo(a)pyrene and dibenzo(a,h)anthracene due to nontarget chromatographic interference.

Notes: All concentrations are in milligrams per kilogram except ethylene dibromide, which is in micrograms per kilogram.

Values in parentheses represent corrected organic vapor analyzer readings of soil sample in ppm.

< = less than.
> = greater than.
ppm = parts per million.
SCTL = Soil Cleanup Target Level (Chapter 62-770, Florida Administrative Code); Table IV Soil Cleanup Target Levels: Direct Exposure I.
MTBE = methyl tert-butyl ether.
PAH = polynuclear aromatic hydrocarbon.
TRPH = total recoverable petroleum hydrocarbons.
NS = not sampled.

Table 5-4
Summary of Soil Sample Leachate Analytical Results, September 25 and 26, 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Compound	Sample Identifier, Boring Designation, and Date Sampled			
	U7B03505 07B035 9/25/97 (<1 ppm)	U7B32A05 07B032 9/26/97 (1784 ppm)	U7B02605 07B026 9/26/97 (>5,000 ppm)	SCTL
Benzene	<0.001	0.0019	<0.005	0.007
Ethylbenzene	0.0051	0.0026	0.140	0.4
MTBE	<0.001	<0.001	<0.005	0.2
Toluene	0.018	<0.001	<0.005	0.4
Total xylenes	0.028	0.003	0.012	0.3
Total PAH	<0.002	<0.002	<0.002	>1.0

Notes: Concentrations are in milligrams per liter.

Values in parentheses represent corrected organic vapor analyzer readings of soil sample in ppm.

< = less than.
> = greater than.
ppm = parts per million.
SCTL = Soil Cleanup Target Level (Chapter 62-770, Florida Administrative Code); Table IV Soil Cleanup Target Levels: Table V*.
MTBE = methyl tert-butyl ether.
PAH = polynuclear aromatic hydrocarbon.

During the 1997 site assessment, groundwater samples were collected from April 9 through 16, 1997, from soil borings using a Hydropunch™ and on June 10 and 11, 1997, from permanent groundwater monitoring wells. Hydropunch™ samples were collected at the water table to screen for free product at the site and to determine the placement of permanent monitoring wells.

Groundwater was not purged prior to Hydropunch™ sampling because of poor aquifer yield, which made sampling difficult and time consuming. Monitoring wells were purged using either a bailer or a bladder pump until groundwater quality parameters (pH, conductivity, temperature, and appearance) indicated that the water was representative of the aquifer. Well purging was performed in accordance with the ABB-ES Comprehensive Quality Assurance Plan. Copies of the Petroleum or Petroleum Products Water Sampling Log, FDEP Form 62-770.900(3), for monitoring wells WHF-1438-1S through WHF-1438-6S are attached in this report in Appendix D, Laboratory Analytical Data.

Groundwater screening samples collected from soil borings with the Hydropunch™ were analyzed for BTEX only using a modification of USEPA Method 602. Groundwater samples collected from site monitoring wells were analyzed for the Gasoline and Kerosene Analytical Group parameters defined in Chapter 62-770, FAC, Table I (USEPA Methods 601/602, 610, 504, 239.2, and Florida-Petroleum Residual Organic. All groundwater samples were preserved, packed, and shipped in accordance with the ABB-ES State-approved Comprehensive Quality Assurance Plan to CH_2M Hill Analytical Services.

Groundwater analytical data from the 1997 site assessment are summarized in Table 5-5, Analytical Results of Hydropunch™ Groundwater Screening Samples, April 1997, and Table 5-6, Analytical Results of Monitoring Well Groundwater Samples, June and September 1997. Analytical results of groundwater samples from monitoring wells WHF-5-8S, WHF-5-8D, WHF-5-9S, WHF-5-9D, and WHF-33-5 are used to show the horizontal and vertical extent of petroleum-contaminated groundwater associated with Tanks 1438 and 1439. Monitoring wells WHF-5-8S, WHF-5-8D, WHF-5-9S, WHF-5-9D, and WHF-33-5 were installed during the IR program and sampled in September 1996 and June 1997. Groundwater analytical data from the 1997 site assessment are summarized in Table 5-7, Analytical Results of Monitoring Well Groundwater Samples, September 1996 and June 1997. Summaries of the laboratory data sheets are attached in Appendix D, Laboratory Analytical Data.

Groundwater contamination distribution maps showing the concentrations of total BTEX, benzene, toluene, ethylbenzene, and total xylenes detected in site groundwater samples are presented on Figures 5-5 through 5-9. The compounds detected in the highest concentrations at the site were benzene and xylenes. Benzene was detected in 7 of the 12 monitoring wells used to assess petroleum contamination at the site. Ethylbenzene and xylenes were detected primarily in the groundwater samples collected from monitoring wells WHF-1438-2S and WHF-1438-3S. Toluene was detected only in groundwater sample U7G00201 from source area monitoring well WHF-1438-2S near the former location of Tank 1439.

Analytical results of groundwater samples collected in September 1996 and June 1997, from monitoring wells WHF-5-8S, WHF-5-8D, WHF-5-9S, and WHF-33-5 were used to show the horizontal and vertical extent of petroleum-contaminated groundwater associated with Site 1438-1439. Analytical results of the groundwater samples collected from monitoring wells WHF-5-8S, WHF-5-8D, WHF-5-9S, and WHF-33-5 are

Table 5-5
Analytical Results of Hydropunch™ Groundwater Screening Samples, April 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Contaminant	Sample Identifier, Boring Designation, and Date Sampled							State Target Level[1]
	07G02601 07B026 4/9/97	07G02701 07B027 4/10/97	07G02801 07B028 4/12/97	07G02901 07B029 4/13/97	07G03001 07B030 4/14/97	07G03101 07B031 4/15/97	07G03201 07B032 4/17/97	
Purgeable Aromatic Hydrocarbons (USEPA Method 602) (ppb)								
Benzene	2,400	390	110	49	600	240	980	1
Toluene	3,500	130	<3.0	2.3	1,900	340	2,300	40
Ethylbenzene	2,000	310	17	16	700	200	500	30
Xylenes, total	5,600	1,200	126	85	2,770	710	2,210	20

[1] Chapter 62-770, Florida Administrative Code.

Notes: ppb = parts per billion.
< = less than.

Table 5-6
Analytical Results of Monitoring Well Groundwater Samples, June and October 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Contaminant	Sample Identifier, Well Designation, and Date Sampled									State Target Level[1]
	U7G00101 WHF-1438-1S 6/10/97	U7G00101D WHF-1438-1S 6/10/97	U7G00201 WHF-1438-2S 6/10/97	U7G00202 WHF-1438-2D 10/15/97	U7G00301 WHF-1438-3S 6/10/97	U7G00401 WHF-1438-4S 6/10/97	U7G00501 WHF-1438-5S 10/15/97	U7G00501D[2] WHF-1438-5S 10/15/97	U7G00601 WHF-1438-6S 10/14/97	
Purgeable Aromatic Hydrocarbons (USEPA Method 602) (ppb)										
Benzene	<1	<1	[3]1,600	<1	[3]24	[3]3.2	[3]17	[3]18	<1	1
Toluene	<1	<1	[3]780	<1	<1	<1	<1	<1	<1	40
Ethylbenzene	<1	<1	[3]880	<1	5.8	<1	<1	<1	<1	30
Xylenes, total	1.6 J	1.6 J	[3]3,300	<2	[3]39	3.2	<2	<2	<2	20
Methyl tert-butyl ether	<1	<1	<50	1.3	1.2	<1	<1	<1	<1	35
Polynuclear Aromatic Hydrocarbons (USEPA Method 610) (ppb)										
Naphthalene	<1.9	<1.9	[3]23	<1.9	<2	<2	<2	<2	<2	20
1-Methyl naphthalene	<1.9	<1.9	5.8	<1.9	<2	<2	<2	<2	<2	NA
2-Methyl naphthalene	<1.9	<1.9	8.4	<1.9	<2	<2	<2	<2	<2	NA
Total Recoverable Petroleum Hydrocarbons [TRPH] (FL-PRO Method) (ppm)										
TRPH	0.52	0.48	4.2	<0.1	0.28	0.12	<0.1	<0.1	<0.1	5
Ethylene Dibromide [EDB] (USEPA 504) (ppb)										
EDB	<0.02	<0.02	[3]0.58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02
Metals (USEPA Method 239.2) (ppb)										
Lead, unfiltered	<3	<3	10.6	<3	<3	<3	<3	<3	<3	15

[1] Chapter 62-770, Florida Administrative Code.
[2] Bromodichloromethane and chloroform were detected in sample U7G00501D in concentrations of 1.1 ppb and 1.2 ppb, respectively.
[3] Contaminant concentration equals or exceeds applicable State target level.

Notes: ppb = parts per billion.
< = less than.
USEPA = U.S. Environmental Protection Agency.
ppm = parts per million.
D = duplicate sample.
FL-PRO = Florida-Petroleum Residual Organic
J = estimated value.
NA = not applicable.

Table 5-7
Analytical Results of Monitoring Well Groundwater Samples, September 1996 and June 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Contaminant	Sample Identifier, Monitoring Well Designation, and Date Collected							State Target Level[1]
	33G00501 WHF-33-5S 9/26/96	33G00501 WHF-33-5S 6/24/97	05G00801 WHF-5-8S 9/23/96	05G00801 WHF-5-8S 6/24/97	05G00802 WHF-5-8D 9/23/96	05G00802 WHF-5-8D 6/24/97	05G00802D WHF-5-8D 6/24/97	
Volatile Organics (USEPA Methods 601/602) (ppb)								
Benzene	<1	<1	11	2 J	<1	1 J	<1	1
Toluene	<1	<1	<1	<1	<1	<1	<1	40
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	30
Xylenes, total	<1	<1	3 J	<1	<1	1 J	<1	20
Tetrachloroethene	<1	150	2 J	<1	<1	<1	<1	3
Trichloroethene	<1	<1	<1	<1	<1	4 J	<1	3
Polynuclear Aromatic Hydrocarbons (modified USEPA Method 610) (ppb)								
Naphthalene	<2	NS	<2	<2	<2	NS	NS	20
Metals (USEPA Method 239.2) (ppb)								
Lead, unfiltered	<3	NS	3.1 J	NS	2.7 J	NS	NS	15

See notes at end of table.

Table 5-7 (Continued)
Analytical Results of Monitoring Well Groundwater Samples, September 1996 and June 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Contaminant	Sample Identifier, Monitoring Well Designation, and Date Collected					State Target Level[1]
	05G00901 WHF-5-9S 9/24/96	05G00901 WHF-5-9S 6/18/97	05G00902 WHF-5-9D 9/24/96	05G00902 WHF-5-9D 6/19/97	05G00902D WHF-5-9D 6/19/97	
Volatile Organics (USEPA Methods 601/602) (ppb)						
Benzene	<1	<1	<1	<1	<1	1
Toluene	<1	<1	<1	<1	<1	40
Ethylbenzene	<1	<1	<1	<1	<1	30
Xylenes, total	<1	<1	<1	<1	<1	20
Tetrachloroethene	<1	1 J	<1	<1	<1	3
Trichloroethene	<1	<1	<1	<1	<1	3
Polynuclear Aromatic Hydrocarbons (modified USEPA Method 610) (ppb)						
Naphthalene	<1	NS	<1	NS	NS	20
Metals (USEPA Method 239.2) (ppb)						
Lead, unfiltered	3 UJ	NS	3 UJ	NS	NS	15

[1] Chapters 62-550 and 62-770, Florida Administrative Code.

Notes: USEPA = U.S. Environmental Protection Agency.
ppb = parts per billion.
< = less than.
D = duplicate sample.
J = estimated value.
NA = not applicable.
NS = not sampled.
U = not detected below method detection limit.

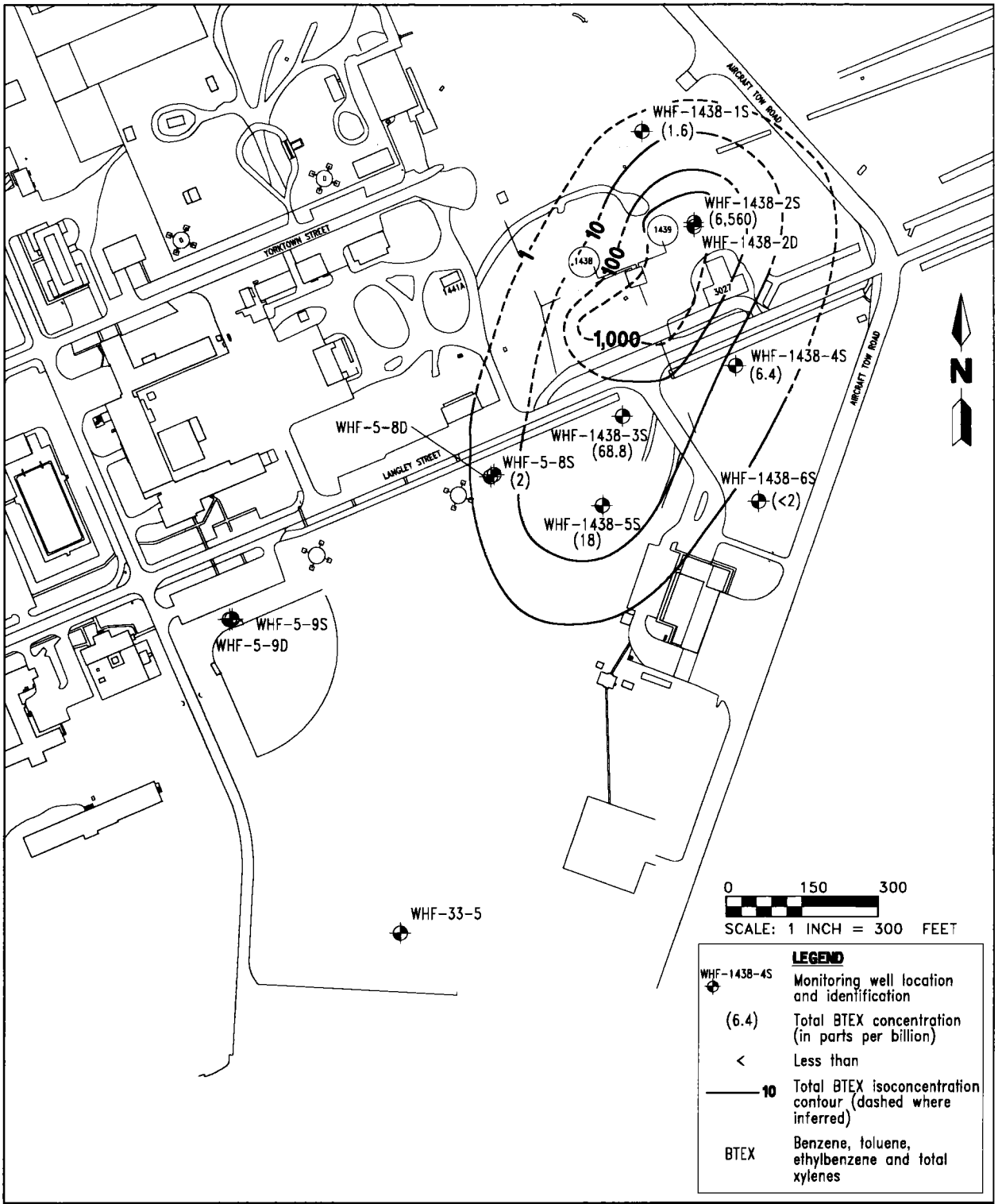

FIGURE 5-5

DISTRIBUTION OF TOTAL BTEX CONTAMINATION IN GROUNDWATER, JUNE AND OCTOBER 1997

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

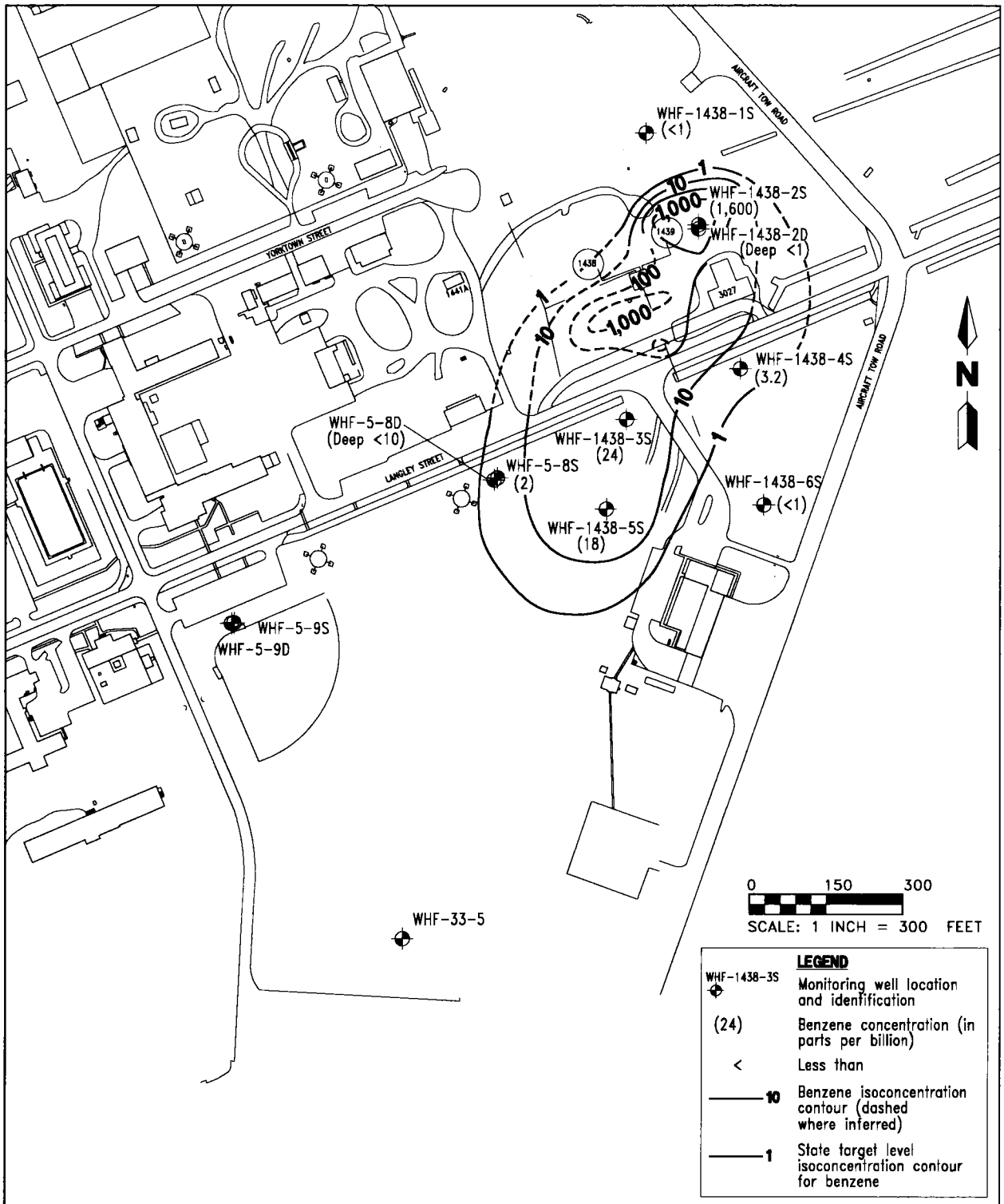

FIGURE 5-6

DISTRIBUTION OF BENZENE CONTAMINATION IN GROUNDWATER, JUNE AND OCTOBER 1997

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

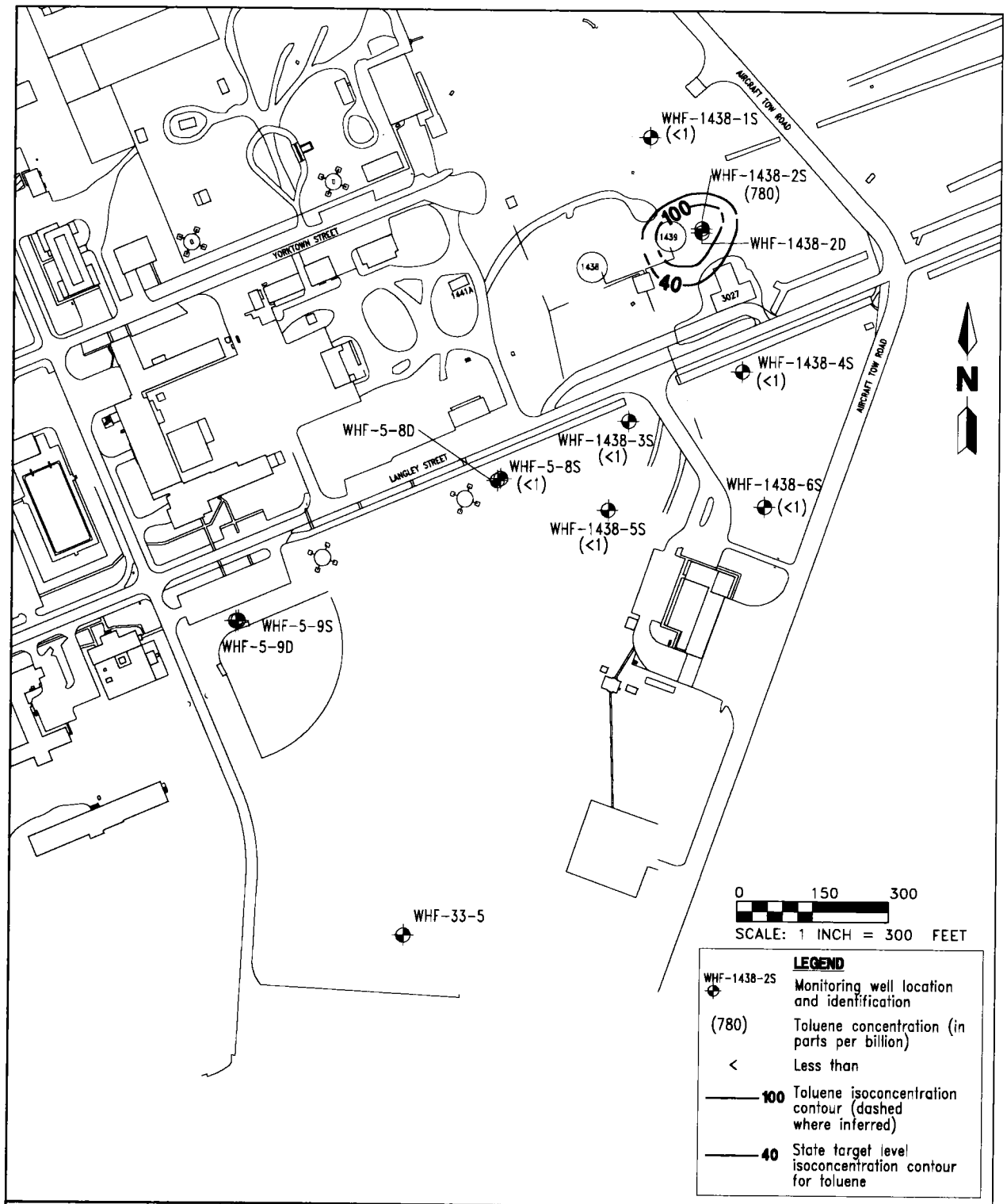

FIGURE 5-7

DISTRIBUTION OF TOLUENE CONTAMINATION IN GROUNDWATER, JUNE AND OCTOBER 1997

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

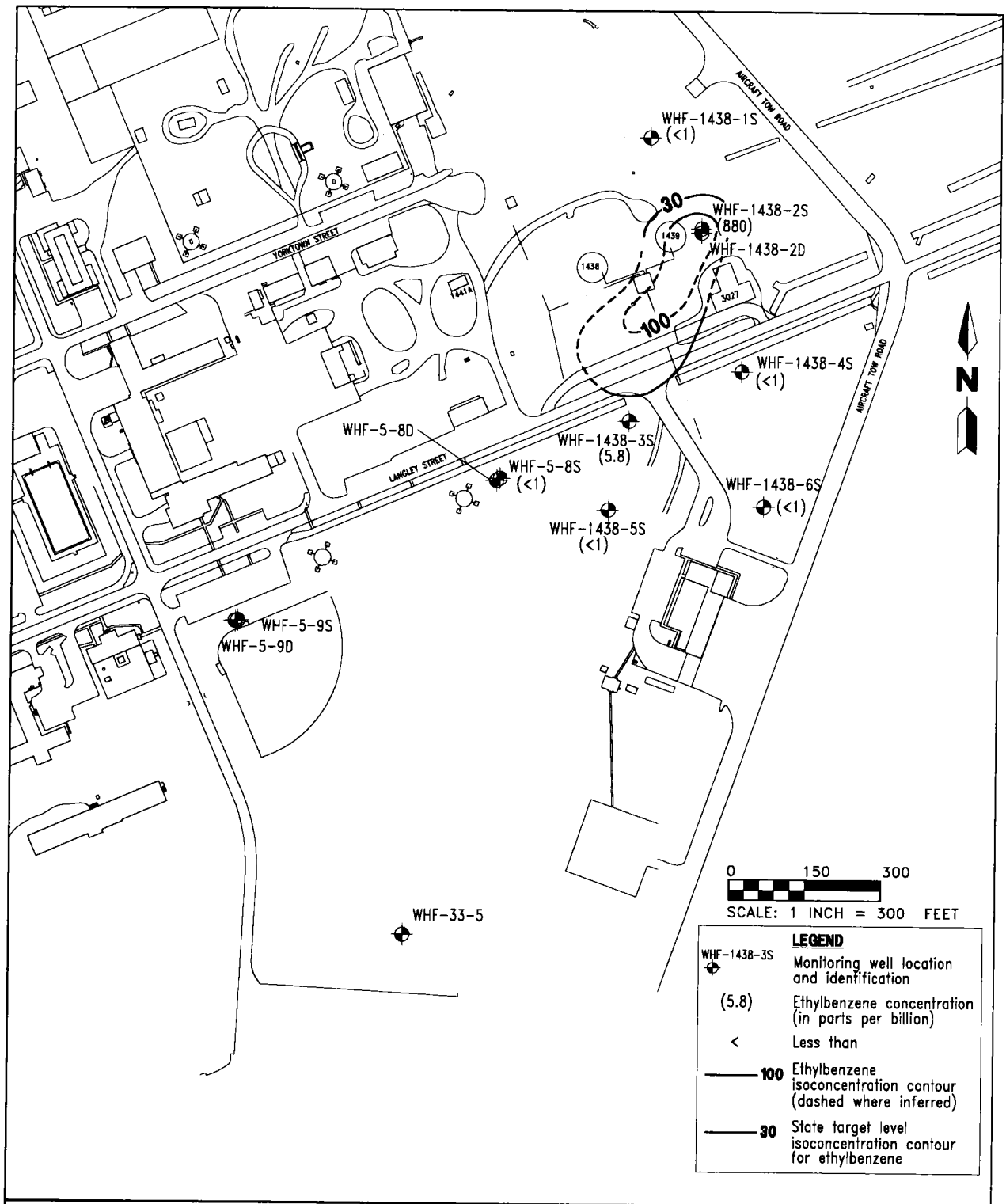

FIGURE 5-8

DISTRIBUTION OF ETHYLBENZENE CONTAMINATION IN GROUNDWATER, JUNE AND OCTOBER 1997

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

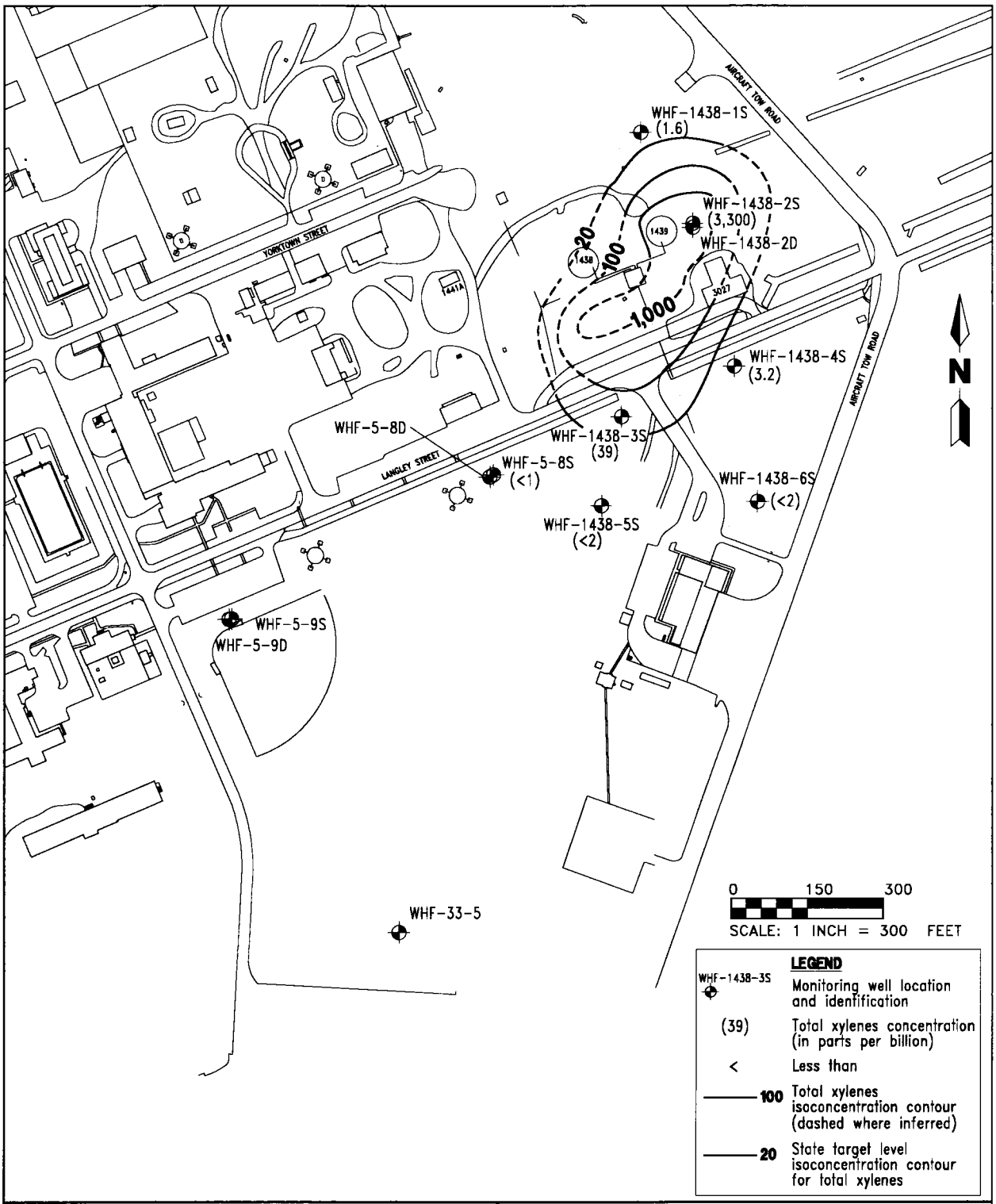

FIGURE 5-9

DISTRIBUTION OF TOTAL XYLENES CONTAMINATION IN GROUNDWATER, JUNE AND OCTOBER, 1997

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SITE ASSESSMENT REPORT, SITE 1438-1439

NAVAL AIR STATION WHITING FIELD MILTON, FLORIDA

summarized in Table 5-7, Analytical Results of Monitoring Well Groundwater Samples, June 1996 and 1997.

BTEX, ethylene dibromide (EDB), and naphthalene exceeded the Chapter 62-770, FAC, groundwater cleanup target levels (GCTLs) in monitoring well WHF-1438-2S. Benzene and total xylenes concentrations in downgradient monitoring well WHF-1438-3S exceeded the respective State GCTLs. Benzene concentrations in downgradient monitoring wells WHF-1438-4S, WHF-1438-5S, and WHF-5-8S also exceeded the State GCTL of 1 ppb. Xylenes and total recoverable petroleum hydrocarbon (TRPH) were detected in sample U7G00101 from upgradient monitoring well WHF-1438-1S in concentrations significantly below the State GCTLs. No petroleum compounds were detected in downgradient monitoring wells WHF-1438-6S, WHF-5-9S, WHF-5-9D, and WHF-33-5. An estimated benzene concentration of 1 ppb was reported in the sample from WHF-5-8D; however, the duplicate sample failed to confirm the presence of benzene.

Tetrachloroethene (PCE) and TCE were detected in concentrations above the 3 ppb State GCTL (Chapter 62-550, FAC) in WHF-33-5, the farthest downgradient monitoring well. PCE was also detected in estimated concentrations of 2 ppb and 1 ppb, respectively, in monitoring wells WHF-5-8S and WHF-5-9S. TCE was detected above the State GCTL in WHF-5-8D; however, the concentration was an estimated value and the duplicate sample failed to confirm the presence of TCE. TCE and PCE are nonpetroleum contaminants. The presence of TCE and PCE in groundwater samples from downgradient monitoring wells WHF-5-8S, WHF-5-8D, WHF-5-9S, and WHF-33-5 indicates a possible source of nonpetroleum contamination other than Site 1439-1439. The source of TCE and PCE in groundwater samples from monitoring wells (WHF-5)-8S, WHF-5-8D, WHF-5-9S, and WHF-5-33-5 is being assessed as part of the IR program at NAS Whiting Field.

Soil and groundwater samples were collected to assess natural attenuation parameters at the site. During the soil boring investigation in April and May 1997, soil samples were collected from borings 07B27, 07B049, 07B051, and 07B054. Two samples were collected at soil boring location 07B054. Sample 07B05401 was collected from 6 to 8 feet bls, and sample 07B05402 from 33 to 35 feet bls. The soil samples were analyzed for fraction of organic carbon, specific bacteria, total petroleum hydrocarbons, ammonium, nitrate, nitrite, pH, total Kjeldahl nitrogen, moisture content, and total organic carbon. A standard sieve analysis was performed on the soil samples to determine grain size distribution and classification in accordance with the Unified Soil Classification System. Results of the soil sample natural attenuation parameters are summarized in Table 5-8.

On June 10 and 11, 1997, groundwater samples were collected from monitoring wells WHF-1438-1S, WHF-1438-2S, and WHF-1438-3S. The groundwater samples were analyzed for methane, ethene, ethane, specific bacteria, total petroleum hydrocarbons, ammonium, nitrate, nitrite, total phosphate, sulfate, and iron. Results of the groundwater sample natural attenuation parameters are summarized in Table 5-9.

Table 5-8
Results of Soil Sample Natural Attenuation Parameters, April and May 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Parameter	Sample Identifier, Soil Boring Designation, and Date Sampled				
	07B2701 07B027 4/10/97	07B04901 07B049 4/29/97	07B05101 07B051 4/29/97	07B05401 07B054 5/6/97	07B05402 07B054 5/6/97
Fraction of Organic Carbon [FOC] (Modified USEPA Method 415.1) (percent)					
FOC	0.9	0.9	2.0	2.6	0.3
Specific Bacteria (USEPA Method 418.1) (percent)					
Specific bacteria	ND	44	81	ND	33
Total Petroleum Hydrocarbons [TPH] (Modified USEPA Method 8100) (mg/kg)					
TPH	0.68	ND	5.26	678	1.47
Nutrient Concentration (USEPA Methods 350.1, 353.1, 375.1, 376.1, 200.7, 150.1, 310.1, 351.3)					
Ammonium (NH_4), mg/ℓ	<5	<1	<1	<5	<5
Nitrate (NO_3), mg/ℓ	<1.3	<0.25	<0.25	<1.25	<1.25
Nitrite (NO_2), mg/ℓ	NA	NA	NA	<25	<25
pH, standard units	7.0	7.3	7.6	6.2	6.7
Total Kjeldahl nitrogen (TKN), mg/kg	NA	51	56	NA	NA
Moisture, percent	NA	12.5	9.7	NA	NA
Total organic carbon (TOC), mg/kg	NA	NA	200	NA	NA
Particle Size Distribution (Standard Sieve Analysis)					
Gravel, percent	0	NA	0	0.4	0
Sand, percent	60.9	NA	76.6	76.1	89.3
Silt and clay, percent	39.1	NA	23.4	23.5	10.7
USCS Classification	SM	NA	SM	SM	SP-SM

Notes: USEPA = U.S. Environmental Protection Agency.
mg/kg = milligrams per kilogram.
mg/ℓ = milligrams per liter.
< = less than.
NA = not analyzed
ND = not detected.
SM = silty sand.
SP = poorly graded sand.
USCS = Unified Soil Classification System.

Table 5-9
Results of Groundwater Sample Natural Attenuation Parameters, June 10 and 11, 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Parameter	Sample Identifier, Monitoring Well Designation, and Date Sampled		
	U7G00101 WHF-1438-1S 6/10/97	U7G00201 WHF-1438-2S 6/11/97	U7G00301 WHF-1438-3S 6/10/97
Methane, Ethene, and Ethane Headspace (Modified USEPA Method 8015) (mg/ℓ)			
Methane	<0.003	0.007	0.004
Ethene	<0.005	<0.005	<0.005
Ethane	<0.006	<0.006	<0.006
Specific Bacteria (Modified USEPA Method 9215c) (percent)			
Specific bacteria	18	11	7
Total Petroleum Hydrocarbons [TPH] (Modified USEPA Method 8100) (mg/ℓ)			
TPH	4.25	21.3	1.02
Nutrient Concentration (USEPA Methods 350.1, 353.1, 375.1, 376.1, 200.7, 150.1, 310.1, 351.3) (mg/ℓ)			
Ammonium (NH_4)	<1	2.5	<1
Nitrate (NO_3)	<0.25	<0.25	<0.25
Nitrite (NO_2)	<0.1	<0.1	<0.1
Total phosphate (T-PO_4)	<1	<1	<1
Sulfate (SO_4)	<5	<5	<5
Iron (Fe)	2	20	0.5

Note: USEPA = U.S. Environmental Protection Agency.
mg/ℓ = milligram per liter.
< = less than.

CHAPTER 6.0

6.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.1 SUMMARY. Data collected at Site 1438-1439 during the PCA can be summarized as follows:

- Soil at the site consists of interbedded clay, sandy clay, and very fine clayey sand overlying fine to coarse sand and gravel.

- A shallow perched water table exists in the northeast corner of the site, but does not significantly affect site hydrogeology. Groundwater flow in the perched water table is to the north-northeast.

- The shallow surficial aquifer was encountered approximately 100 feet to 110 feet bls. Groundwater flow in the surficial aquifer is toward the south-southwest.

- OVA headspace readings of site soil samples ranged from 0 ppm to greater than 5,000 ppm. Excessively contaminated soil as defined in Chapter 62-770, FAC, was detected in the vicinity of the former locations of Tank 1439, the pumphouse, the associated fuel pipelines, and several of the valve pits.

- Soil sample and SPLP analytical results indicated that all petroleum contaminants of concern were detected in concentrations below Chapter 62-770, FAC, SCTLs.

- Petroleum and nonpetroleum compounds including BTEX, EDB, naphthalene, PCE, and TCE were detected in concentrations above State GCTLs at the site.

- Three potable water wells are within the 0.25-mile radius of the site. Petroleum contamination associated with Site 1438-1439 does not appear to have affected water quality in these three potable water wells.

6.2 CONCLUSIONS. Petroleum-contaminated soil and groundwater at Site 1438-1439 resulted from releases associated with fuel storage and transfer operations. Based on soil and SPLP analytical results, excessively contaminated soil at the site is not a source of petroleum-contaminated groundwater. The shallow perched water zone in the northeast corner of the site is not contaminated and has no appreciable hydrogeological significance. Groundwater contamination is confined to the upper zone of the surficial aquifer and has migrated to the south-southwest in the direction of groundwater flow. PCE and TCE detected in the downgradient monitoring well during the IR program RI/FS are believed to be related to releases from sources other than Site 1439-1439.

6.3 RECOMMENDATIONS. No Further Action without conditions or restrictions is recommended for Site 1438-1439 because petroleum contaminant concentrations in excessively contaminated soil at the site are less than State SCTLs. Site soil is not a continuing source of contamination and, therefore, does not require remediation. In accordance with the agreement established previously by the Navy and the FDEP, petroleum-contaminated groundwater at the site will be addressed as part of the IR program basewide groundwater remedial action.

CHAPTER 7.0

7.0 PROFESSIONAL REVIEW CERTIFICATION

This report was prepared under the direct supervision of a professional geologist registered in the State of Florida. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report or referenced in public literature. Recommendations are based upon interpretations of the applicable regulatory requirements, guidelines, and relevant issues discussed with regulatory personnel during the site assessment. If conditions that differ from those described are determined to exist, the undersigned geologist should be notified to evaluate the effects of any additional information on this assessment or the recommendations made in this report. This report was developed for Site 1438-1439, NAS Whiting Field, Milton, Florida, and should not be construed to apply to any other site.

_____

Michael J. Williams
Professional Geologist
P.G. No. 000344

_____

Date

REFERENCES

REFERENCES

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APPENDIX A

APPENDIX A

PREVIOUS INVESTIGATIONS

PRELIMINARY CONTAMINATION ASSESSMENT REPORT

SITE 7, TANKS 1438 AND 1439

NAVAL AIR STATION, WHITING FIELD
MILTON, FLORIDA

Unit Identification Code: N60508

Contract No. N62467-89-D-0317/110

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Author: Pamela J. Wagner

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Luis Vazquez, Code 1843, Engineer-in-Charge

January 1995

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/110 are complete, accurate, and complies with all requirements of this contract.

DATE: January 13, 1995

NAME AND TITLE OF CERTIFYING OFFICIAL: John P. Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Pam Wagner
Project Technical Lead

(DFAR 252.227-7036)

FOREWORD

Subtitle I of the Hazardous and Solid Waste Amendments (HSWA) of 1984 to the Solid Waste Disposal Act (SWDA) of 1965 established a national regulatory program for managing underground storage tanks (USTs) containing hazardous materials, especially petroleum products. Hazardous wastes stored in USTs were already regulated under the Resource Conservation and Recovery Act (RCRA) of 1976, which is also an amendment to SWDA. Subtitle I requires that the U.S. Environmental Protection Agency (USEPA) promulgate UST regulations. The program was designed to be administered by the individual States, who were allowed to develop more stringent standards, but not less stringent standards. Local governments were permitted to establish regulatory programs and standards that are more stringent, but not less stringent than either State or Federal regulations. The USEPA UST regulations are found in the Code of Federal Regulations (CFR), Title 40, Part 280 (40 CFR 280) (*Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks*) and Title 40 CFR 281 (*Approval of State Underground Storage Tank Programs*). Title 40 CFR 280 was revised and published on September 23, 1988, and became effective December 22, 1988.

The Navy's UST program policy is to comply with all Federal, State, and local regulations pertaining to USTs. This report was prepared to satisfy the requirements of Chapter 17-770, Florida Administrative Code (FAC) (*State Underground Petroleum Environmental Response*) regulations on petroleum contamination in Florida's environment as a result of spills or leaking tanks or piping.

Questions regarding this report should be addressed to the Environmental Coordinator, Naval Air Station (NAS) Whiting Field, Milton, Florida, at 904-623-7181, or to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Code 1843, at DSN 563-0613 or 803-743-0613.

EXECUTIVE SUMMARY

ABB Environmental Services, Inc. (ABB-ES), was contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to perform a preliminary contamination assessment (PCA) for the former tank locations, 1438 and 1439, (Site 7) at Naval Air Station Whiting Field, Milton, Florida.

Site 7 is the former location of two, mounded 218,000-gallon aviation gasoline storage tanks. During their demolition in 1985, free product was reportedly observed in the excavation.

In November 1994, ABB-ES advanced 25 Terraprobe^{SM} soil sampling points to assess the petroleum contamination to a depth of 35 feet below land surface (bls). Seven piezometers were also installed to assess petroleum contamination of the perched water table in the northeast corner of Site 7.

Findings

Data collected at Site 7 during the PCA can be summarized as follows:

- Soil at Site 7 consists of interbedded clays, sandy clays, and very fine clayey sands overlying fine to coarse sands.
- A shallow perched water table exists in the northeast corner of Site 7.
- Groundwater flow in the perched water table is to the north northeast.
- VOC concentrations greater than 500 parts per million (ppm) were detected in the soil at Site 7.
- Toluene was the only volatile compound detected in groundwater that was analyzed using USEPA Methods 601/602. No parameters exceeded the State action levels.
- Three potable wells are within a 0.25-mile radius of Site 7.

Conclusions

Excessive soil contamination extending from the surface to at least a depth of 37 feet bls is present at Site 7. Laboratory analysis of groundwater samples collected from the perched water table indicated minimal petroleum contamination. No data are currently available on soil or groundwater at depths greater than 37 feet.

Recommendations

Further investigation of both soil and groundwater will be required to determine the full extent of petroleum contamination at Site 7. Due to apparent extensive contamination, it is estimated that a minimum of 37 wells and 30 soil borings will be required. It is also recommended that this estimate be discussed with the Florida Department of Environmental Protection because well and boring spacing could be up to 150 feet.

ACKNOWLEDGMENTS

In preparing this report, the Underground Storage Tank Section of the Comprehensive Long-Term Environmental Action, Navy (CLEAN) Group at ABB Environmental Services, Inc. (ABB-ES), commends the support, assistance, and cooperation provided by the personnel of the Naval Air Station (NAS) Whiting Field, Milton, Florida, and Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM).

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Milton, Florida

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Site 7, Naval Air Station Whiting Field
Milton, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
BDL	below detection limits
bls	below land surface
BTEX	benzene, toluene, ethyl benzene, and xylenes
CAP	Contamination Assessment Plan
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-term Environmental Action, Navy
CompQAP	Comprehensive Quality Assurance Plan
CTO	Contract Task Order
DTW	depth to water
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	flame ionization detector
GC	gas chromatograph
gpm	gallons per minute
HRS	hazard ranking system
HSWA	Hazardous and Solid Waste Amendments
IR	Installation Restoration
msl	mean sea level
NA	not analyzed
NAS	Naval Air Station
NGVD	National Geodetic Vertical Datum
NM	not measured
NS	not sampled
OVA	organic vapor analyzer
PCA	Preliminary Contamination Assessment
PCAP	Preliminary Contamination Assessment Plan
PCAR	Preliminary Contamination Assessment Report
POA	Plan of Action
ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act

GLOSSARY (Continued)

SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
SOW	Statement of Work
SPCC	Spill Prevention Control and Countermeasure
SWDA	Solid Waste Disposal Act
TOC	top of casing
TRAWING FIVE	Training Air Wing Five
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOA	volatile organic aromatic
VOC	volatile organic compounds

1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), was contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to perform a preliminary contamination assessment (PCA) and submit a Preliminary Contamination Assessment Report (PCAR) for former tank locations 1438 and 1439 (Site 7) at Naval Air Station (NAS) Whiting Field.

The scope of services for the work at Site 7 is described in Contract Task Order (CTO) No. 110, the Plan of Action (POA), and the Preliminary Contamination Assessment Plan (PCAP) and includes the following:

- advancing soil borings and performing organic vapor analyzer (OVA) analysis of site soils to assess the degree and the horizontal and vertical extent of soil contamination to a depth of 37 feet below land surface (bls),
- installing and sampling piezometers to assess the degree and the extent of groundwater contamination in the perched water table at the site,
- collecting water level data to estimate the groundwater flow direction and hydraulic gradient in the perched water table,
- conducting a potable well inventory within a 0.25-mile radius of the site, and
- reducing and analyzing pertinent data gathered during the PCA to complete this PCAR.

The PCA at Site 7 was conducted in November 1994. The following sections of the report present the background information, data compilation, results, conclusions, and recommendations of the PCAR.

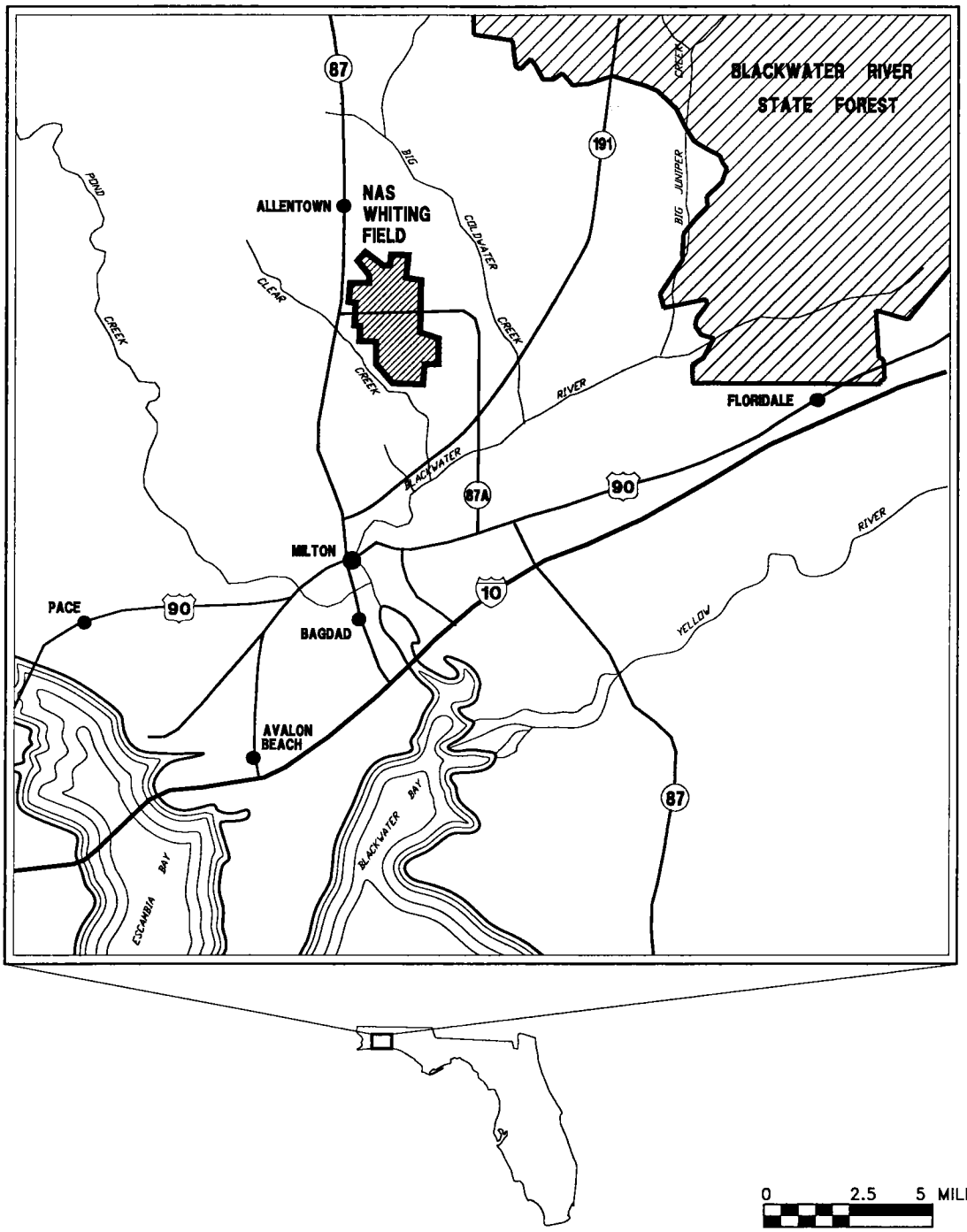
2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION. Whiting Field is in Florida's northwest coastal area approximately 7 miles north of Milton and 20 miles northeast of Pensacola (Figure 2-1). NAS Whiting Field occupies 3,490 acres in north-central Santa Rosa County with easement rights to an additional 457 acres.

The station is the home base of Training Air Wing Five (TRAWING FIVE), whose mission is to administer, coordinate, and supervise flight and academic training. The station is divided into a North Field, where fixed wing training takes place, and a South Field used for helicopter training. Support facilities are located between the two fields. Site 7, the former location of two storage tanks (1438 and 1439), is located in the support facilities area on the east side of the aircraft tow road (see Figure 2-2).

The two storage tanks were installed partially below ground surface, then covered with fill dirt to form two large mounds. They were constructed of type "B" concrete and were 61.5 feet in diameter and 23 feet tall. It is not known how far below the original land surface the tanks were installed.

2.2 SITE HISTORY. Tanks 1438 and 1439 were each constructed to store 218,000-gallons of aviation gasoline. They were installed in 1943 and remained in use until 1980. The storage tanks were then decommissioned and filled with water. In 1985, the tanks were demolished. One of the two tanks was reportedly removed; the other reportedly collapsed and was abandoned in place. During demolition, free product was discovered in the excavation pit (Navy Statement of Work [SOW] No. 90). The piping associated with the tanks (running to both the north and south airfields) was reportedly abandoned in place and filled with concrete. The tank site has never been officially closed in accordance with State storage tank regulations.



MAP LOCATION

0 2.5 5 MILES

SCALE: 1" = 5 MILES

Source: ABB Environmental Services Inc., 1992

FIGURE 2-1
FACILITY LOCATION MAP

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

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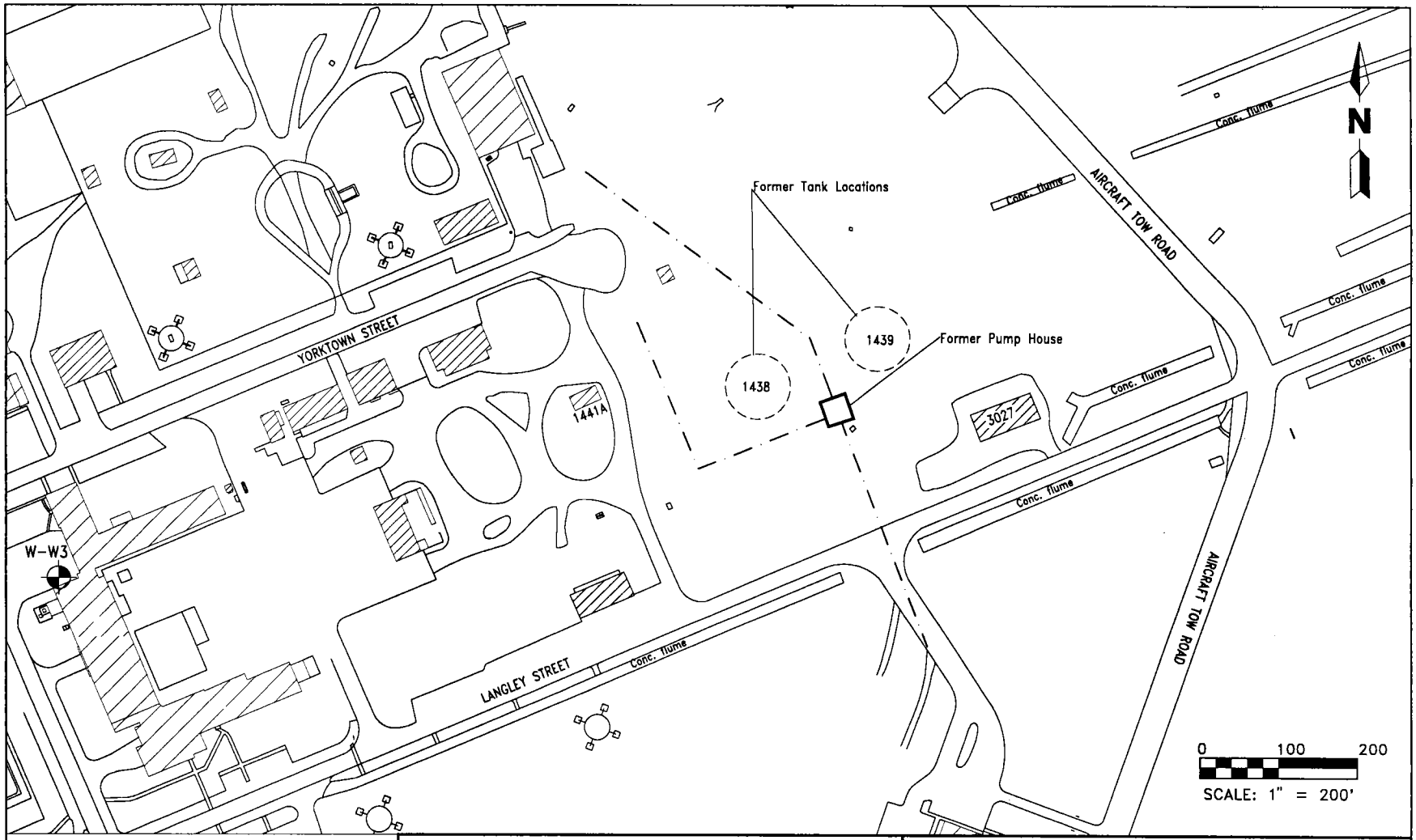

LEGEND

W-W3 Production well

Abandoned 6-inch fuel line location

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FIGURE 2-2
SITE PLAN

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

3.0 SITE CONDITIONS

3.1 PHYSIOGRAPHY. NAS Whiting Field lies within the Western Highland physiographic region of Florida. This zone is characterized by southward sloping hills and plateaus, which have been cut by numerous streams. Elevations generally range from 50 to 200 feet above mean sea level (msl). Surface water runoff is conveyed to Big Cold Creek (east) by a system of concrete flumes (Figure 2-2). The drainage system was installed when the base was constructed in the early 1940's.

3.2 HYDROGEOLOGY.

3.2.1 Regional There are three major aquifers in the NAS Whiting Field area. The uppermost aquifer, the sand-and-gravel aquifer, exists under both artisan and nonartisian conditions, depending on the presence or absence of semi-confining clay lenses. The two other aquifers, the Upper Floridan and the Lower Floridan, are deep artisan aquifers of the Floridan aquifer system. Virtually all ground-water withdrawn in Escambia and Santa Rosa Counties comes from the lower part of the sand-and-gravel aquifer (Geraghty & Miller, 1986).

3.2.2 Site Specific Site 7 is capped by low permeability sediment consisting of clayey sand and sandy clay. These range in thickness from approximately 25 to 35 feet. Beneath this sediment the lithology consists of very fine- to coarse-grained sands with randomly interbedded lenses and layers of gravel and clay.

The sand-and-gravel aquifer is recharged by infiltration of rainwater at the surface. Due to a clay layer of variable thickness and lateral extent at NAS Whiting Field, locally perched water tables are present. This is the case in the northeastern part of Site 7 where the clay layer, ranging from 6 inches to 5 feet in thickness, is located 10 to 15 feet bls. This clay layer forms an aquitard and subsequently creates a locally perched water table. Complete lithologic logs for all site soil borings and monitoring wells are presented in Appendix A, Lithologic Logs.

4.0 METHODOLOGIES AND EQUIPMENT

4.1 SOIL BORING PROGRAM. Twenty-five soil sampling locations, 07B001 through 07B025, were selected at the site. Soil samples were collected with the Terraprobe^{SM} system. Sample locations ranged in depth from 32 to 37 feet bls. Soil samples were collected to:

- assess the vertical extent and level of petroleum contamination in the soil to a depth of 37 feet bls,
- identify the type of subsurface material, and
- aid in the placement of subsequent piezometers.

To collect the soil samples, the TerraProbe^{SM} sample tube is driven to the desired depth by hydraulic pushing and hammer action. Initially the soil probe is closed and does not allow soil to enter the tube until the sample depth is reached. After the sampling depth is reached, a set of extension rods is removed from the probe rods connected to the piston stop. This allows the soil probe tip to move upward when the rods are driven farther into the soil. The probe is pushed or hammered into the soil, the tip remains stationary, and the soil probe fills with soil. The polyethylene sample tube collects approximately 12 inches of soil when the probe tip is fully retracted into the probe. The rods are then removed from the hole and the soil core is removed by slicing the sampling tube open with a utility knife.

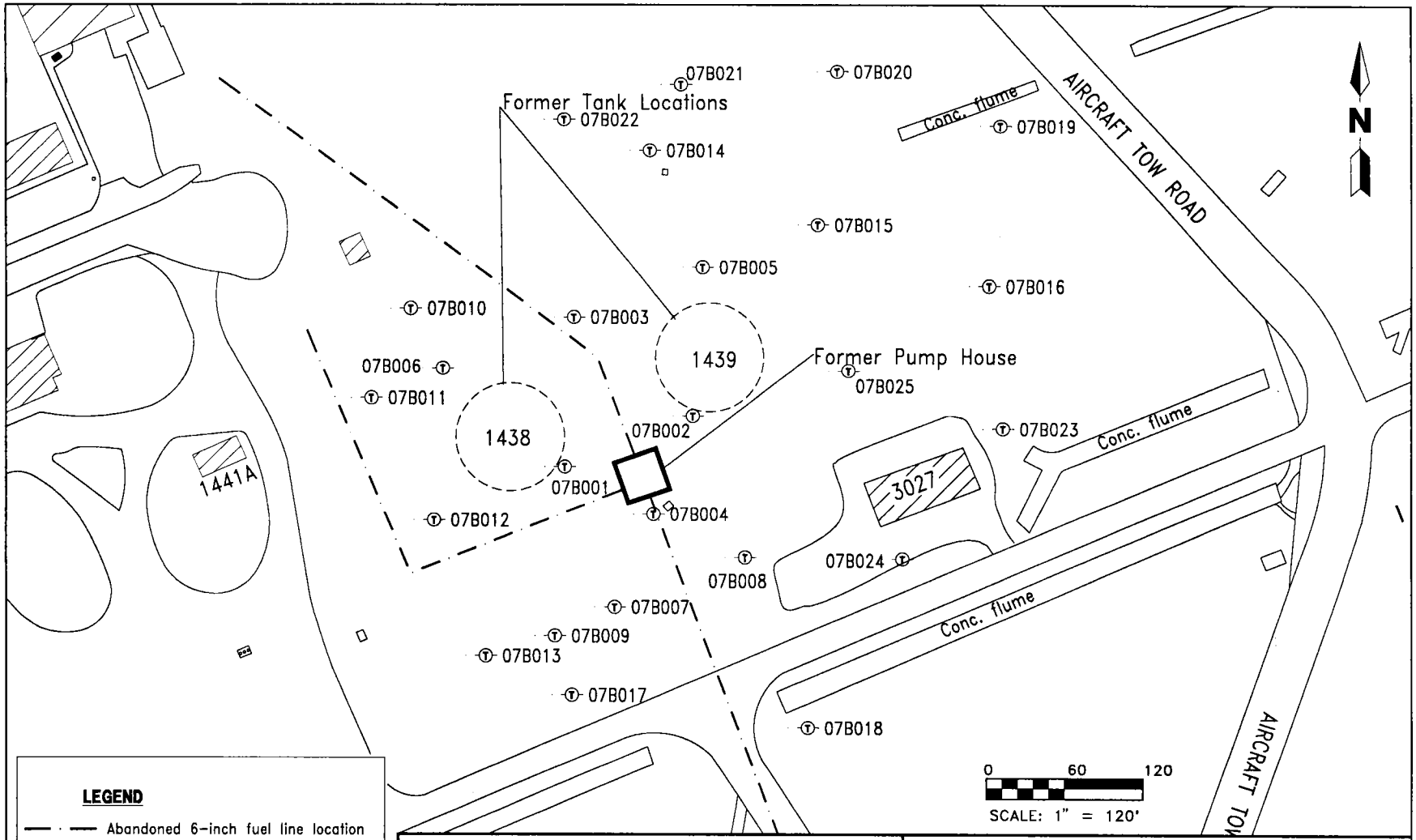
After each soil sample was collected, a 16-ounce glass jar was filled halfway with unsaturated soil and sealed with heavy duty aluminum foil in accordance with Chapter 62-770, FAC. The headspace of each subsurface soil sample was analyzed using an OVA equipped with a flame ionization detector (FID) after the temperature of the soil sample had equilibrated (approximately 5 to 10 minutes). The total volatile organic compound (VOC) concentrations for each sample, as well as a lithologic description of the sample, were then recorded in the field logbook.

Terraprobe^{SM} soil sampling locations are shown in Figure 4-1. The results of the soil boring program are discussed in Section 5.2.

4.2 PIEZOMETER INSTALLATION PROGRAM. Seven piezometers were installed at Site 7. Five piezometers were installed in a perched water table located in the northeastern part of the site. Two other piezometers were dry and subsequently abandoned.

All piezometers were constructed of 3/4-inch polyvinyl chloride (PVC) with flush threaded joints and 0.020-inch slotted screen. Screen length varied from 5 to 10 feet depending on depth and thickness of the water bearing zone. No sand pack, bentonite seal, or grout was used in the construction of these piezometers. Each piezometer was capped with a nonlocking PVC cap. Piezometer locations are shown in Figure 4-2.

4.3 GROUNDWATER ELEVATION SURVEY. The elevation and slope of the perched water table were determined by surveying the top of casing for each piezometer to an



LEGEND

Abandoned 6-inch fuel line location

07B001 Soil sampling location

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FIGURE 4-1
TERRA PROBE™ SOIL SAMPLING LOCATIONS

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

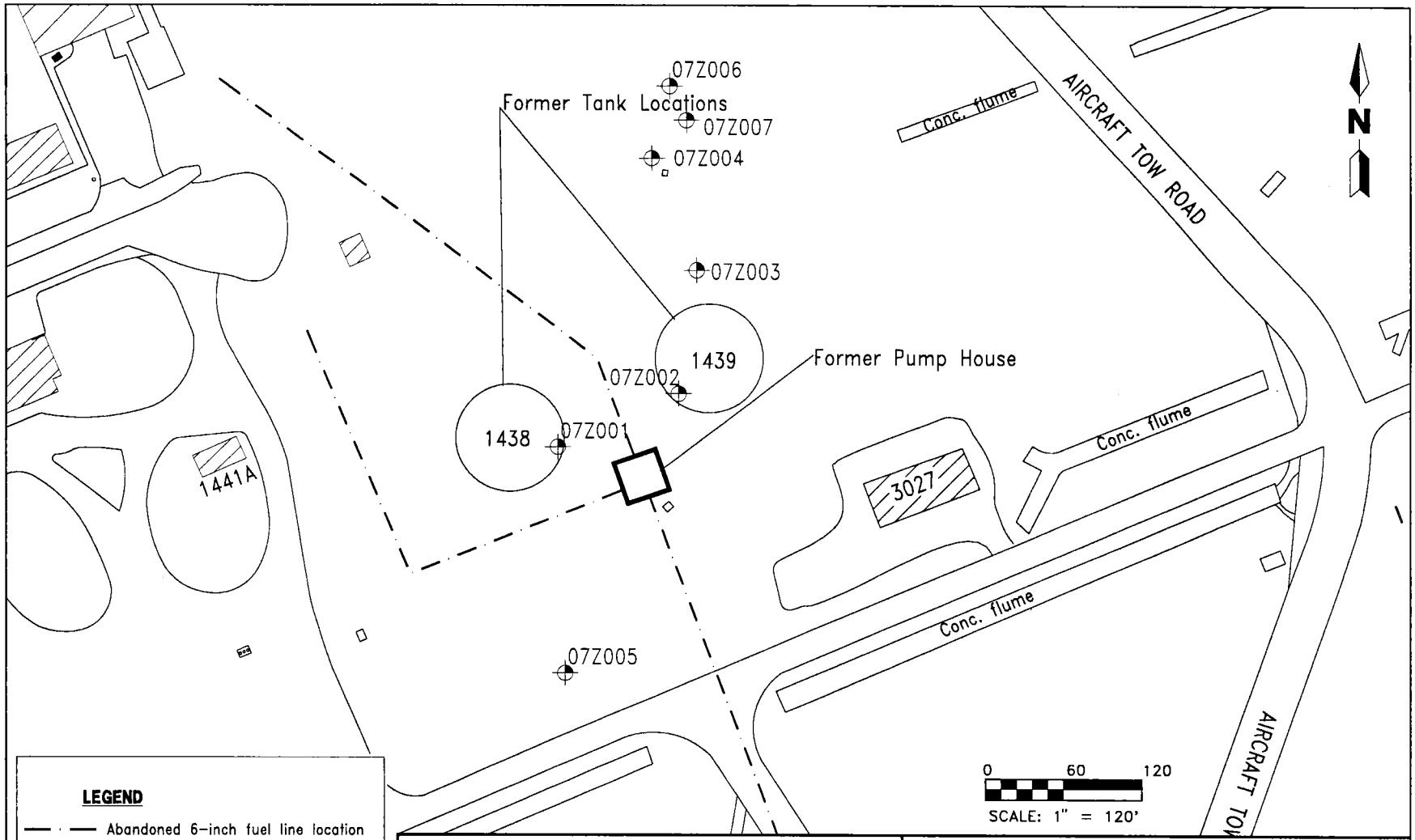

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FIGURE 4-2
PIEZOMETER LOCATION MAP

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

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arbitrarily assigned reference datum of 100 feet using a surveyor's level and stadia rod. The reference datum was the ground surface at soil boring location 07B001.

The groundwater levels were measured using an electronic water level indicator with an accuracy to 0.1 foot. Water level elevations were calculated by subtracting the measured depth to groundwater from the elevation at the top of the well casing.

4.4 SAMPLING PROGRAM. Groundwater samples were collected from five piezometers November 13 and 18, 1994. Piezometers were purged of at least five volumes prior to sampling. The samples were screened for benzene, toluene, ethylbenzene, and xylenes (BTEX) using a portable gas chromatograph (GC). Groundwater samples were also shipped to Quanterra Environmental in Tampa, Florida, for analysis by United States Environmental Protection Agency (USEPA) methods 601 and 602. Because this is screening data, quality assurance/quality control (QA/QC) samples were not collected.

5.0 CONTAMINATION ASSESSMENT RESULTS

5.1 PERCHED WATER TABLE CHARACTERISTICS. A perched water table was encountered in the northeastern corner of Site 7. The water table is perched on a clay layer located 10 to 15 below land surface. Although the north and east sides of the water table are not clearly defined, it appears to end at the steep embankment along the aircraft tow road. The water table is defined on the south and west side, and roughly extends to Terraprobe[SM] locations 07B002 and 07B022 (see Figure 4-1).

Groundwater level measurements were collected from site piezometers on November 12 and 18, 1994. These measurements are shown in Table 5-1. A water table elevation contour map was constructed using this data. This map, Figure 5-1, indicates a north northeast flow direction in the perched water table.

Table 5-1
Top of Casing and Groundwater Elevations, November 1994

Preliminary Contamination Assessment Report
Site 7, Naval Air Station Whiting Field
Milton, Florida

Piezometer Designation	November 1994		
	TOC (feet)	DTW (feet)	Groundwater Elevation
07Z001	NM	dry	NM
07Z002	99.9	7.4	92.5
07Z003	98.7	8.2	90.5
07Z004	96.0	8.5	87.5
07Z005	NM	dry	NM
07Z006	NM	mud	NM
07Z007	95.3	8.8	86.5

Notes: TOC = top of casing elevation. Based on an arbitrary elevation of 100 feet above sea level.
DTW = depth to water below TOC.
NM = not measured.

5.2 CONTAMINANT PLUME DEFINITION AND CHARACTERIZATION.

5.2.1 Perched Water Table Groundwater samples collected from the perched water table were collected and analyzed for BTEX (with a portable GC) and volatile organics (USEPA Methods 601 and 602). The results are summarized in Table 5-2.

GC data is used for screening purposes only. The following State action levels apply to data collected by analytical methods (Rule 62-770.730, Florida Administrative Code [FAC]):

Benzene	1 part per billion (ppb)
Total VOA	50 ppb

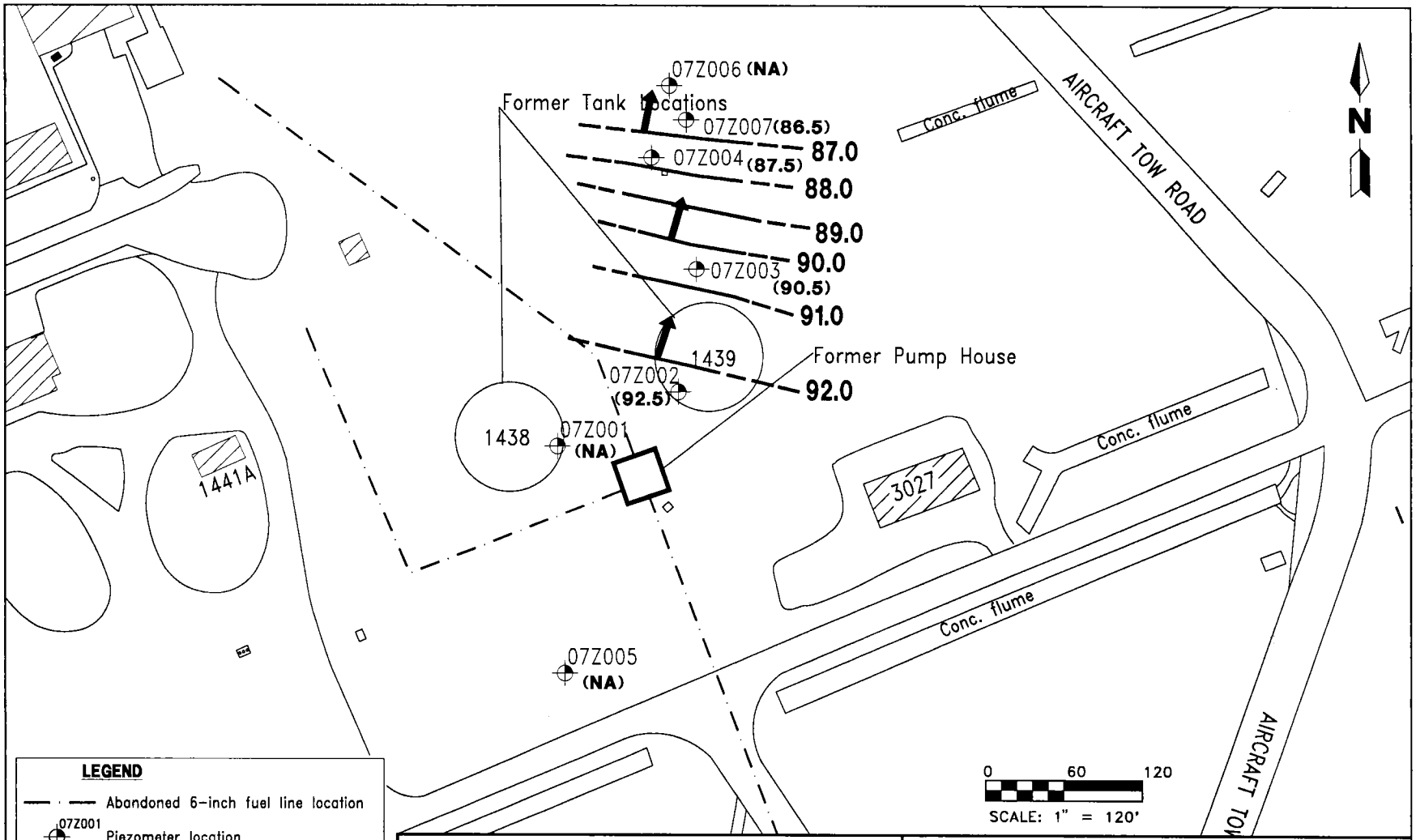

FIGURE 5-1
PERCHED WATER TABLE ELEVATION CONTOUR MAP, NOVEMBER 12 AND 18, 1994

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

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Table 5-2
Summary of Groundwater Sample Gas Chromatograph and Laboratory Analysis Results, November 1994

Preliminary Contamination Assessment Report
Site 7, Naval Air Station Whiting Field
Milton, Florida

Compound	07Z002		07Z003		07Z004		07Z006	07Z007[1]	
	GC	Lab	GC	Lab	GC	Lab	GC	GC	Lab
Benzene	BDL	<1.0	BDL	<1.0	BDL	<1.0	1	54	<1.0
Toluene	BDL	1.3	BDL	<1.0	BDL	<1.0	BDL	BDL	<1.0
Ethylbenzene	BDL	<1.0	BDL	<1.0	2	<1.0	BDL	531	<1.0
Xylenes	BDL	<1.0	BDL	<1.0	2	<1.0	1	653	<1.0
Total VOA[2]	BDL	1.3N	BDL	BDL	4N	BDL	2	1238N	BDL

[1] Strong petroleum odors were noted when samples were collected from this location.
[2] Total VOA is the sum of all benzene, ethylbenzene, toluene, and xylenes.

Notes: Concentrations are in parts per billion.
GC = gas chromatograph.
BDL = below detection limits.
VOA = volatile organic aromatics.
N = actual value may be greater than the reported value.

Benzene concentrations of 1 ppb and 54 ppb were detected by GC screening in the groundwater samples collected from 07B006 and 07B007, respectively. Benzene was not detected in any sample analyzed by USEPA Methods 601/602.

Total VOA concentrations of 4 ppb, 2 ppb, and 1238 ppb were detected by GC screening in the groundwater samples collected from 07Z004, 07Z006, and 07Z007, respectively. Total VOA concentrations of 1.3 ppb were detected by USEPA Methods 601/602 in the sample collected from 07Z002. Total VOA concentrations were below detection limits in all other samples.

5.2.2 Soil Assessment Discrete soil samples were collected November 8 through 17, 1994, from soil sampling locations using a Terraprobe^{SM} pushprobe system. Sampling intervals varied according to sampling location and subsurface conditions encountered at a specific sampling location. All soil samples were analyzed using OVA headspace techniques. A summary of the OVA analytical data is presented in Table 5-3. Soil contamination distribution is presented in Figures 5-2 through 5-9.

VOC at concentrations greater than 500 parts per million (ppm) were detected in ten of twenty-five Terraprobe^{SM} locations (07B001, 07B002, 07B004, 07B005, 07B007, 07B008, 07B009, 07B014, 07B015, and 07B025). VOC concentrations between 10 and 500 ppm were detected in soil samples collected from 07B006. VOC concentrations detected in the remaining fourteen perimeter Terraprobe^{SM} locations were less than 2 ppm.

Excessively contaminated soil is defined by Rule 62-770.200(2), FAC as soil which contains VOC concentrations greater than 500 ppm (for gasoline analytical group).

Table 5-3
Summary of Soil Sample Organic Vapor Headspace Analyses, November 1994

Preliminary Contamination Assessment Report
Site 7, NAS Whiting Field
Milton, Florida

Sample Elevation (feet)	Terraprobe Location Designation									
	07B001	07B002	07B003	07B004	07B005	07B006	07B007	07B008	07B009	07B010
100.0 - 98.1	<1	<1	<1		<1	<1				
98.0 - 96.1	<1	<1	<1	<1	<1	<1		4	<1	<1
96.0 - 94.1	<1	50	<1	<1	<1	<1	<1			<1
94.0 - 92.1	<1	<1	1	<1	>5000	<1		>5000	<1	<1
92.0 - 90.1	0	<1	1	<1	3550	<1	1			
90.0 - 88.1	20	1	<1	24	31	17		>5000		<1
88.0 - 86.1	102	5	1	3000		1	<1		<1	
86.0 - 84.1	>5000	11	<1	1900	29	6		>5000		
84.0 - 82.1	140	22	<1		1999	10	1900			<1
82.0 - 80.1	>5000		<1						<1	
80.0 - 78.1	1800					104		>5000		<1
78.0 - 76.1				1900			31		>5000	
76.0 - 74.1	1500	NS			99	31		230		
74.0 - 72.1		796	<1	480		<1	5	995	2	<1
72.0 - 70.1					39	11				
70.0 - 68.1	171		<1					896		<1
68.0 - 66.1		413		1800			<1		1	
66.0 - 64.1	140				27	6				
64.0 - 62.1			1				<1	1000	10	<1
62.0 - 60.1				470						
60.0 - 58.1										

See notes at end of table.

Table 5-3 (Continued)
Summary of Soil Sample Organic Vapor Headspace Analyses, November 1994

Preliminary Contamination Assessment Report
Site 7, NAS Whiting Field
Milton, Florida

Sample Elevation (feet)	Terraprobe Location Designation									
	07B011	07B012	07B013	07B014	07B015	07B016	07B017	07B018	07B019	07B020
100.0 - 98.1										
98.0 - 96.1								<1		
96.0 - 94.1				<1	850					
94.0 - 92.1	<1	<1		<1	>5000			<1		
92.0 - 90.1			<1		>5000		<1			<1
90.0 - 88.1	<1	<1		<1		<1			<1	
88.0 - 86.1			1	800		<1	<1	<1		
86.0 - 84.1					110	<1				<1
84.0 - 82.1	<1	<1						<1	<1	
82.0 - 80.1			<1	2000	26	<1	<1			<1
80.0 - 78.1	<1	2	<1				<1		<1	
78.0 - 76.1			<1	<1		<1	NS	<1		
76.0 - 74.1			<1		32		<1			<1
74.0 - 72.1	<1	<1	<1				<1	<1	<1	
72.0 - 70.1				<1	7	1				<1
70.0 - 68.1	1	<1					<1		<1	
68.0 - 66.1			<1	<1		<1		<1		
66.0 - 64.1					9					1
64.0 - 62.1	<1	2	<1				<1	2	<1	
62.0 - 60.1				<1		<1				<1
60.0 - 58.1									<1	

See notes at end of table.

Table 5-3 (Continued)
Summary of Soil Sample Organic Vapor Headspace Analyses, November 1994

Preliminary Contamination Assessment Report
Site 7, NAS Whiting Field
Milton, Florida

Sample Elevation (feet)	Terraprobe Location Designation				
	07B021	07B022	07B023	07B024	07B025
100.0 - 98.1					
98.0 - 96.1		<1		<1	<1
96.0 - 94.1	<1				
94.0 - 92.1			<1	<1	>5000
92.0 - 90.1	<1	<1			
90.0 - 88.1		<1	<1		
88.0 - 86.1				<1	>5000
86.0 - 84.1	<1	<1			
84.0 - 82.1			<1	<1	>5000
82.0 - 80.1	<1	<1			
80.0 - 78.1			<1		
78.0 - 76.1		<1		<1	>5000
76.0 - 74.1	<1				
74.0 - 72.1			1	<1	>5000
72.0 - 70.1	1	2			
70.0 - 68.1			<1		
68.0 - 66.1		<1		<1	319
66.0 - 64.1	<1				
64.0 - 62.1			<1	1	800
62.0 - 60.1	1	2			
60.0 - 58.1					

Notes: Sample elevations are relative. An elevation of 100 feet was arbitrarily assigned to 07B001.
All concentrations are reported in parts per million.
NS = not sampled.

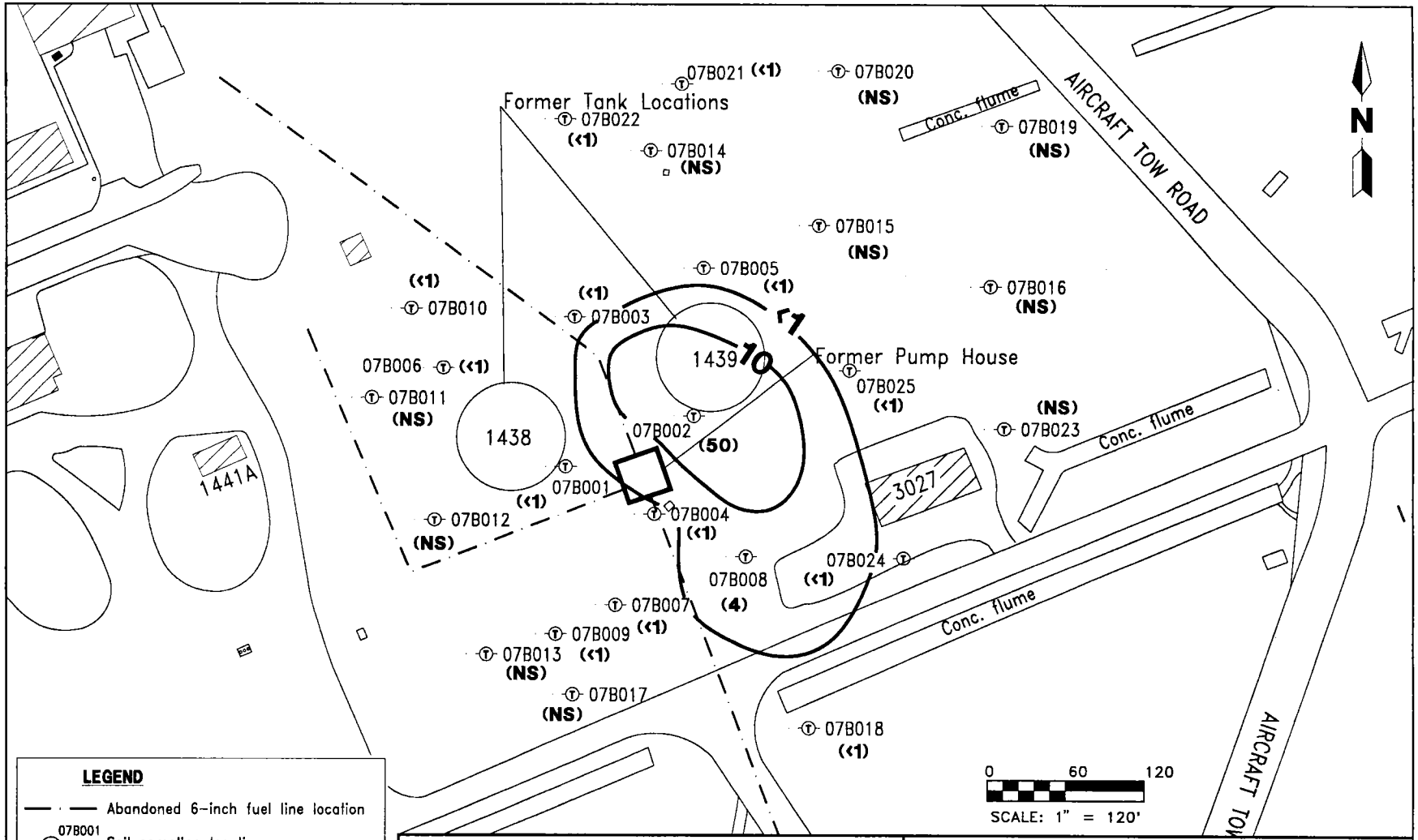
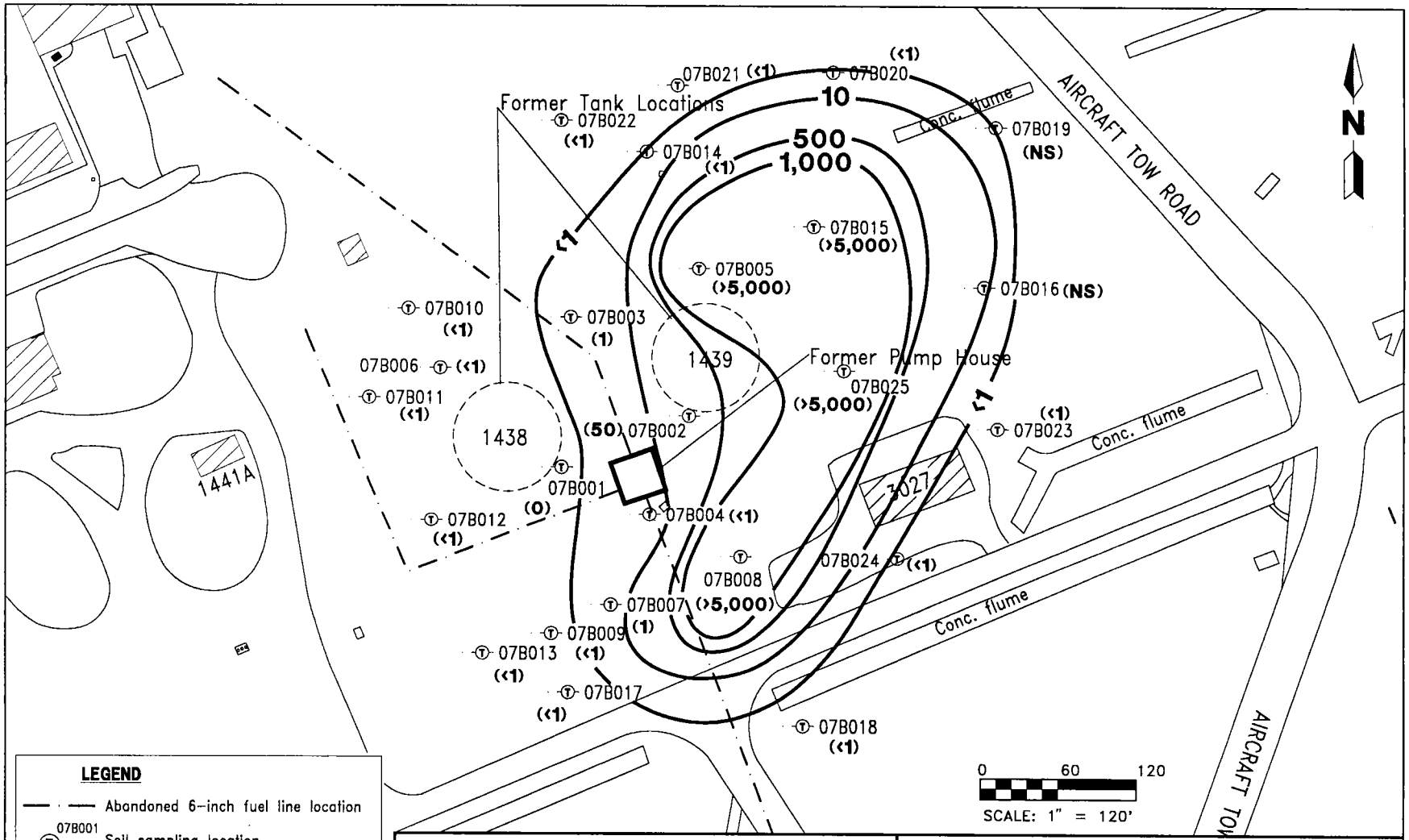


FIGURE 5-2
SOIL CONTAMINATION DISTRIBUTION MAP, 100 TO 95 FEET

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA



LEGEND

- Abandoned 6-inch fuel line location
- 07B001 — Soil sampling location
- (4) — Organic vapor analyzer headspace analysis result in parts per million
- <1 — Isoconcentration line in parts per million, elevation based on an arbitrary elevation of 100 feet above sea level
- (NS) — Not sampled

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FIGURE 5-3
SOIL CONTAMINATION DISTRIBUTION MAP, 94 TO 90 FEET

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

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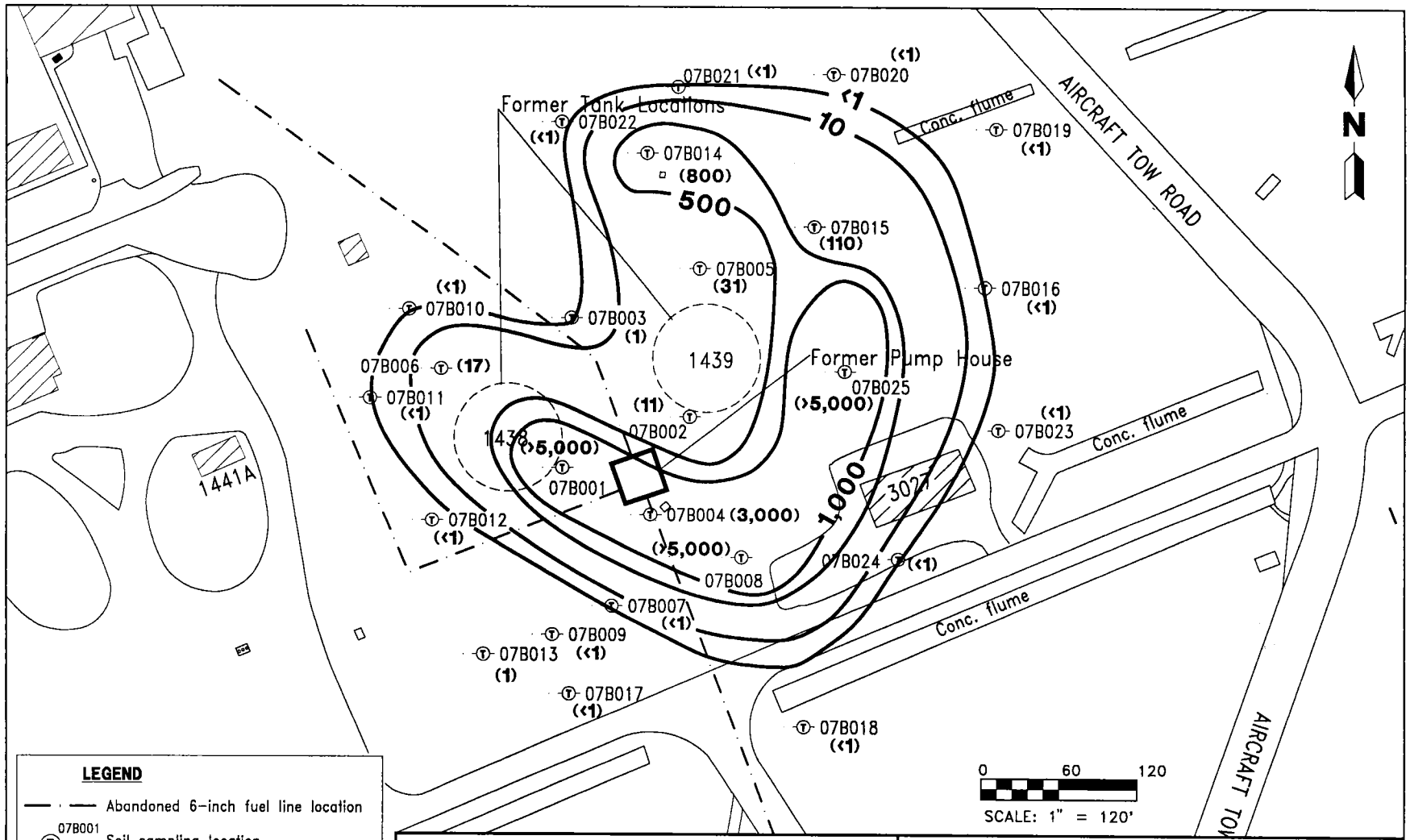

FIGURE 5-4
SOIL CONTAMINATION DISTRIBUTION MAP, 89 TO 85 FEET

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

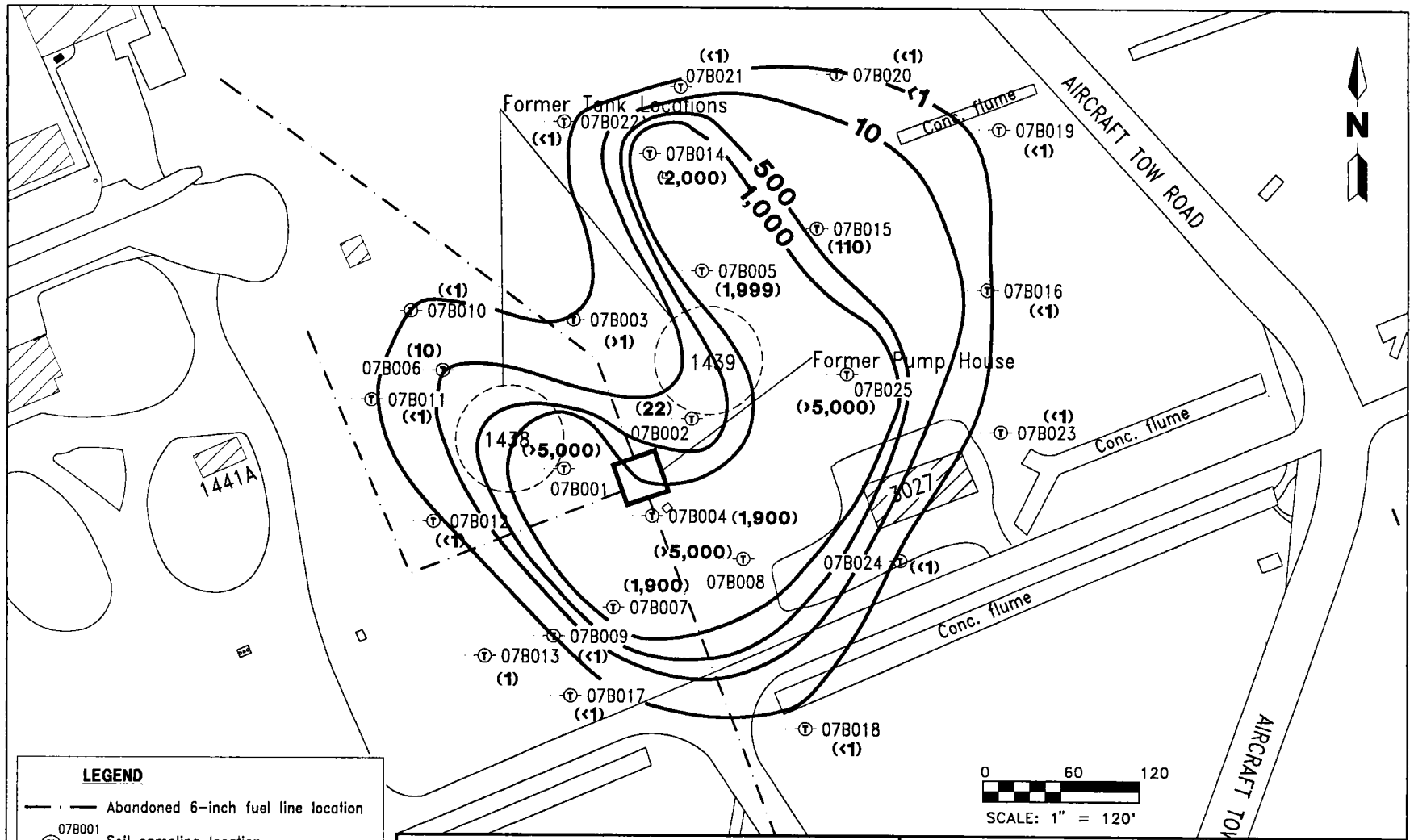

FIGURE 5-5
SOIL CONTAMINATION DISTRIBUTION MAP, 84 TO 80 FEET

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

WF1438&9.PCA
FGB.01.95

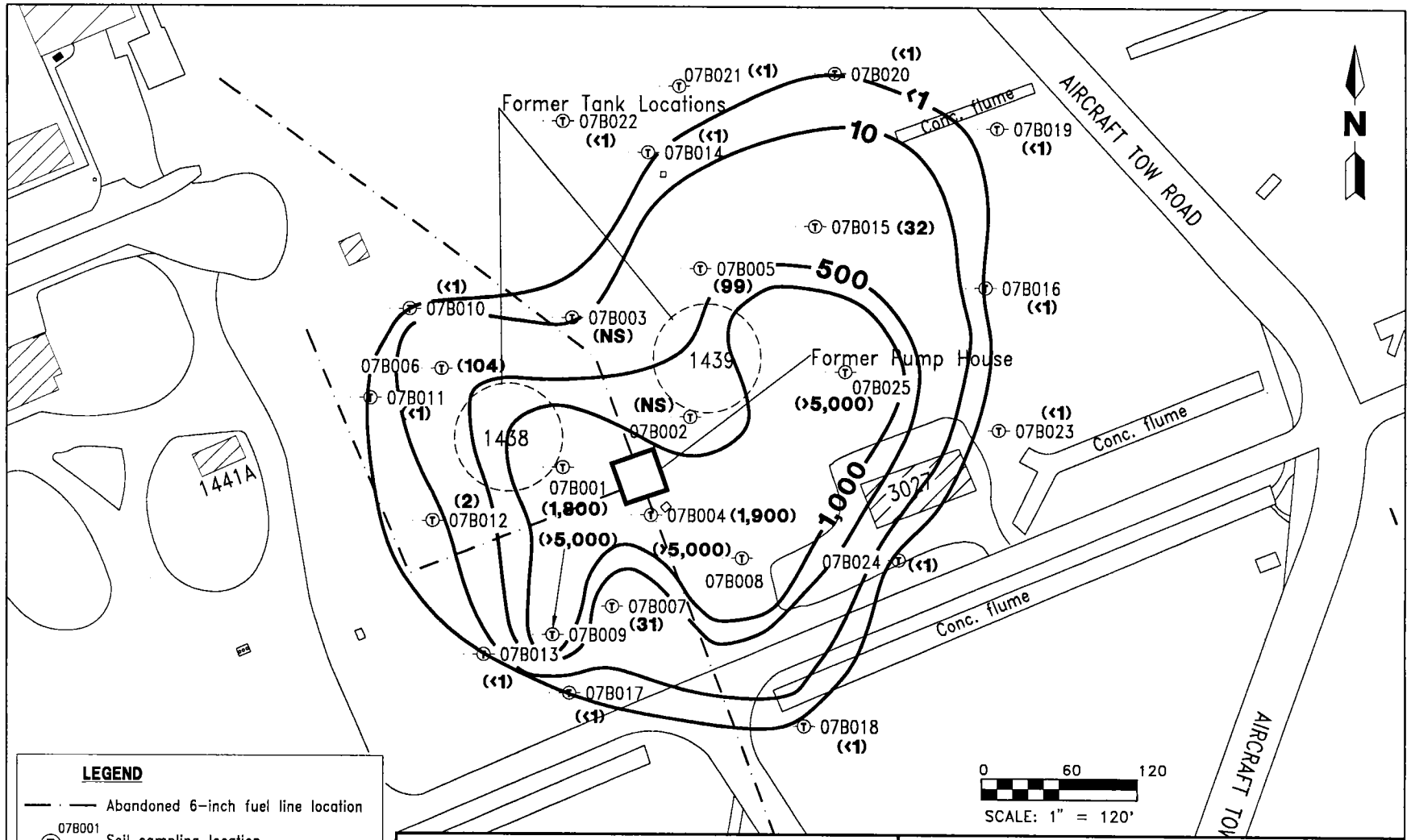

FIGURE 5-6
SOIL CONTAMINATION DISTRIBUTION MAP, 79 TO 75 FEET

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

WF1438&9.PCA
FGB.01.95

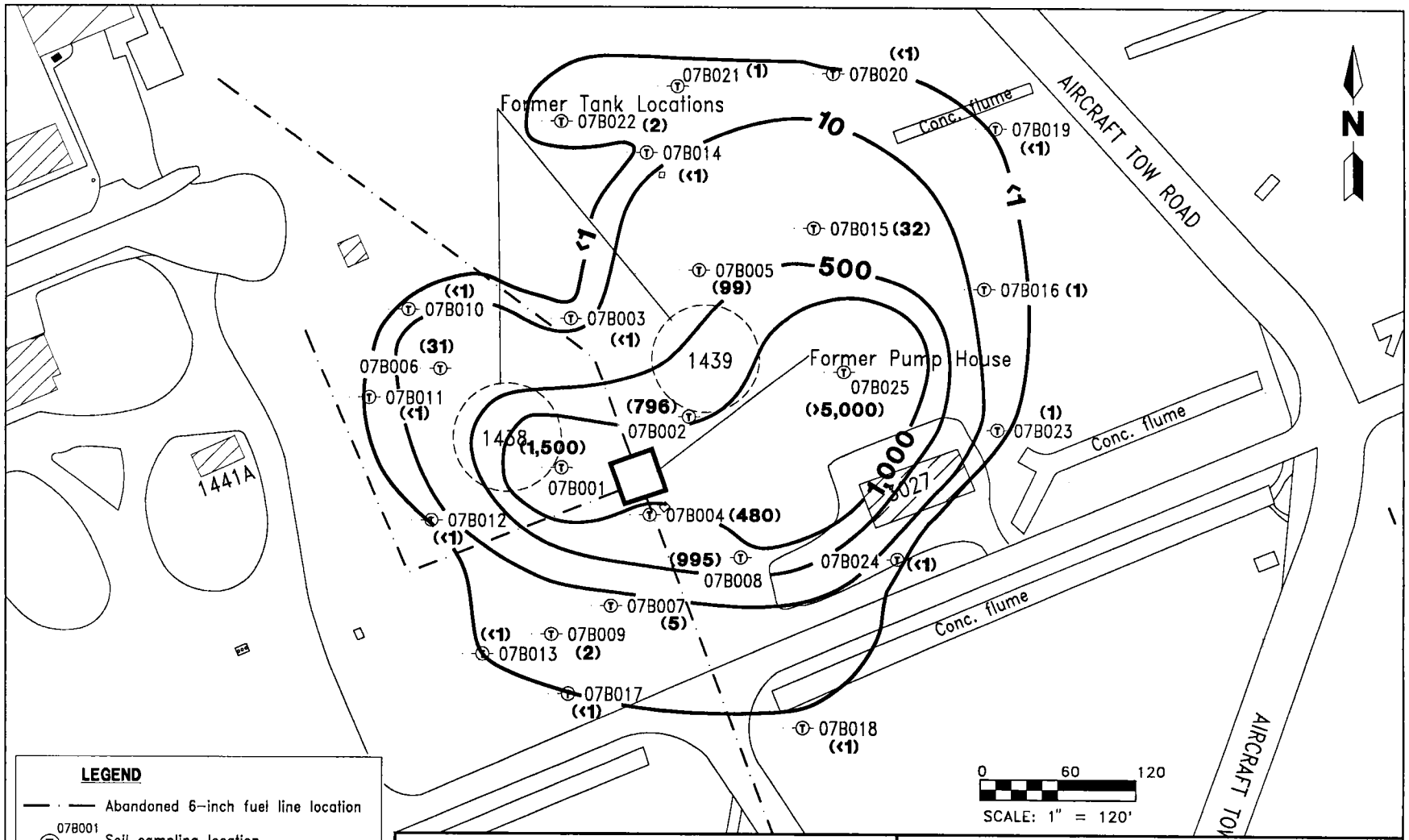

FIGURE 5-7
SOIL CONTAMINATION DISTRIBUTION MAP, 74 TO 70 FEET

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

WF1438&9.PCA
FGB.01.95

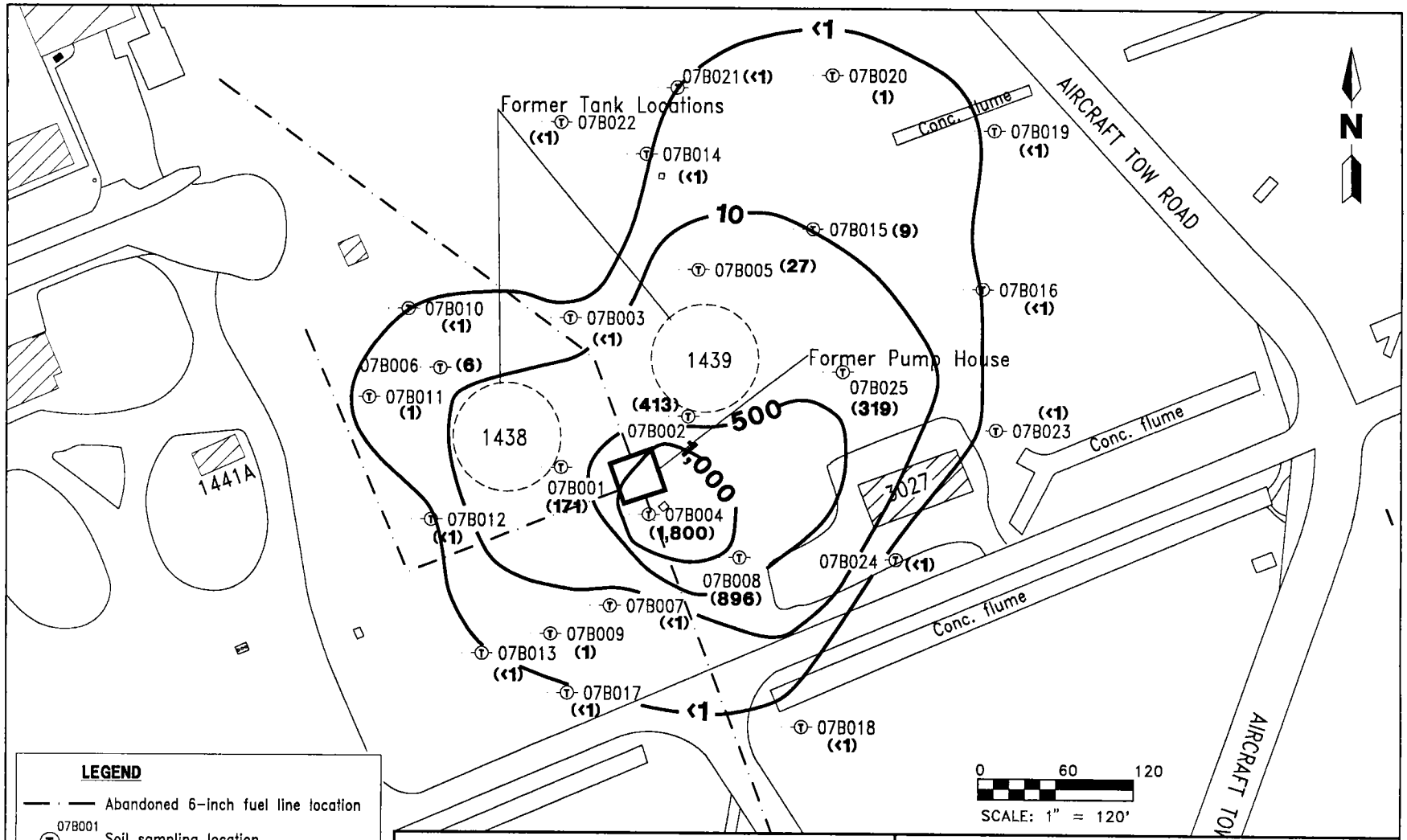

FIGURE 5-8
SOIL CONTAMINATION DISTRIBUTION MAP, 69 TO 65 FEET

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

WF1438&9.PCA
FGB.01.95

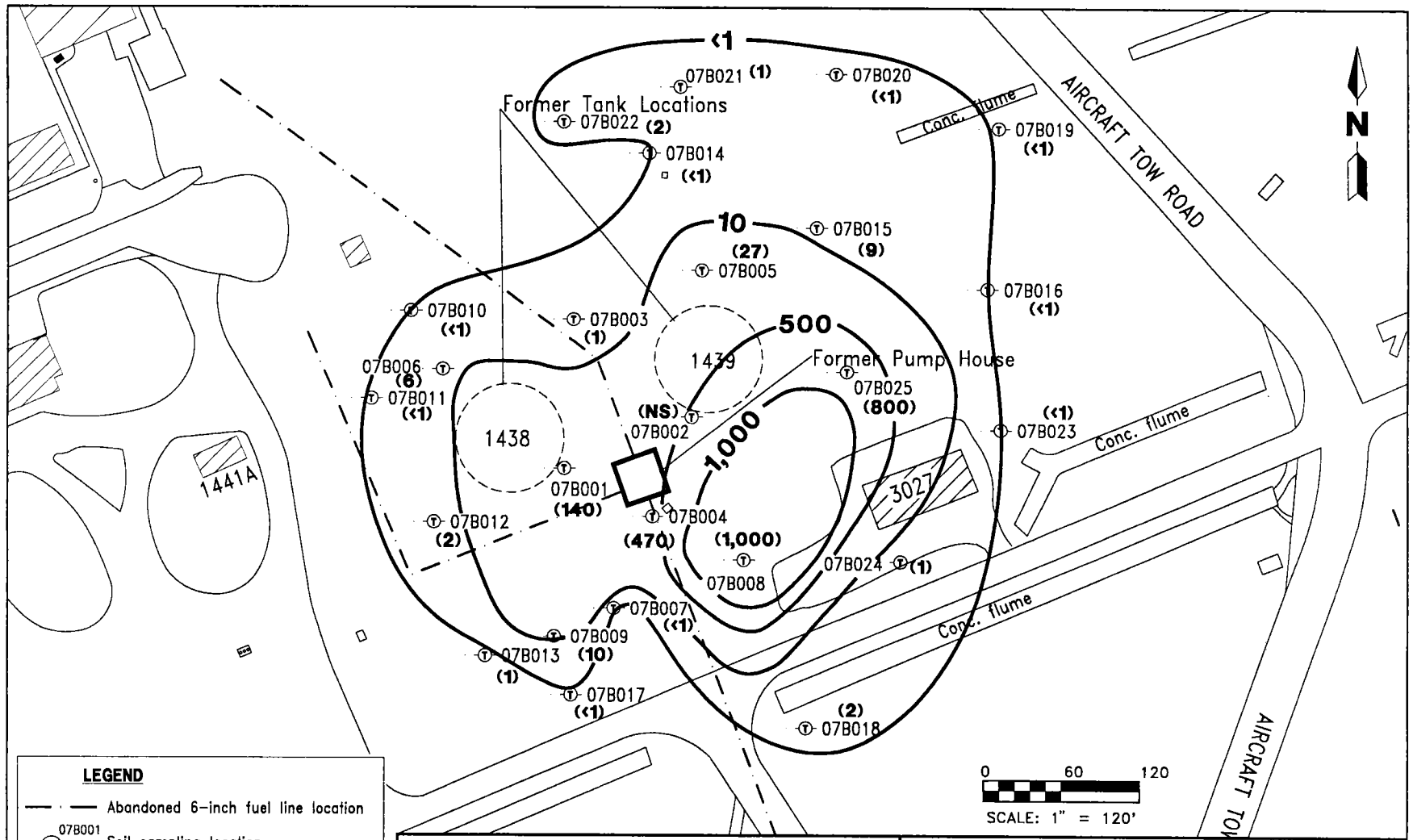

FIGURE 5-9
SOIL CONTAMINATION DISTRIBUTION MAP, 64 TO 58 FEET

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

Contaminated soil is defined as soil which contains VOC concentrations greater than 10 ppm. Soil with VOC concentrations less than 10 ppm are considered clean (FDEP, 1994).

Selected soil samples were screened for BTEX with a portable GC. A summary of the GC soil screening data is presented in Table 5-4. BTEX contamination detected in soil samples correlated with high VOC concentrations. Soil samples with low VOC concentrations also contained low BTEX concentrations.

In addition to the OVA and GC soil data, one laboratory analytical soil sample, 07B00804, was collected from 15 to 17 feet bls in Terraprobe[SM] location 07B008. This zone contained VOC concentrations greater than 5000 ppm and had a very strong sour odor. Because of its proximity to the pesticide mixing facility (see Figure 2-2, Building 3027), this soil sample was analyzed for volatile organics and pesticides (USEPA Methods 8010, 8020, and 8080). All parameters were below method detection limits in this sample (see Appendix B, Laboratory Analytical Data).

5.3 POTABLE WELL INVENTORY. An inventory of potable water wells near NAS Whiting Field was conducted as part of the Hazard Ranking System (HRS) scoring performed by ABB-ES in May 1991.

All potable and industrial water supplies in the NAS Whiting Field vicinity are obtained from the sand-and-gravel aquifer. This aquifer extends from the surface to an approximate depth of 300 feet bls. Screened intervals of most production wells are at a depth of approximately 150 to 350 feet bls, depending on the surface elevation and the presence of clay lenses. Figure 5-10 presents the location of wells within a 5-mile radius of NAS Whiting Field.

Water for the City of Milton is supplied by five separate production wells. All of these wells are within 5 miles of NAS Whiting Field. The Point Baker-Allentown area municipal water system consists of seven production wells, four of which are within a 5-mile radius of NAS Whiting Field. In addition to these production wells, three private farm wells also draw water from the sand-and-gravel aquifer in the vicinity of NAS Whiting Field.

At NAS Whiting Field, potable water is currently supplied by three production wells: the north (W-N4), south (W-S2), and west (W-W3) production wells. All three of these wells are within a 0.25-mile radius of Site 07 (Figure 5-11).

Current average pumping capacities from the facility production wells include: north well (W-N4), 600 gallons per minute (gpm); west well (W-W3), 700 gpm; and south well (W-S2), 500 gpm (ABB-ES, 1993). At the request of the FDEP, supply well W-S2 was shut down on August 28, 1986, due to concentrations of benzene exceeding the Florida primary drinking water standard of 1 microgram per liter ($\mu g/\ell$) in the groundwater. Production well W-W3 was also shut down on September 25, 1986, due to concentrations of trichloroethene greater than 3 $\mu g/\ell$. The wells were reactivated after installation of groundwater treatment systems. The treatment systems consist of granular activated carbon treatment at the wellhead followed by chlorination, pH adjustment, and addition of a sequestering agent to reduce iron precipitation. A granular activated carbon filter unit was installed at W-W3 to reduce the concentration of trichloroethene detected in the groundwater (ABB-ES, 1993).

Table 5-4
Summary of Gas Chromatographic Headspace Analyses, November 1994

Preliminary Contamination Assessment Report
Site 7, NAS Whiting Field
Milton, Florida

Sample Location	Depth (feet bls)	Matrix	Benzene	Toluene	Ethylbenzene	M-xylenes	P-xylene	O-xylene
07B003	6 to 8	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B003	8 to 10	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B003	10 to 12	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B003	12 to 14	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B003	14 to 16	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B004	6 to 8	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B004	8 to 10	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B004	12 to 14	soil	198	BDL	56	34	46	13
07B005	4 to 6	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B005	15 to 17	soil	BDL	BDL	1	BDL	BDL	BDL
07B006	25 to 27	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B008	5 to 7	soil	847	BDL	1075	606	806	137
07B009	15 to 17	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B011	5 to 7	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B015	3 to 5	soil	1616	BDL	119	203	BDL	BDL
07B015	5 to 7	soil	561	BDL	63	180	BDL	BDL
07B016	3 to 5	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B017	14 to 16	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B017	16 to 18	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B017	18 to 20	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B017	23 to 25	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B020	15 to 17	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B021	10 to 12	soil	BDL	BDL	BDL	BDL	BDL	BDL
07B025	5 to 7	soil	2545	BDL	683	142	1002	100
07Z002	NA	water	BDL	BDL	BDL	BDL	BDL	BDL
07Z003	NA	water	BDL	BDL	BDL	BDL	BDL	BDL
07B004	NA	water	BDL	BDL	2	2	BDL	BDL
07Z006	NA	water	1	BDL	BDL	BDL	1	BDL
07Z007	NA	water	54	BDL	531	653	BDL	BDL

Notes: Concentrations reported in parts per billion (ppb).
bls = below land surface.
BDL = below the detection limit of 1 ppb for each compound.
NA = not aplicable.

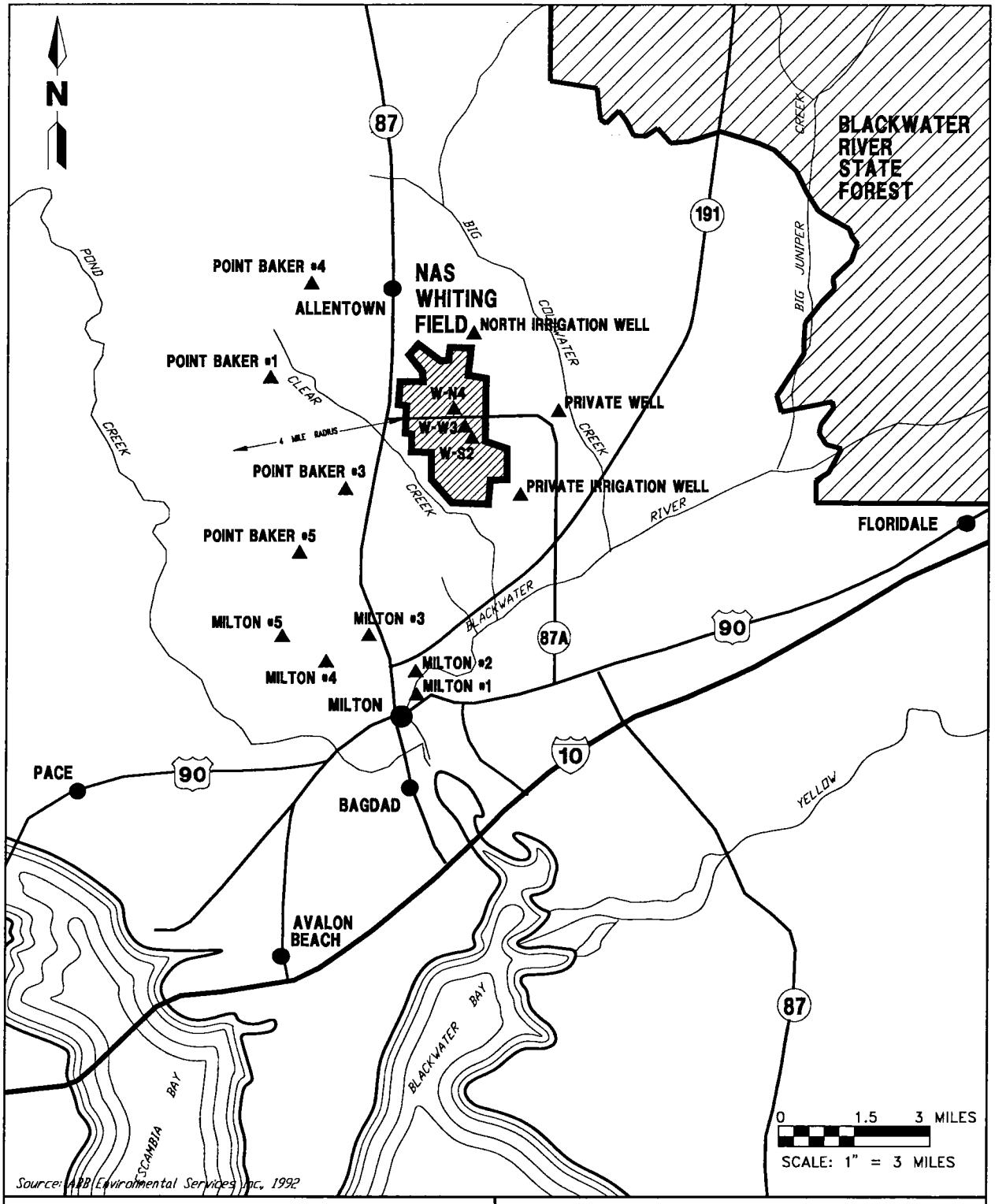

FIGURE 5-10
POTABLE WATER WELL LOCATIONS IN THE VICINITY OF NAVAL AIR STATION, MILTON, FLORIDA

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

WHITING\7560-16\TEC-MEM2\FIG1-1\KP-WDW\01-09-95

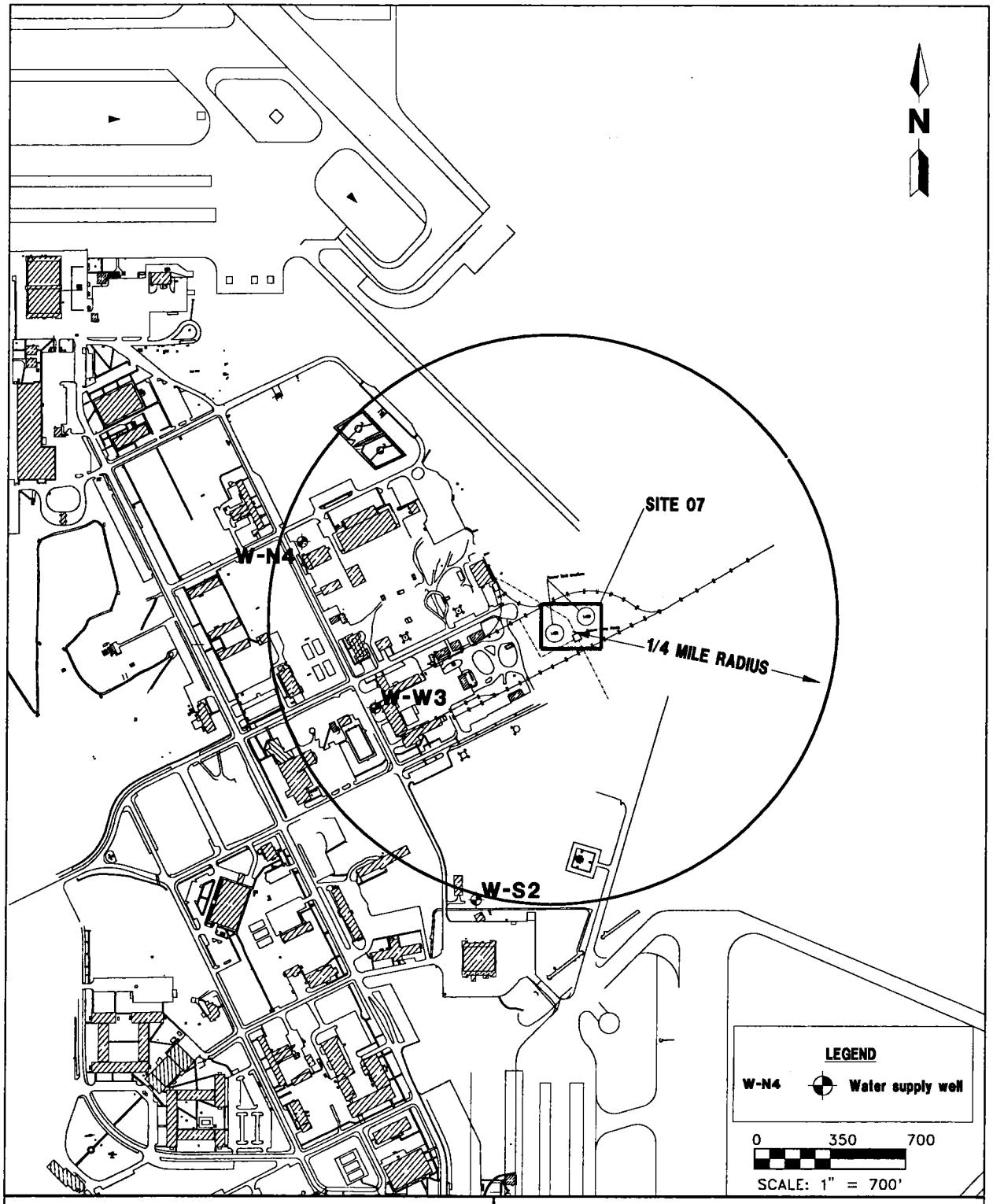

FIGURE 5-11

ACTIVE NAVY PRODUCTION WELLS AT NAS WHITING FIELD

H:\TANKS\SEC2FIGS\KP-WDW\01-09-95

PRELIMINARY CONTAMINATION ASSESSMENT REPORT, SITE 7

NAS WHITING FIELD
MILTON, FLORIDA

NAS Whiting Field operated with service from only the north production well throughout most of 1987. Testing of an activated carbon adsorption filtration system to treat water from the west well (W-W3) began on November 3, 1987.

Upon completion of the operational tests on December 1, 1987, the west well was returned to service. At the south production well (W-S2), an activated carbon filtration system was installed in early 1990. Pumping rates, well depths, and screen intervals for the three base production wells are shown in Table 5-5 (Locklear, 1983).

Table 5-5
Production Rates for NAS Whiting Field Supply Wells

Contamination Assessment Plan
Site 7, Tanks 1438 and 1439
Naval Air Station Whiting Field
Milton, Florida

Well Designation	Pumping Rate (gpm)	Total Depth (feet bls)	Screen Interval (feet bls)
W-N4	600	230	156 to 230
W-W3	700	263	179 to 263
W-S2	500	234	160 to 234

Notes: gpm = gallons per minute.
bls = below land surface.

6.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.1 SUMMARY. Data collected at Site 7 during the PCA can be summarized as follows:

- Soil at Site 7 consists of interbedded clay, sandy clay, and very fine clayey sand overlying fine to coarse sand.
- A shallow perched water table exists in the northeast corner of Site 7.
- Groundwater flow in the perched water table is to the north northeast.
- VOC concentrations greater than 500 ppm were detected in soil at Site 7.
- Toluene was the only volatile compound detected in groundwater analyzed by USEPA Methods 601/602. No parameters exceeded State action level.
- Three potable wells are within the 0.25-mile radius of Site 7.

6.2 CONCLUSIONS. The preliminary assessment indicates that excessive soil contamination as defined by State parameters extends from approximately 6 feet bls to a depth of greater than 37 feet bls at Site 7. Laboratory analysis of groundwater samples collected from the localized perched water table indicated minimal petroleum contamination. No data are currently available on soil at depths greater than 37 feet or on deeper groundwater.

6.3 RECOMMENDATIONS. Further investigation of both soil and groundwater will be required to adequately assess the extent of petroleum-contaminated soil and groundwater at Site 7. Due to apparent extensive contamination it is estimated that a minimum of 37 wells and 30 soil borings will be required. It is also recommended that this estimate be discussed with FDEP because well and soil spacing could be up to 150 feet.

7.0 PROFESSIONAL REVIEW CERTIFICATION

The contamination assessment contained in this report was prepared using sound principles and judgment. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment described in this report. This Preliminary Contamination Assessment Report was developed for Site 7 at the NAS Whiting Field in Milton, Florida, and should not be construed to apply to any other site.

_____

Kenneth L. Busen
Professional Geologist
P.G. No. 000191

_____

Date

REFERENCES

ABB Environmental Services, Inc., 1991, Documentation Support for Hazard Ranking System II Scoring, Naval Air Station, Whiting Field, Milton, Florida.

ABB Environmental Services, Inc., 1992a, Technical Memorandum No. 1: Geologic Assessment.

ABB Environmental Services, Inc., 1992b, Technical Memorandum No. 2: Hydrogeologic Assessment.

ABB Environmental Services, Inc., 1993, Contamination Assessment Report, Site 2894: prepared, Southern Division Engineering Command (SOUTHNAVFACENGCOM), October

Florida Department of Environmental Protection, 1994, Chapter 62770, State Underground Petroleum Environmental Response.

Geraghty & Miller, Inc., 1986, Verification Study, Assessment of Potential Groundwater Pollution at Naval Air Station Whiting Field, Milton, Florida.

Locklear, D., 1983, Memorandum of Verbal Communication between Locklear of Naval Air Station Whiting Field Public Works Department and Pat Scott of Layne Central.

APPENDIX A

LITHOLOGIC LOGS

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B001
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/08/94	**COMPLTD:** 11/08/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 100.00* FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SAND: very fine- to fine-grained with 10 to 15% clay, poorly sorted, medium brown, dry.		SC		
				<1	SAND: as above.				
5				<1	CLAYEY SAND: very fine-grained with 40% clay, poorly sorted, dark yellowish brown, damp.				
				<1	SANDY CLAY: 40% very fine- to fine-grained sand, non-plastic, dark yellowish brown, wet.		CL		
				0	SANDY CLAY: 40% very fine- to fine-grained sand, slightly plastic, dark yellowish orange, wet.				
10				20	SANDY CLAY: as above, dark yellowish brown to red, wet.				
				102	SANDY CLAY: as above, damp.				
					CLAYEY SAND: 35-40% clay, very fine- to medium-grained, very poor sorting, mottled dark yellowish brown and red, strong unknown odor.		SC		
15				>5000	SANDY CLAY: 40-50% fine- to medium-grained sand, non-plastic, red, wet, strong petroleum odor.		CL		
				140	SANDY CLAY: 35-40% fine- to medium-grained sand, slightly plastic, red, wet, strong burnt odor.				
				>5000	CLAYEY SAND: 30% clay, fine- to medium-grained, red with some gray staining, damp, very strong petroleum odor.		SC		
20					SAND: 10-15% clay, very fine- to fine-grained, poor sorting, red with gray staining, damp, very strong petroleum odor.				

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B001
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/08/94	**COMPLTD:** 11/08/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 100.00* FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				1800	CLAYEY SAND: 40-45% clay, very fine- to fine-grained, poorly sorted, light red, very strong petroleum odor.		SC		
25				1500	SAND: 10-15% clay, very fine- to fine-grained, poorly sorted, light gray mottled with very pale orange, dry, very strong petroleum odor.				
							SP		
30				171	SAND: fine-grained, well-sorted, light gray, dry, petroleum odor.				
35				140	SAND: fine-grained, well-sorted, light red, dry.				
					*elevations based on arbitrary datum of 100 feet above sea level.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B002
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/09/94	**COMPLTD:** 11/09/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 99.81 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 35FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	CLAYEY SAND: 30-35% clay, very fine- to fine-grain, poorly sorted, light brown, dry.		SC		
				<1	SAND: very fine- to fine-grained, 10% clay, poorly sorted, light brown, dry.		SM		
					SAND: as above with pine roots, damp to wet.				
5				50					
				<1	SANDY CLAY: 30-35% very fine- to fine-grained sand, non-plastic, stiff, reddish brown, damp.		CL		
				<1	SANDY CLAY: 30% very fine- to fine-grained sand with trace of medium-grained sand, non-plastic, very stiff, orangish red, slightly damp.				
10				1	CLAY: very stiff, very slightly plastic, gray mottled with red, dry.				
				5	CLAY: 20% fine-grained sand, non-plastic, firm to stiff, mottled light red, gray and yellowish brown, dry.				
15				11	SANDY CLAY: 25-30% fine-grained sand, non-plastic, stiff, mottled light red and gray, dry.				
				22	SANDY CLAY: 40-50% very fine- to fine-grained sand, non-plastic, light red, dry.				
							SC		
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B002
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental S vices		**DATE STARTED:** 11/09/94	**COMPLTD:** 11/0 4
METHOD: aProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 99.81 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 35FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
							SC		
25				n/a	CLAYEY SAND: 30% clay, very fine- to fine-grained, poorly sorted damp (probably due to slough), very poor recovery.				
				798	SAND: very fine- to fine-grained, light red with very pale orange dry.		SM		
30									
				413	SAND: very fine- to fine-grained, moderately sorted, very light gray, dry.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B003
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/09/94	**COMPLTD:** 11/09/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.71 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▼** FT.
LOGGED BY: P. Wagner/H. Governick	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SAND: very fine-grained, 10% clay, moderately sorted, brown, dry.		SM		
				<1	SAND: very fine- to fine-grained, 15% clay, poorly sorted, dark yellowish brown, dry.				
					SAND: as above, increasing in clay content from 15% to 30%.				
5				<1	CLAYEY SAND: 40% clay, very fine- to fine-grained, poorly sorted, dark yellowish brown, damp.		SC		
				1	SANDY CLAY: 30% very fine- to fine-grained sand, non-plastic, firm, dark yellowish brown, damp.		CL		
				1	SANDY CLAY: 20% very fine- to fine-grained sand, non-plastic, dark brown, damp.				
10				<1	SANDY CLAY: 20% medium-grained sand, non-plastic, firm, orange, damp.				
				1	SANDY CLAY: 30% medium-grained sand, non-plastic, orangish brown, damp.				
15				<1	SANDY CLAY: 20% very fine- to medium-grained sand, poorly sorted, non-plastic, orangish brown, damp.				
				<1	SANDY CLAY: 30% very fine- to medium-grained sand, non-plastic, poorly sorted, red mottled with yellow and light gray, dry.				
					CLAYEY SAND: 30% clay, very fine- to fine-grained, light red mottled with orange, dry.		SC		
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B003
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/09/94	**COMPLTD:** 11/09/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.71 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. Wagner/H. Governick	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
							SC		
25				<1	CLAYEY SAND: 30% clay, very fine- to fine-grained, light gray mottled with orange and red, dry.				
							SM		
30				<1	SAND: very fine- to medium-grained, poorly sorted, light tan, dry.				
35				1	SAND: very fine- to fine-grained, light red, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B004
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/09/94	**COMPLTD:** 11/09/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.07 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	CLAYEY SAND: 10% clay, very fine- to medium grained, poorly sorted, brown, dry.		SC		
				<1	CLAYEY SAND: 20% clay, very fine- to fine-grained, poorly sorted, brown, dry.				
5				<1	CLAYEY SAND: 30-35% clay, very fine- to fine grained, poorly sorted, orangish brown, dry.				
				<1	SANDY CLAY: 30% very fine- to fine-grained sand, non-plastic, dark yellowish brown, damp.		CL		
				24	CLAY: 5% very fine-grained sand, non-plastic, firm, mottled red, gray and yellowish brown, damp.				
10				3000	CLAY: same as above with strong hydrocarbon odor.				
				1900	SAND: very fine- to fine-grained, poorly sorted, strong hydrocarbon odor, light red mottled with light gray, dry.		SM		
15							SC		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B004
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/09/94	**COMPLTD:** 11/09/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.07 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				1900	CLAYEY SAND: 25-30% clay, very fine- to fine-grained, poorly sorted, mottled light red, gray and yellowish brown, slight hydrocarbon odor, damp.		SC		
							SM		
25				480	SAND: very fine- to fine-grained, poorly sorted, strong hydrocarbon odor, light red, dry.				
30				1800	SAND: very fine- to medium-grained, poorly sorted, slight hydro- carbon odor, very light gray, dry.				
35				470	SAND: same as above.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B005
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/10/94	**COMPLTD:** 11/10/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.99 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SANDY CLAY: 40% very fine- to fine-grained sand, non-plastic, dark yellowish brown, dry.		CL		
				<1	CLAYEY SAND: 30-35% clay, very fine- to fine-grained, poorly sorted, very dark gray and dark yellowish brown, dry.		SC		
5				1	CLAYEY SAND: as above, dark yellowish brown, damp.				
				>5000	CLAYEY SAND: 30% very fine- to fine-grained sand, non-plastic, stiff, dark yellowish brown with bluish black stain, pine roots, very strong petroleum odor, wet.				
				3550	SANDY CLAY: 25% very fine- to medium-grained sand, very slightly plastic, stiff, mottled red, bluish gray, and very pale orange, dry.		CL		
10				31	CLAY: 10% fine sand, moderately plastic, very stiff, red, dry.				
							SC		
15				28	CLAYEY SAND: 30% clay, very fine- to fine-grained, poorly sorted, mottled light red and light gray, saturated.				
					CLAY: 5% fine-grained sand, plastic, pale yellowish brown, damp to wet.		CH		
				1999	SAND: very fine-grained, trace clay, well sorted, very pale orange to light gray, strong petroleum odor, dry.		SP		
20							SC		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B005
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/10/94	**COMPLTD:** 11/10/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.99 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
							SC		
25				99	CLAYEY SAND: 30% clay, very fine-grained, moderately sorted, mottled bluish gray and pale yellowish brown, damp.				
							SM		
30				39	SAND: 20% clay, very fine- to fine-grained, 2" clay lense at 31.5', poorly sorted, light gray.				
35				27	SAND: very fine- to fine-grained, moderately sorted, light gray, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B008
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/10/94	**COMPLTD:** 11/10/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 99.89 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 38FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SAND: 10% clay, 5% silt, very fine- to fine-grained, poorly sorted, dark brown, dry.		SM		
				<1	SAND: as above, dark yellowish brown.				
5				<1	SAND: 10% clay, very fine- to fine-grained, poorly sorted, yellowish brown, damp.				
				<1	CLAYEY SAND: 30-40% clay, very fine-grained sand, moderately sorted, yellowish brown, wet to damp.		SC		
				<1	CLAYEY SAND: 40-45% clay, very fine- to fine-grained, poorly sorted, yellowish brown, damp.				
10				17	SANDY CLAY: 40% very fine- to fine-grained sand, non-plastic, stiff, red brown with thin black lamellae.		CL		
				1	SANDY CLAY: 30% very fine- to medium-grained sand, very slightly plastic, stiff, red brown with dark gray mottling, damp.				
15				8	SANDY CLAY: as above, red, dry.				
				10	SANDY CLAY: 40% fine-grained sand, non-plastic, red, dry.				
20							SM		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B006
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/10/94	**COMPLTD:** 11/10/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 99.89 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 36FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				104	SAND: 10% clay, very fine-grained, well sorted, very light gray and pale yellowish brown with bluish-black staining, strong petroleum odor, dry.		SM		
25				31	CLAYEY SAND: 30% clay, very fine- to fine-grained, poorly sorted, very pale red with light gray, petroleum odor, damp to wet.		SC		
				<1	CLAYEY SAND: as above, no odor, wet.				
30				11	SAND: 5% clay, fine-grained, well sorted, very light gray, dry.		SP		
35				6	SAND: fine-grained with trace of very fine-grained, very well- sorted, very light gray, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B007
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/13/94	**COMPLTD:** 11/13/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.37 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	CLAYEY SAND: 30% clay, very fine- to fine-grained, poorly sorted, moderately reddish brown, dry.		SC		
5				1	SANDY CLAY: 35% very fine- to fine-grained sand, non-plastic, light brown, damp.		CL		
10				<1	CLAY: 10% very fine- to fine-grained sand, non-plastic, stiff, mottled dark yellowish orange, moderately red, and very pale orange, dry.				
15				1900	SAND: very fine-grained, very well sorted, very pale orange, dry.		SM		
							SC		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B007
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/13/94	**COMPLTD:** 11/13/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.37 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				31	CLAYEY SAND: 25% clay with several 1/2" clay lenses, very fine- to fine-grained, trace mica, layered moderate pink and grayish pink, dry.		SC		
25				5	CLAYEY SAND: 20-40% clay with many 1/4" clay lenses throughout, very fine- to fine-grained, mottled moderately red, dark yellowish orange and moderately pink, dry.				
					SAND: very fine-grained, very well sorted, moderately pink and grayish pink, dry.		SM		
30				<1	SANDY CLAY: 20-25% fine-grained sand, moderately plastic, soft, light gray, damp.		CL		
35				<1	SAND: 5% clay, very fine- to medium-grained, trace course, very poorly sorted, light gray, dry.		SW		
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B008
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/13/94	**COMPLTD:** 11/13/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.05 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				4	CLAYEY SANDS: 10-15% very fine- to medium-grained, trace course- grained, very poorly sorted, moderate reddish brown, petroleum odor, dry.		SC		
5				>5000	SANDY CLAY: 30% very fine- to fine-grained sand, non-plastic, "sticky", mottled light brown and moderate yellowish orange with greenish black staining, very strong "nauseating" odor, may or may not be petroleum, dry.		CL		
10				>5000	CLAY: 5-10% fine-grained sand, slightly plastic, stiff, mottled moderate red, dark yellowish orange and light gray, dry.				
15				>5000	SAND: very fine-grained sand, very well sorted, grayish pink, very strong "sour" odor, "non" petroleum, possibly pesticide, dry.		SP		
20				>5000	CLAYEY SAND: 20% clay, fine-grained with trace course-grained, very poorly sorted, moderately pink and pight gray, strong sour odor, dry.		SC		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B008
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/13/94	**COMPLTD:** 11/13/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.05 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
							SC		
25				230	CLAYEY SAND: 25% clay, fine-grained, poorly sorted, mottled very pale orange and moderately red, bottom 1" very dark red sand-very "shiny", strong sour petroleum odor, dry.				
				995	SAND: fine- to medium-grained with trace of course- to very course- grained, very poor sorting, moderately red becoming very pale orange with pale yellowish orange layers, petroleum odor, dry.		SW		
							SC		
30					CLAYEY SAND: 30% clay, very fine- to fine-grained, poorly sorted, dark yellowish orange, dry				
				898	SAND: very fine-grained, well sorted, light gray, dry.		SW		
35				1000	SAND: fine- to medium-grained with trace of course-grained and clay, very poorly sorted, very light gray, petroleum odor, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B009
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/13/94	**COMPLTD:** 11/13/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.03 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	CLAYEY SAND: 35-40% clay, fine-grained, poorly sorted, moderately red, dry.		SC		
							CL		
5				<1	SANDY CLAY: 25% fine-grained sand, slightly plastic, "sticky", light brown, damp.				
10				<1	SANDY CLAY: 35% very fine- to fine-grained sand, non-plastic, mottled moderately red, moderately pink, and very pale orange, damp.				
							SC		
15				<1	CLAYEY SAND: 15-20% clay, very fine- to course-grained, very poorly sorted, angular, dusky red, wet.				
							SP		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B009
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/13/94	**COMPLTD:** 11/13/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.03 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				>5000	SAND: fine-grained, well sorted, very pale orange to light gray, petroleum odor, dry becoming very damp.		SP		
25				2	SAND: fine-grained, well sorted, very light gray to reddish orange, dry.				
					CLAY: 5% fine sand, plastic, very light gray, damp.		CH CL		
30				1	SANDY CLAY: 35% very fine- to fine sand, moderately plastic, moderately pink, slight pesticide-like odor (possibly the wind), dry.				
							SM		
35				10	SAND: very fine- to fine-grained, trace clay, moderately sorted, very light gray, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B010
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/14/94	**COMPLTD:** 11/14/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.22 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 38FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							SC		
				<1	CLAYEY SAND: 30% clay, very fine- to fine-grained, poorly sorted, light brown, dry.				
				<1	CLAYEY SAND: as above, damp.				
5				<1					
				<1	SANDY CLAY: 40% very fine- to fine-sand, slightly plastic, "sticky", light brown, damp.		CL		
							SC		
10				<1	CLAYEY SAND: 20% clay, very fine- to very course-grained, very poorly sorted, angular, moderate reddish brown, dry.				
							CL		
15				<1	SANDY CLAY: 35-40% fine- to medium-grained sand, non-plastic, moderate reddish brown, dry.				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B010
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/14/94	**COMPLTD:** 11/14/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.22 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 38FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				<1	SANDY CLAY: 30% fine- to very course-grained sub-rounded sand, slightly plastic, mottled moderate reddish orange and grayish orange, dry.		CL		
25				<1	SANDY CLAY: 30% fine-grained sand, non-plastic, moderate orange pink, dry.				
							SP		
30				<1	SAND: very fine-grained, well sorted, very light gray, dry.				
					SAND: fine-grained, well sorted, light red, dry.				
35				<1					
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B011
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/14/94	**COMPLTD:** 11/14/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.72 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							SC		
5				<1	CLAYEY SAND: 25% clay, very fine-grained, moderately sorted, dark yellowish orange, damp. SANDY CLAY: 40% very fine- to fine-grained sand, non-plastic, "sticky", damp.		CL		
10				<1	SANDY CLAY: 30% very fine- to fine-grained sand, non-plastic, moderate reddish brown, dry.				
15				<1	SANDY CLAY: 40% very fine- to fine-grained sand, non-plastic, moderate reddish brown, dry.				
20							SP		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B011
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/14/94	**COMPLTD:** 11/14/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.72 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				<1	SAND: very fine- to fine-grained, trace gray, moderately sorted, reddish orange, dry.		SP		
							CL		
25				<1	SANDY CLAY: 30-20% very fine- to medium-grained sand decreasing with depth, slightly plastic, mottled light red, grayish pink and moderately orange pink, dry.				
							SC		
30				1	CLAYEY SAND: 30-10% clay decreasing with depth, very fine- to fine- grained, poorly sorted, very light gray and moderately pink, damp.				
							SP		
35				<1	SAND: very fine- to fine-grained, trace clay, poorly sorted, moderate pink, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B012
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/14/94	**COMPLTD:** 11/14/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.90 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							CL		
5				<1	SANDY CLAY: 40-45% very fine- to fine-grained sand, non-plastic, moderate reddish brown, dry.				
10				<1	SANDY CLAY: 35-40% very fine- to fine-grained sand, non-plastic, "sticky", moderate reddish brown, dry.				
15				<1	SANDY CLAY: 45% very fine- to medium-grained sand, non-plastic, moderately reddish, dry.				
							SW		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B012
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/14/94	**COMPLTD:** 11/14/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.90 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				2	SAND: very fine- to medium-grained, trace course-grained, very poorly sorted, moderate reddish brown, dry.		SW		
					CLAYEY SAND: 15-25% clay, very fine- to medium-grained, very poorly sorted, moderate reddish brown, dry.		SC		
25				<1	CLAYEY SAND: 20% clay, very fine-grained, moderately pink, dry.				
					SANDY CLAY: 30-35% very fine-grained sand, non-plastic, moderately pink, dry.		CL		
30				<1	SANDY CLAY: 20-30% fine- to medium-grained sand increasing with depth, plastic, moderate orange pink, dry.				
							SW		
35				2	SAND: very fine- to medium-grained, trace clay, very poorly sorted, moderate pink, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B013
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/14/94	**COMPLTD:** 11/14/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.39 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 38FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							SC		
5				<1	SANDY CLAY: 20-25% very fine- to medium-grained sand, non-plastic, "sticky", moderate reddish brown.				
							CL		
10				1	CLAYEY SAND: 10% clay, very fine- to medium-grained, very poorly sorted, moderate reddish brown, dry.				
							SM		
							SC		
15				<1	CLAYEY SAND: as above. CLAYEY SAND: 25-30% clay with multiple 1/4" to 1/2" clay lenses, very fine-grained, poor to moderately sorted, moderate reddish brown, dry.				
				<1	SAND: very fine-grained, well sorted, very light gray, dry.				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B013
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/14/94	**COMPLTD:** 11/14/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.39 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 38FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				<1	SAND: as above.		SC		
				<1	SAND: as above.		SM		
25				<1	SAND: very fine- to medium-grained with trace course-grained, becoming more course-grained with depth, poorly sorted, very pale orange, dry.				
30				<1	SAND: very fine- to fine-grained, intermixed with 1/4" clay lenses, poorly sorted, reddish orange, dry.				
					SANDY CLAY: very fine- to fine-grained sand, slightly plastic, light gray, damp.				
35				2	SAND: very fine- to fine-grained, some clay, poorly sorted, light gray, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B014
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/15/94	**COMPLTD:** 11/15/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.12 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▼** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	CLAYEY SAND: 20-25% clay, very fine- to fine-grained, poorly sorted, light brown, damp.		SC		
5				<1	SANDY CLAY: 40-45% very fine- to fine-grained sand, non-plastic, "sticky", mottled moderate red and moderate reddish brown, dry.		CL		
10				<1	CLAYEY SAND: 30% clay, very fine- to medium-grained, very poorly sorted, moderate reddish brown, dry.		SC		
				800	CLAYEY SAND: 30% clay, fine-grained, moderately sorted, moderate reddish brown, damp.				
15				2000	CLAY: trace very fine-grained sand, plastic, soft, mottled moderate pink and very light gray.		CH		
20							SC		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B014
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/15/94	**COMPLTD:** 11/15/94
METHOD: TerraProbe System	**BASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.12 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				<1	CLAYEY SAND: 20% clay matrix with multiple 1/4" clay lenses, very fine-grained, poorly sorted, moderately pink, dry.		SC		
							SP		
25				<1	SAND: very fine- to fine-grained, trace clay, moderately sorted, grayish pink, dry.				
30				<1	SAND: fine-grained, well sorted, very pale orange, dry.				
35				<1	SAND: as above, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B015
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/15/94	**COMPLTD:** 11/15/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 95.11 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				850	CLAYEY SAND: 20% clay, very fine- to medium-grained, very poor sorting, light brown, damp.		SC		
				>5000	CLAYEY SAND: 30% clay, very fine- to medium-grained, very poorly sorted, petroleum odor, dark yellowish brown, wet.				
5					CLAYEY SAND: as above.				
				>5000	CLAY: non-plastic, trace fine-grained sand, strong petroleum odor, mottled moderate red, dark yellowish orange and light gray, dry.		CL		
10				110	SANDY CLAY: 25% fine-grained sand, non-plastic, stiff, mottled moderate pink and grayish pink, dry.				
							SC		
15				28	CLAYEY SAND: 15% clay, very fine- to fine-grained, trace medium- grained, poorly sorted, mottled pale yellowish orange and reddish orange, dry.				
							SM		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B015
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/15/94	**COMPLTD:** 11/15/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 95.11 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				32	SAND: very fine-grained with some clay, moderately sorted, mottled very dark red and light red, dry.		SM		
							SP		
25				7	SAND: fine-grained, well sorted, very light gray, dry.				
30				9	SAND: as above, some clay, very pale orange, dry.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B016
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/15/94	**COMPLTD:** 11/15/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 91.83 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SAND: 5% clay, very fine- to fine-grained, poorly sorted, light brown, dry.		SW		
				<1	SANDY CLAY: clay content increasing with depth, 25-30% fine- grained sand, slightly plastic, "sticky", light brown, damp.		CL		
5				<1	SANDY CLAY: 25% fine-grained sand, slightly plastic, "sticky", light brown becoming reddish brown, damp becoming dry.				
							SC		
10				<1	CLAYEY SAND: 25-30% clay, very fine-grained sand, poorly sorted, mottled grayish purple and moderate reddish brown, dry.				
15				<1	CLAYEY SAND: as above, 20% clay.				
							SP		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B016
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/15/94	**COMPLTD:** 11/15/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 91.83 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				1	SAND: very fine- to fine-grained, increasing coarseness with depth, moderately well sorted, very pale orange to moderate pink, dry.		SP		
25				<1	SAND: fine-grained, well sorted, very light gray, dry.				
30				<1	SAND: as above.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B017
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/15/94	**COMPLTD:** 11/15/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 95.48 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 34FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
							SC		
5				<1	CLAYEY SAND: 40% clay, very fine- to fine-grained, "sticky", moderate reddish brown, dry.				
							CL		
10				<1	SANDY CLAY: 30% fine-grained sand, non-plastic, stiff, moderate reddish brown and pale yellowish orange, dry.				
							SM		
15				<1	SAND: very fine-grained with some clay, moderately well sorted, moderate pink and light gray, very damp.				
				<1	CLAYEY SAND: 25% clay, very fine-grained, moderately sorted, moderate pink and grayish pink, wet.		SC		
				ns	CLAYEY SAND: as above, grayish pink.				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B017
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/15/94	**COMPLTD:** 11/15/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 95.48 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 34FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
					CLAYEY SAND: as above.		SC		
					CLAY: trace sand, plastic, moderate pink, wet.		CH		
				<1	SAND: fine-grained with trace clay, moderately well sorted, grayish pink, damp.		SM		
					SANDY CLAY: 40% very fine-grained sand, plastic, grayish pink, wet.		CL		
				<1					
25							SP		
					SAND: very fine-grained, well sorted, grayish pink, dry.				
				<1					
30									
					SAND: as above.				
				<1					
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B018
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/18/94	**COMPLTD:** 11/18/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.89 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▼** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SAND: very fine- to fine-grained, some silt, trace clay, poorly sorted, moderate yellowish brown, dry.		SM		
							CL		
5				<1	SANDY CLAY: 40% very fine- to fine-grained sand, non-plastic, dark yellowish orange, dry.				
							CL		
10				<1	CLAY: non-plastic, trace fine-grained sand, very stiff, very light gray and moderate red, dry.				
15					CLAY: as above.				
				<1	SAND: very fine-grained, trace silt, well sorted, very light gray, dry.		SP		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B018
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/18/94	**COMPLTD:** 11/18/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.89 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				<1	SAND: very fine- to fine-grained, trace clay, moderately sorted, very light gray becoming light red, dry.		SP		
							SC		
25				<1	CLAYEY SAND: 15-20% clay, very fine- to fine-grained, moderately sorted, mottled pale yellowish orange, pale yellowish brown, and very dark red, dry.				
							SP		
30				<1	SAND: fine-grained, very well sorted, layered very light gray and light red, dry.				
35				2	SAND: very fine- to fine-grained, well sorted, light red mixed with light gray, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B019
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/18/94	**COMPLTD:** 11/18/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 88.31 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SILTY SAND: 20% silt, 10% clay, very fine- to fine-grained, poorly sorted, dark gray, dry.		SM		
					CLAYEY SAND: 20% clay, 10% silt, very fine- to fine-grained, poorly sorted, moderate brown, dry.		SC		
5				<1	CLAYEY SAND: 25-30% clay, very fine- to fine-grained with trace medium-grained, poorly sorted, dark yellowish orange, dry.				
10				<1	CLAYEY SAND: as above, mottled light gray, reddish brown, and dark yellowish orange.				
							CL		
15				<1	SANDY CLAY: 20% fine-grained sand, non-plastic, stiff, moderate pink, dry.				
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B019
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/18/94	**COMPLTD:** 11/18/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 88.31 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
					CLAY: 10-15% fine-grained sand, trace small pebbles, non-plastic, moderately red, dry.		CL		
				<1	SAND: very fine- to fine-grained, trace medium-grained, poorly sorted, layered very dusky red, purple, grayish red, purple, and moderate red, dry.		SW		
25				<1	SAND: very fine- to very course-grained, trace clay, 5% small pebbles, very poorly sorted, layered pale yellowish orange and light red, dry.				
30				<1	SAND: very fine- to meduim-grained, trace small pebbles, very poorly sorted, pale orange, dry.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B020
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/18/94	**COMPLTD:** 11/18/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 90.47 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SILTY SAND: 20% silt and clay, very fine- to fine-grained, poorly sorted, dark gray, dry.		SM		
					CLAYEY SAND: 20% clay, very fine- to fine-grained, poorly sorted, moderate brown, dry.		SC		
							CL		
5				<1	SANDY CLAY: 40% very fine- to fine-grained sand, non-plastic, pale yellowish orange, dry.				
							SC		
10				<1	CLAYEY SAND: 30% clay, very fine-grained, moderately sorted, moderately red, dry.				
15				<1	CLAYEY SAND: 30-45% clay increasing with depth, very fine- grained sand, poorly to moderately sorted, mottled very dark red, yellowish brown and very pale orange, damp to dry.				
							CL		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B020
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/18/94	**COMPLTD:** 11/18/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 90.47 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				<1	CLAY: 5-10% fine-grained sand, non-plastic, very stiff, mottled light red and moderate pink, dry.		CL		
							SM		
25				1	SAND: very fine- to fine-grained, 1 1/4" clay lense, moderately sorted, layered pale yellowish orange, grayish orange, and very pale orange, dry.				
30				<1	SAND: very fine- to fine-grained with trace medium-grained, poorly sorted, very light gray, dry.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B021
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/18/94	**COMPLTD:** 11/18/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 95.43 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SILTY SANDS: 20-25% silt and clay, very fine- to medium-grained, poorly sorted, dark gray becoming moderately yellowish brown, dry.		SM		
							CL		
5				<1	SANDY CLAY: 30-15% fine- to medium-grained sand, decreasing with depth, non-plastic, mottled very pale orange and moderate red, dry.				
							SC		
10				<1	CLAYEY SAND: 10% clay, fine- to medium-grained, poorly to moderately sorted, red, damp.				
							CH		
15				<1	CLAY: trace fine-grained sand, plastic, stiff, moderately pink, dry.				
							SC		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B021
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/16/94	**COMPLTD:** 11/16/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 95.43 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				<1	INTERMIXED SANDY CLAYS AND CLAYEY SANDS: approximately 1" layers, very fine- to fine-grained sand, plastic clays, moderate pink to moderate red, dry.		SC		
25				1	SAND: fine- to course-grained, very poorly sorted, light gray, dry.		SW		
30				<1	SAND: very fine- to fine-grained, trace clay, poorly sorted, light gray, dry.		SP		
35				1	SAND: as above, light pink.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B022
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/18/94	**COMPLTD:** 11/18/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.55 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SILTY SAND: 20% silt and clay, very fine- to fine-grained with trace medium-grained, very poorly sorted, moderate yellowish brown, dry.		SM		
							SC		
5				<1	CLAYEY SAND: 30-35% clay, very fine- to medium-grained, angular, poorly sorted, moderately red, dry.				
				<1	CLAYEY SAND: 40% clay, very fine- to medium-grained, poorly sorted, moderate red, dry.				
10							CL		
				<1	SANDY CLAY: 10% fine-grained sand, non-plastic, very stiff, mottled pale yellowish orange, light gray and moderate red, dry.				
							SC		
15				<1	SAND: 20% clay, very fine- to fine-grained, moderately to poorly sorted, moderate pink, dry.				
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B022
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/16/94	**COMPLTD:** 11/16/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 98.55 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				<1	SAND: 10% clay, very fine- to fine-grained, trace medium-grained, very poorly sorted, mottled moderate red and light gray, dry.		SC		
							SP		
25				2	SAND: very fine-grained, well sorted, light pink and light gray, dry.				
30				<1	SAND: very fine- to fine-grained, moderately sorted, moderate yellowish orange to very pale orange, dry.				
							SW		
35				2	SAND: fine- to course-grained, poorly sorted, light gray, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B023
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/17/94	**COMPLTD:** 11/17/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 93.55 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SILTY SAND: 10% silt, some clay, very fine- to fine-grained, light brown.		SM		
							CL		
5				<1	SANDY CLAY: 35% very fine- to course-grained sand, non-plastic, "sticky", reddish brown, dry.				
10				<1	SANDY CLAY: 30% very fine- to fine-grained sand, very slightly plastic, mottled moderate reddish brown and moderate orange pink.				
							SC CL		
15				<1	INTERMIXED CLAYEY SANDS AND SANDY CLAYS: 2-3" thick, very fine- to fine-grained sand, slightly plastic clays, moderate reddish brown to pale reddish brown.		SC		
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B023
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/17/94	**COMPLTD:** 11/17/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 93.55 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				1	CLAYEY SAND: heavily mixed indiscontinous layers with plastic clays, very fine- to fine-grained, white clays mixed with dusky red sands.		SC		
					SAND: very fine- to fine-grained, moderately sorted, pale red, dry.		SP		
25				<1	SAND: fine-grained, well sorted, very dense, very pale yellowish orange, dry.				
30				<1	SAND: fine-grained with trace clay, well sorted, grayish pink, dry.				
35									
40									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B024
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/17/94	**COMPLTD:** 11/17/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.14 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ASPHALT		ASPHALT		
				<1	CLAYEY SAND: probably fill, 30% clay, very fine- to medium-grained, very poorly sorted, reddish brown, dry.		SC		
							CL		
5				<1	SANDY CLAY: 25-30% fine- to medium-grained sand, non-plastic, stiff, mottled moderate reddish brown and pale yellowish orange, dry.				
							CL		
10				<1	CLAY: trace very fine-grained sand, non-plastic, stiff, mottled moderate reddish brown, very pale orange and yellowish orange, slightly damp to dry.				
							SW		
15				<1	SAND: trace clay, very fine- to fine-grained, moderately to poorly sorted, mottled moderate reddish orange and moderate orange pink, dry.				
							SC		
20									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B024
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/17/94	**COMPLTD:** 11/17/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.14 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				<1	CLAYEY SAND: 20-30% clay, very fine- to fine-grained, poorly sorted, mottled dark yellowish orange and pale yellowish orange, dry.		SC		
							SP		
25				<1	SAND: very fine-grained, some clay, moderately well sorted, very light gray with light red lamellae, dry.				
							SW		
30				<1	SAND: very fine- to very course-grained, very poorly sorted, vary pale orange, dry.				
					SAND: very fine-grained, well sorted, pale grayish orange, dry.		SP		
35				1	SAND: very fine-grained, some clay, moderately sorted, very light gray, dry.				

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B025
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/17/94	**COMPLTD:** 11/17/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.58 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ▽** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				<1	SILTY SANDS: 30% silt and clay, very fine- to fine-grained, poorly sorted, moderate yellowish brown, dry.		SM		
							CL		
5				>5000	SANDY CLAY: 25% fine- to medium-grained sand, non-plastic, "sticky", petroleum odor, moderate reddish brown, damp.				
10				>5000	CLAY: trace fine sand, slightly plastic, stiff, strong petroleum odor and gray staining, mottled reddish brown and pale yellowish orange, dry.				
							SC		
15				>5000	CLAYEY SAND: 35-40% clay, very fine- to fine-grained, poorly sorted, petroleum odor, moderate pink, dry.				
							SM		
20									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 07B025
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 8527.30
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 11/17/94	**COMPLTD:** 11/17/94
METHOD: TerraProbe System	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: 97.56 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 37FT.	**DPTH TO ∇** FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
				>5000	SAND: 15% clay, very fine- to fine-grained, trace medium-grained, poorly sorted, sour petroleum odor, mottled very dark red, grayish orange and very pale orange, dry.		SM		
					SAND: 10% clay, very fine- to fine-grained, moderately sorted, sour petroleum odor, grayish orange, dry.		SC		
25				>5000	CLAYEY SAND AND SANDY CLAY: mixed together randomly, very fine- to fine-grained sand, non-plastic clay, poorly sorted, petroleum odor, mottled very dark red and very light gray, dry.				
					SAND: very fine- to medium-grained, some clay, very poorly sorted, petroleum odor, light brown, dry.		SM		
							SW		
30					SAND: very fine- to very course-grained, small pebbles, very poorly sorted, grayish pink, dry.				
				319	SAND: fine-grained well sorted, layered dark yellowish orange and pale yellowish orange, dry.		SP		
							SW		
35				800	SAND: very fine- to medium-grained, poorly sorted, petroleum odor, very light gray, dry.				
40									

 ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX B

LABORATORY ANALYTICAL DATA

Quanterra Environmental Services

Quanterra Incorporated
5910 Breckenridge Parkway, Suite H
Tampa, Florida 33610

813 621-0784 Telephone
813 623-6021 Fax

ANALYTICAL REPORT

PROJECT NO. 8527.30

WHITING FIELD #7

KAREN HARTNETT

ABB ENVIRONMENTAL SERVICES

QUANTERRA INCORPORATED
Certification Numbers: E84059,HRS84297
FDEP CompQAP: 870270G

Joanne Anderson
Project Manager

December 1, 1994

Quanterra
Environmental Services

ANALYTICAL METHODS SUMMARY

Parameters	Methods
Volatile Organics	USEPA 601
Volatile Organics	USEPA 602

References:

USEPA Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, 40CFR, Part 136, Appendix A, October 26,1984 and subsequent revisions

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

07Z002-01

WO #: A1HKW101
LAB #: B4K170015-005
MATRIX: WATER

DATE SAMPLED: 11/15/94
DATE RECEIVED: 11/17/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Bromodichloromethane	ND	1.0	USEPA 601	11/25/94	4334065
Bromoform	ND	1.0	USEPA 601	11/25/94	4334065
Bromomethane	ND	1.0	USEPA 601	11/25/94	4334065
Carbon tetrachloride	ND	1.0	USEPA 601	11/25/94	4334065
Chlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
Dibromochloromethane	ND	1.0	USEPA 601	11/25/94	4334065
Chloroethane	ND	1.0	USEPA 601	11/25/94	4334065
2-Chloroethyl vinyl ether	ND	1.0	USEPA 601	11/25/94	4334065
Chloroform	ND	1.0	USEPA 601	11/25/94	4334065
Chloromethane	ND	1.0	USEPA 601	11/25/94	4334065
1,2-Dichlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
1,3-Dichlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
1,4-Dichlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
Dichlorodifluoromethane	ND	1.0	USEPA 601	11/25/94	4334065
1,1-Dichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
1,2-Dichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
1,1-Dichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
cis-1,2-Dichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
trans-1,2-Dichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
1,2-Dichloropropane	ND	1.0	USEPA 601	11/25/94	4334065
cis-1,3-Dichloropropene	ND	1.0	USEPA 601	11/25/94	4334065
trans-1,3-Dichloropropene	ND	1.0	USEPA 601	11/25/94	4334065
Trichlorofluoromethane	ND	1.0	USEPA 601	11/25/94	4334065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	121	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

07Z002-01

WO #: A1HKW101
LAB #: B4K170015-005
MATRIX: WATER

DATE SAMPLED: 11/15/94
DATE RECEIVED: 11/17/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Methylene chloride	ND	1.0	USEPA 601	11/25/94	4334065
1,1,2,2-Tetrachloroethane	ND	1.0	USEPA 601	11/25/94	4334065
Tetrachloroethene	ND	1.0	USEPA 601	11/25/94	4334065
1,1,1-Trichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
1,1,2-Trichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
Trichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
Vinyl chloride	ND	1.0	USEPA 601	11/25/94	4334065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	121	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra

ABB ENVIRONMENTAL SERVICES

07Z002-01

WO #: A1HKW102
LAB #: B4K170015-005
MATRIX: WATER

DATE SAMPLED: 11/15/94
DATE RECEIVED: 11/17/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzene	ND	1.0	USEPA 602	11/25/94	4329044
Chlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
1,2-Dichlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
1,3-Dichlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
1,4-Dichlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
Ethylbenzene	ND	1.0	USEPA 602	11/25/94	4329044
Toluene	1.3	1.0	USEPA 602	11/25/94	4329044
Xylenes, Total	ND	1.0	USEPA 602	11/25/94	4329044
Methyl tert-butyl ether	ND	1.0	USEPA 602	11/25/94	4329044

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	95	(73 - 131)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra

ABB ENVIRONMENTAL SERVICES

07Z003-01

WO #: A1HKX101
LAB #: B4K170015-006
MATRIX: WATER

DATE SAMPLED: 11/15/94
DATE RECEIVED: 11/17/94

GC Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Bromodichloromethane	ND	1.0	USEPA 601	11/25/94	4334065
Bromoform	ND	1.0	USEPA 601	11/25/94	4334065
Bromomethane	ND	1.0	USEPA 601	11/25/94	4334065
Carbon tetrachloride	ND	1.0	USEPA 601	11/25/94	4334065
Chlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
Dibromochloromethane	ND	1.0	USEPA 601	11/25/94	4334065
Chloroethane	ND	1.0	USEPA 601	11/25/94	4334065
2-Chloroethyl vinyl ether	ND	1.0	USEPA 601	11/25/94	4334065
Chloroform	ND	1.0	USEPA 601	11/25/94	4334065
Chloromethane	ND	1.0	USEPA 601	11/25/94	4334065
1,2-Dichlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
1,3-Dichlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
1,4-Dichlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
Dichlorodifluoromethane	ND	1.0	USEPA 601	11/25/94	4334065
1,1-Dichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
1,2-Dichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
1,1-Dichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
cis-1,2-Dichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
trans-1,2-Dichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
1,2-Dichloropropane	ND	1.0	USEPA 601	11/25/94	4334065
cis-1,3-Dichloropropene	ND	1.0	USEPA 601	11/25/94	4334065
trans-1,3-Dichloropropene	ND	1.0	USEPA 601	11/25/94	4334065
Trichlorofluoromethane	ND	1.0	USEPA 601	11/25/94	4334065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	108	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra Environmental Services

ABB ENVIRONMENTAL SERVICES

07Z003-01

WO #: A1HKX101
LAB #: B4K170015-006
MATRIX: WATER

DATE SAMPLED: 11/15/94
DATE RECEIVED: 11/17/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Methylene chloride	ND	1.0	USEPA 601	11/25/94	4334065
1,1,2,2-Tetrachloroethane	ND	1.0	USEPA 601	11/25/94	4334065
Tetrachloroethene	ND	1.0	USEPA 601	11/25/94	4334065
1,1,1-Trichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
1,1,2-Trichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
Trichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
Vinyl chloride	ND	1.0	USEPA 601	11/25/94	4334065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	108	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra Environmental Services

ABB ENVIRONMENTAL SERVICES

07Z003-01

WO #: A1HKX102
LAB #: B4K170015-006
MATRIX: WATER

DATE SAMPLED: 11/15/94
DATE RECEIVED: 11/17/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzene	ND	1.0	USEPA 602	11/25/94	4329044
Chlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
1,2-Dichlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
1,3-Dichlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
1,4-Dichlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
Ethylbenzene	ND	1.0	USEPA 602	11/25/94	4329044
Toluene	ND	1.0	USEPA 602	11/25/94	4329044
Xylenes, Total	ND	1.0	USEPA 602	11/25/94	4329044
Methyl tert-butyl ether	ND	1.0	USEPA 602	11/25/94	4329044

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	98	(73 - 131)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra

ABB ENVIRONMENTAL SERVICES

07Z004-01

WO #: A1HL0101
LAB #: B4K170015-007
MATRIX: WATER

DATE SAMPLED: 11/15/94
DATE RECEIVED: 11/17/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Bromodichloromethane	ND	1.0	USEPA 601	11/25/94	4334065
Bromoform	ND	1.0	USEPA 601	11/25/94	4334065
Bromomethane	ND	1.0	USEPA 601	11/25/94	4334065
Carbon tetrachloride	ND	1.0	USEPA 601	11/25/94	4334065
Chlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
Dibromochloromethane	ND	1.0	USEPA 601	11/25/94	4334065
Chloroethane	ND	1.0	USEPA 601	11/25/94	4334065
2-Chloroethyl vinyl ether	ND	1.0	USEPA 601	11/25/94	4334065
Chloroform	ND	1.0	USEPA 601	11/25/94	4334065
Chloromethane	ND	1.0	USEPA 601	11/25/94	4334065
1,2-Dichlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
1,3-Dichlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
1,4-Dichlorobenzene	ND	1.0	USEPA 601	11/25/94	4334065
Dichlorodifluoromethane	ND	1.0	USEPA 601	11/25/94	4334065
1,1-Dichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
1,2-Dichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
1,1-Dichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
cis-1,2-Dichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
trans-1,2-Dichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
1,2-Dichloropropane	ND	1.0	USEPA 601	11/25/94	4334065
cis-1,3-Dichloropropene	ND	1.0	USEPA 601	11/25/94	4334065
trans-1,3-Dichloropropene	ND	1.0	USEPA 601	11/25/94	4334065
Trichlorofluoromethane	ND	1.0	USEPA 601	11/25/94	4334065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	108	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

07Z004-01

WO #: A1HL0101
LAB #: B4K170015-007
MATRIX: WATER

DATE SAMPLED: 11/15/94
DATE RECEIVED: 11/17/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Methylene chloride	ND	1.0	USEPA 601	11/25/94	4334065
1,1,2,2-Tetrachloroethane	ND	1.0	USEPA 601	11/25/94	4334065
Tetrachloroethene	ND	1.0	USEPA 601	11/25/94	4334065
1,1,1-Trichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
1,1,2-Trichloroethane	ND	1.0	USEPA 601	11/25/94	4334065
Trichloroethene	ND	1.0	USEPA 601	11/25/94	4334065
Vinyl chloride	ND	1.0	USEPA 601	11/25/94	4334065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	108	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

07Z004-01

WO #: A1HL0102
LAB #: B4K170015-007
MATRIX: WATER

DATE SAMPLED: 11/15/94
DATE RECEIVED: 11/17/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzene	ND	1.0	USEPA 602	11/25/94	4329044
Chlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
1,2-Dichlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
1,3-Dichlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
1,4-Dichlorobenzene	ND	1.0	USEPA 602	11/25/94	4329044
Ethylbenzene	ND	1.0	USEPA 602	11/25/94	4329044
Toluene	ND	1.0	USEPA 602	11/25/94	4329044
Xylenes, Total	ND	1.0	USEPA 602	11/25/94	4329044
Methyl tert-butyl ether	ND	1.0	USEPA 602	11/25/94	4329044

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	98	(73 - 131)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

QUALITY CONTROL SECTION

- Quality Control Summary
- Laboratory Blanks
- Laboratory Control Sample
- Matrix Spike/Matrix Spike Duplicate Results
- Sample Custody Documentation

Quanterra

QUALITY ASSURANCE / QUALITY CONTROL PROGRAM SUMMARY

Quanterra Environmental Services considers continuous analytical method performance evaluations to be an integral portion of the data package, and routinely includes the pertinent QA/QC data associated with various analytical result reports. Brief discussions of the various QA/QC procedures utilized to measure acceptable method and matrix performance follow.

Surrogate Spike Recovery Evaluations

Known concentrations of designated surrogate spikes, consisting of a number of similar, non-method compounds or method compound analogues, are added, as appropriate, to routine GC and GC/MS sample fractions prior to extraction and analysis. The percent recovery determinations calculated from the subsequent analysis is an indication of the overall method efficiency for the individual sample. This surrogate spike recovery data is displayed alongside acceptable analytical method performance limits at the bottom of each applicable analytical result report sheet.

NOTE: Acceptable method performance for Base/Neutral Acid extractables is indicated by two (2) of three (3) surrogates for each fraction with a minimum recovery of ten (10) percent each. For Pesticides one (1) of two (2) surrogates meeting performance criteria is acceptable.

Laboratory Analytical Method Blank Evaluations

Laboratory analytical method blanks are systematically prepared and analyzed in order to continuously evaluate the system interferences and background contamination levels associated with each analytical method. These method blanks include all aspects of actual laboratory method analysis (chemical reagents, glassware, etc.), substituting laboratory reagent water or solid for actual sample. The method blank must not contain any analytes above the reported detection limit. The following common laboratory contaminants are exceptions to this rule provided they are not present at greater than five times the detection limit.

Volatiles	Semi-volatiles	Metals
Methylene chloride	Dimethyl phthalate	Calcium
Toluene	Diethly phthalate	Magnesium
2-Butanone	Di-n-butyl phthalate	Sodium
Acetone	Butyl benzyl phthalate	
	Bis (2-ethylhexyl) phthalate	

A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method blanks.

Laboratory Analytical Method Check Sample Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to a laboratory reagent blank prior to extraction and analysis. Percent recovery determinations demonstrate the performance of the analytical method. Failure of a check sample to meet established laboratory recovery criteria is cause to stop the analysis until the problem is resolved.

QUALITY ASSURANCE / QUALITY CONTROL
PROGRAM SUMMARY
(cont'd)

At that time all associated samples must be re-analyzed. A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method check samples.

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) Recovery Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to two of three separate aliquots of a sequentially predetermined sample prior to extraction and analysis. Percent recovery determinations are calculated from both of the spiked samples by comparison to the actual values generated from the unspiked sample. These percent recovery determinations indicate the accuracy of the analysis at recovering actual analytical method compounds from the matrix. Relative percent difference determinations calculated from a comparison of the MS/MSD recoveries demonstrate the precision of the analytical method. Actual percent recovery and relative percent difference data is displayed alongside their respective acceptable analytical method performance limits in the QA/QC section of the report. The MS/MSD are considered in control when the precision is within established control limits and the associated check sample has been found to be acceptable. A minimum of ten percent (10%) of all analyses are MS/MSD quality control samples.

**********EXAMPLE**********

COMPOUND	SAMPLE CONC.	MS %REC	MSD %REC	RPD	QC LIMITS RPD	QC LIMITS RECOVERY
4,4'-DDT	0	95	112	16	22	66-119
Benzene	10	86	93	8	20	39-150
(cmpd. name)	sample result	1st% recov.	2nd% recov.	Rel.% diff.	accep. method perform range	

Analytical Result Qualifiers

The following qualifiers, as defined below, may be appended to analytical results in order to allow proper interpretation of the results presented:

J - indicates an estimated concentration (typically used when a dilution, matrix interference or instrumental limitation prevents accurate quantitation of a particular analyte).

B - indicates the presence of a particular analyte in the laboratory blank analyzed concurrently with the samples. Results must be interpreted accordingly.

DIL - indicates that because of matrix interferences and/or high analyte concentrations, it was necessary to dilute the sample to a point where the surrogate or spike concentrations fell below a quantifiable amount and could not be reported.

Quanterra

INTRA-LAB BLANK REPORT

LAB #: B4K300000-065

- GC VOLATILES -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	EXTRACTION-ANALYSIS DATE	QC BATCH
Bromodichloromethane	ND	1.0	11/25/94	4334065
Bromoform	ND	1.0	11/25/94	4334065
Bromomethane	ND	1.0	11/25/94	4334065
Carbon tetrachloride	ND	1.0	11/25/94	4334065
Chlorobenzene	ND	1.0	11/25/94	4334065
Dibromochloromethane	ND	1.0	11/25/94	4334065
Chloroethane	ND	1.0	11/25/94	4334065
2-Chloroethyl vinyl ether	ND	1.0	11/25/94	4334065
Chloroform	ND	1.0	11/25/94	4334065
Chloromethane	ND	1.0	11/25/94	4334065
1,2-Dichlorobenzene	ND	1.0	11/25/94	4334065
1,3-Dichlorobenzene	ND	1.0	11/25/94	4334065
1,4-Dichlorobenzene	ND	1.0	11/25/94	4334065
Dichlorodifluoromethane	ND	1.0	11/25/94	4334065
1,1-Dichloroethane	ND	1.0	11/25/94	4334065
1,2-Dichloroethane	ND	1.0	11/25/94	4334065
1,1-Dichloroethene	ND	1.0	11/25/94	4334065
cis-1,2-Dichloroethene	ND	1.0	11/25/94	4334065
trans-1,2-Dichloroethene	ND	1.0	11/25/94	4334065
1,2-Dichloropropane	ND	1.0	11/25/94	4334065
cis-1,3-Dichloropropene	ND	1.0	11/25/94	4334065
trans-1,3-Dichloropropene	ND	1.0	11/25/94	4334065
Trichlorofluoromethane	ND	1.0	11/25/94	4334065
Methylene chloride	ND	1.0	11/25/94	4334065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	95	(78 - 122)

NOTE:

ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Laboratory Services

INTRA-LAB BLANK REPORT

LAB #: B4K300000-065

- GC VOLATILES -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1,2,2-Tetrachloroethane	ND	1.0	11/25/94	4334065
Tetrachloroethene	ND	1.0	11/25/94	4334065
1,1,1-Trichloroethane	ND	1.0	11/25/94	4334065
1,1,2-Trichloroethane	ND	1.0	11/25/94	4334065
Trichloroethene	ND	1.0	11/25/94	4334065
Vinyl chloride	ND	1.0	11/25/94	4334065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	95	(78 - 122)

NOTE:

ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K250000-044

GC VOLATILES

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzene	ND	1.0	11/25/94	4329044
Bromodichloromethane	ND	1.0	11/25/94	4329044
Bromoform	ND	1.0	11/25/94	4329044
Bromomethane	ND	1.0	11/25/94	4329044
Carbon tetrachloride	ND	1.0	11/25/94	4329044
Chlorobenzene	ND	1.0	11/25/94	4329044
Dibromochloromethane	ND	1.0	11/25/94	4329044
Chloroethane	ND	1.0	11/25/94	4329044
2-Chloroethyl vinyl ether	ND	1.0	11/25/94	4329044
Chloroform	ND	1.0	11/25/94	4329044
Chloromethane	ND	1.0	11/25/94	4329044
1,2-Dichlorobenzene	ND	1.0	11/25/94	4329044
1,3-Dichlorobenzene	ND	1.0	11/25/94	4329044
1,4-Dichlorobenzene	ND	1.0	11/25/94	4329044
Dichlorodifluoromethane	ND	1.0	11/25/94	4329044
1,1-Dichloroethane	ND	1.0	11/25/94	4329044
1,2-Dichloroethane	ND	1.0	11/25/94	4329044
1,1-Dichloroethene	ND	1.0	11/25/94	4329044
cis-1,2-Dichloroethene	ND	1.0	11/25/94	4329044
trans-1,2-Dichloroethene	ND	1.0	11/25/94	4329044
1,2-Dichloropropane	ND	1.0	11/25/94	4329044
cis-1,3-Dichloropropene	ND	1.0	11/25/94	4329044
trans-1,3-Dichloropropene	ND	1.0	11/25/94	4329044
Ethylbenzene	ND	1.0	11/25/94	4329044

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	95	(78 - 122)
Trifluorotoluene	99	(73 - 131)

NOTE:

ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra

INTRA-LAB BLANK REPORT

LAB #: B4K250000-044

- GC VOLATILES -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	EXTRACTION-ANALYSIS DATE	QC BATCH
Trichlorofluoromethane	ND	1.0	11/25/94	4329044
Methylene chloride	ND	1.0	11/25/94	4329044
1,1,2,2-Tetrachloroethane	ND	1.0	11/25/94	4329044
Tetrachloroethene	ND	1.0	11/25/94	4329044
Toluene	ND	1.0	11/25/94	4329044
1,1,1-Trichloroethane	ND	1.0	11/25/94	4329044
1,1,2-Trichloroethane	ND	1.0	11/25/94	4329044
Trichloroethene	ND	1.0	11/25/94	4329044
Vinyl chloride	ND	1.0	11/25/94	4329044
Xylenes, Total	ND	1.0	11/25/94	4329044
Methyl tert-butyl ether	ND	1.0	11/25/94	4329044

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	95	(78 - 122)
Trifluorotoluene	99	(73 - 131)

NOTE:

ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra

CHECK SAMPLE REPORT

QC BATCH: 4329044
LAB #: B4K250000-044 C

PREPARATION DATE: 11/25/94
DATE ANALYZED: 11/25/94

- GC Volatiles -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
Benzene	110	(81-122)
Toluene	115	(81-123)
Chlorobenzene	113	(75-123)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4329044
LAB #: B4K250000-044 C

PREPARATION DATE: 11/25/94
DATE ANALYZED: 11/25/94

- GC Volatiles -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
1,1-Dichloroethene	123	(62-128)
Trichloroethene	130	(70-133)
Chlorobenzene	119	(75-123)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4334065
LAB #: B4K300000-065 C

PREPARATION DATE: 11/25/94
DATE ANALYZED: 11/25/94

- GC Volatiles -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
1,1-Dichloroethene	123	(62-128)
Trichloroethene	130	(70-133)
Chlorobenzene	119	(75-123)

Quanterra Environmental Services, Tampa
Sample Shipper Evaluation and Receipt Form

Client: ABB Project Name/Number: Whiting FID

Samples Received by: Carol McCulty Date Received: 11-17-94
Signature

Sample Evaluation Form by: Alanna Lynn
Signature

Type of shipping containers samples received in:

Quanterra cooler: X Client cooler: ____

Quanterra shipper ____ Box ____ Other: ____

Any "NO" responses or discrepancies should be explained in the "Comments" section.

		Yes	No
1)	Were custody seals on shipping container(s) intact?	X	
2)	Were custody papers properly included with samples?	X	
3)	Were custody papers properly filled out (ink, signed, match labels)?	X	
4)	Did all bottles arrive in good condition (unbroken)?	X	
5)	Were all bottle labels complete (sample no., date, signed, analysis preservatives)?	X	
6)	Were correct bottles used for the tests indicated?	X	
7)	Were proper sample preservativion techniques indicated?	X	
8)	Were samples received within adequate holding times?	X	
9)	Were all VOA bottles checked for the presence of air bubbles? (If air bubbles were found, indicate in comment section)	X	
10)	Were samples in direct contact with wet ice? NOTE TEMPERATURE BELOW	X	
11)	Were samples accepted into the laboratory? (If "No", see comments)	X	

Cooler # ____ Temp 2 C Cooler # ____ Temp. ____ C

Comments: Trip Blank rec'd - not on COC

308/bjj/52/forms/shipper.xls

WADSWORTH/ALERT LABORATORIES
Sampling, testing, mobile labs
5910 Breckenridge Pkwy.
Suite H
Tampa, FL 33610
(813) 621-0784
Fax (813) 623-6021

Record _____ of _____

5807

Client: ABB-ES

Project Name / Location: Site 7 Whiting Field

Sampler(s): Pam Wagner & Heather Governick

Project #: 8527.30

Item #	Date	Time	MATRIX	Sample Location	No. Of CON-TAINERS	VOC-601/602	PAH-	METALS-	TRPH-	EDB-						Remarks
1	11/15/94	1445	Water	07Z0022-01	2	2										
2	11/15/94	1455	Water	07Z003-01	2	2										
3	11/16/94	1430	Water	07Z0041-01	2	2										
4																
5																
6																
7																
8																
9																
10																
11																

Parameter

Total Containers: 2

Number of Coolers in Shipment: 1

Bailers:

Report To: Pamela Wagner (904) 656-1293
ABB-ES, Tallahassee

Additional Comments:

Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
1					
2					
3					
4					
5					
6					

Original Accompanies Shipment

Quanterra Incorporated
5910 Breckenridge Parkway, Suite H
Tampa, Florida 33610

813 621-0784 Telephone
813 623-6021 Fax

ANALYTICAL REPORT

PROJECT NO. 8527.30

WHITING FIELD #7

KAREN HARTNETT

ABB ENVIRONMENTAL SERVICES

QUANTERRA INCORPORATED
Certification Numbers: E84059,HRS84297
FDEP CompQAP: 870270G

Joanne Anderson
Joanne Anderson
Project Manager

December 6, 1994

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B4K210003

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD
07B00804				
Solids, Total (TS)	93.7	1.0	%	MCAWW 160.3

CH2M HILL

QUALITY ANALYTICAL LABORATORIES

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M HILL Project #

Purchase Order #

Project Name: Site 7, NAS WHITING FIELD

Company Name/CH2M HILL Office: ABB-ES

Project Manager & Phone #: Mr. [ ] Ms. [X] Dr. [ ] PAMELA J. WAGNER

Report Copy to: SAME

Requested Completion Date: STANDARD

Sampling Requirements: SDWA [ ] NPDES [ ] RCRA [ ] OTHER [✓]

Sample Disposal: Dispose [X] Return [ ]

LAB TEST CODES

ANALYSES REQUESTED

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	601/602 or EQUIVALENT	8010/8020	8080/PEST ONLY	REMARKS	LAB 1 ID	LAB 2 ID
11-18-94	0900		✓	X		07Z00701	2	2			muddy		
11-17-94	1105	✓			X	07B00804	2		1	1			
—	—			X		TRIP BLNK	2	2					

SHADED AREA -- FOR LAB USE ONLY

Lab 1 #

Lab 2 #

Quote #

Kit Request #

Project #

No. of Samples

Page

of

COC Rev

Login

LIMS Ver

Ack Gen

Sampled By & Title (Please sign and print name): Pamela J. Wagner	Date/Time: 11-18-94	Relinquished By (Please sign and print name): Pamela J. Wagner	Date/Time: 11-18-94
Received By (Please sign and print name): Allanna D. Lynn / Quanterra	Date/Time: 11-19-94 1130	Relinquished By (Please sign and print name):	Date/Time:
Received By (Please sign and print name):	Date/Time:	Relinquished By (Please sign and print name):	Date/Time:
Received By (Please sign and print name):	Date/Time:	Shipped Via: UPS BUS Fed-Ex Hand Other	Shipping #: 2103144120
Work Authorized By (Please sign and print name):	Remarks:		

HAZWRAP/NESSA: Y N

QC Level: 1 2 3 Other:

COC Rec | ICE

Ana Req | TEMP

Cust Seal | Ph

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: ORIGINAL - LAB, Yellow - LAB, Pink - Client

Quanterra Environmental Services, Tampa
Sample Shipper Evaluation and Receipt Form

Client: ABB Project Name/Number: whiting FID #7

Samples Received by: [signature] Date Received: 11-19-94
Signature

Sample Evaluation Form by: [signature]
Signature

Type of shipping containers samples received in:

Quanterra cooler: X Client cooler: _____

Quanterra shipper _____ Box _____ Other _____

Any "NO" responses or discrepancies should be explained in the "Comments" section.

		Yes	No
1)	Were custody seals on shipping container(s) intact?	X	
2)	Were custody papers properly included with samples?	X	
3)	Were custody papers properly filled out (ink, signed, match labels)?	X	
4)	Did all bottles arrive in good condition (unbroken)?	X	
5)	Were all bottle labels complete (sample no., date, signed, analysis preservatives)?	X	
6)	Were correct bottles used for the tests indicated?	X	
7)	Were proper sample preservativion techniques indicated?	X	
8)	Were samples received within adequate holding times?	X	
9)	Were all VOA bottles checked for the presence of air bubbles? (If air bubbles were found, indicate in comment section)	X	
10)	Were samples in direct contact with wet ice? NOTE TEMPERATURE BELOW	X	
11)	Were samples accepted into the laboratory? (If "No", see comments)	X	

Cooler # _____ Temp 2 C Cooler # _____ Temp. _____ C

Comments: _____

306/bij/52/forms/shipper.xls

Quanterra
Environmental Services

SAMPLE - SAMPLE DUP

WO #: A1E90

LAB #: B4K210003-002
MATRIX: SOLID

- - - - - - - - - - - - - - - - - INORGANIC ANALYTICAL REPORT - - - - - - - - - - - - - - - - -

PARAMETER	RESULT SMP	RESULT DUP	RPD	RPD LIMIT	EXTRACTION / ANALYSIS DATE	QC BATCH
Solids, Total (TS)	93.7	93.9	0.2	(0-20)	11/21-11/23/94	4326124

Quanterra

CHECK SAMPLE REPORT

QC BATCH: 4326120
LAB #: B4K220000-120 C

PREPARATION DATE: 11/22/94
DATE ANALYZED: 11/29/94

- GC Semi-Volatiles - - - - - - - - - - - - - - - - - - -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
gamma-BHC (Lindane)	97	(67-127)
Heptachlor	102	(61-151)
Aldrin	100	(72-125)
Dieldrin	109	(65-130)
Endrin	103	(71-134)
4,4'-DDT	83	(72-130)

Quanterra

CHECK SAMPLE REPORT

QC BATCH: 4339122
LAB #: B4L050000-122 C

PREPARATION DATE: 12/02/94
DATE ANALYZED: 12/02/94

- GC Volatiles -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
Benzene	108	(81-122)
Toluene	115	(81-123)
Chlorobenzene	115	(75-121)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4339121
LAB #: B4L050000-121 C

PREPARATION DATE: 12/02/94
DATE ANALYZED: 12/02/94

- GC Volatiles -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
1,1-Dichloroethene	92	(62-128)
Trichloroethene	129	(70-133)
Chlorobenzene	120	(75-123)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4334003
LAB #: B4K300000-003 C

PREPARATION DATE: 11/29/94
DATE ANALYZED: 11/29/94

- GC Volatiles -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
1,1-Dichloroethene	88	(62-136)
Trichloroethene	107	(85-131)
Chlorobenzene	94	(70-129)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4334004
LAB #: B4K300000-004 C

PREPARATION DATE: 11/28/94
DATE ANALYZED: 11/28/94

- GC Volatiles -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
Benzene	100	(75-125)
Toluene	97	(72-129)
Chlorobenzene	98	(72-126)

Quanterra

INTRA-LAB BLANK REPORT

LAB #: B4K220000-120

- - - - - - - - - - - - - - - - - - - GC Semi-Volatiles - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (mg/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Aldrin	ND	0.10	11/22-11/29/94	4326120
alpha-BHC	ND	0.10	11/22-11/29/94	4326120
beta-BHC	ND	0.10	11/22-11/29/94	4326120
delta-BHC	ND	0.10	11/22-11/29/94	4326120
gamma-BHC (Lindane)	ND	0.10	11/22-11/29/94	4326120
Chlordane	ND	1.0	11/22-11/29/94	4326120
4,4'-DDD	ND	0.10	11/22-11/29/94	4326120
4,4'-DDE	ND	0.10	11/22-11/29/94	4326120
4,4'-DDT	ND	0.10	11/22-11/29/94	4326120
Dieldrin	ND	0.10	11/22-11/29/94	4326120
Endosulfan I	ND	0.10	11/22-11/29/94	4326120
Endosulfan II	ND	0.10	11/22-11/29/94	4326120
Endosulfan sulfate	ND	0.10	11/22-11/29/94	4326120
Endrin	ND	0.10	11/22-11/29/94	4326120
Endrin aldehyde	ND	0.10	11/22-11/29/94	4326120
Heptachlor	ND	0.10	11/22-11/29/94	4326120
Heptachlor epoxide	ND	0.10	11/22-11/29/94	4326120
Methoxychlor	ND	0.50	11/22-11/29/94	4326120
Toxaphene	ND	1.0	11/22-11/29/94	4326120

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Tetrachloro-m-xylene	95	(32 - 154)
Dibutylchlorendate	106	(27 - 139)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K300000-003

- GC Volatiles -

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
1,2-Dichloropropane	ND	5.0	11/29/94	4334003
Trichlorofluoromethane	ND	5.0	11/29/94	4334003
Dichloromethane	ND	5.0	11/29/94	4334003
1,1,1,2-Tetrachloroethane	ND	5.0	11/29/94	4334003
1,1,2,2-Tetrachloroethane	ND	5.0	11/29/94	4334003
Tetrachloroethylene	ND	5.0	11/29/94	4334003
1,1,1-Trichloroethane	ND	5.0	11/29/94	4334003
1,1,2-Trichloroethane	ND	5.0	11/29/94	4334003
Trichloroethylene	ND	5.0	11/29/94	4334003
1,2,3-Trichloropropane	ND	5.0	11/29/94	4334003
Vinyl chloride	ND	5.0	11/29/94	4334003
Benzene	NA	5.0	11/29/94	4334003
cis-1,3-Dichloropropene	ND	5.0	11/29/94	4334003
trans-1,3-Dichloropropene	ND	5.0	11/29/94	4334003
Ethylbenzene	NA	5.0	11/29/94	4334003
Toluene	NA	5.0	11/29/94	4334003
Xylenes, Total	NA	5.0	11/29/94	4334003
Methyl tert-butyl ether	NA	5.0	11/29/94	4334003

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	85	(43 - 143)

NOTE:

ND (NONE DETECTED)

NA (NOT ANALYZED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K300000-003

- GC Volatiles -

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Benzyl chloride	ND	5.0	11/29/94	4334003
Bromobenzene	ND	5.0	11/29/94	4334003
Bromodichloromethane	ND	5.0	11/29/94	4334003
Bromoform	ND	5.0	11/29/94	4334003
Bromomethane	ND	5.0	11/29/94	4334003
Carbon tetrachloride	ND	5.0	11/29/94	4334003
Chlorobenzene	ND	5.0	11/29/94	4334003
Dibromochloromethane	ND	5.0	11/29/94	4334003
Chloroethane	ND	5.0	11/29/94	4334003
2-Chloroethyl vinyl ether	ND	5.0	11/29/94	4334003
Chloroform	ND	5.0	11/29/94	4334003
1-Chlorohexane	ND	5.0	11/29/94	4334003
Chloromethane	ND	5.0	11/29/94	4334003
2-Chlorotoluene	ND	5.0	11/29/94	4334003
Dibromomethane	ND	5.0	11/29/94	4334003
1,2-Dichlorobenzene	ND	5.0	11/29/94	4334003
1,3-Dichlorobenzene	ND	5.0	11/29/94	4334003
1,4-Dichlorobenzene	ND	5.0	11/29/94	4334003
Dichlorodifluoromethane	ND	5.0	11/29/94	4334003
1,1-Dichloroethane	ND	5.0	11/29/94	4334003
1,2-Dichloroethane	ND	5.0	11/29/94	4334003
1,1-Dichloroethylene	ND	5.0	11/29/94	4334003
cis-1,2-Dichloroethylene	ND	5.0	11/29/94	4334003
trans-1,2-Dichloro-ethylene	ND	5.0	11/29/94	4334003

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	85	(43 - 143)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4L050000-122

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Benzene	ND	1.0	12/02/94	4339122
Chlorobenzene	ND	1.0	12/02/94	4339122
1,2-Dichlorobenzene	ND	1.0	12/02/94	4339122
1,3-Dichlorobenzene	ND	1.0	12/02/94	4339122
1,4-Dichlorobenzene	ND	1.0	12/02/94	4339122
Ethylbenzene	ND	1.0	12/02/94	4339122
Toluene	ND	1.0	12/02/94	4339122
Xylenes, Total	ND	1.0	12/02/94	4339122
Methyl tert-butyl ether	ND	1.0	12/02/94	4339122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	100	(73 - 131)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4L050000-121

- **GC Volatiles** -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Tetrachloroethene	ND	1.0	12/02/94	4339121
1,1,1-Trichloroethane	ND	1.0	12/02/94	4339121
1,1,2-Trichloroethane	ND	1.0	12/02/94	4339121
Trichloroethene	ND	1.0	12/02/94	4339121
Vinyl chloride	ND	1.0	12/02/94	4339121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	96	(78 - 122)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4L050000-121

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Bromodichloromethane	ND	1.0	12/02/94	4339121
Bromoform	ND	1.0	12/02/94	4339121
Bromomethane	ND	1.0	12/02/94	4339121
Carbon tetrachloride	ND	1.0	12/02/94	4339121
Chlorobenzene	ND	1.0	12/02/94	4339121
Dibromochloromethane	ND	1.0	12/02/94	4339121
Chloroethane	ND	1.0	12/02/94	4339121
2-Chloroethyl vinyl ether	ND	1.0	12/02/94	4339121
Chloroform	ND	1.0	12/02/94	4339121
Chloromethane	ND	1.0	12/02/94	4339121
1,2-Dichlorobenzene	ND	1.0	12/02/94	4339121
1,3-Dichlorobenzene	ND	1.0	12/02/94	4339121
1,4-Dichlorobenzene	ND	1.0	12/02/94	4339121
Dichlorodifluoromethane	ND	1.0	12/02/94	4339121
1,1-Dichloroethane	ND	1.0	12/02/94	4339121
1,2-Dichloroethane	ND	1.0	12/02/94	4339121
1,1-Dichloroethene	ND	1.0	12/02/94	4339121
cis-1,2-Dichloroethene	ND	1.0	12/02/94	4339121
trans-1,2-Dichloroethene	ND	1.0	12/02/94	4339121
1,2-Dichloropropane	ND	1.0	12/02/94	4339121
cis-1,3-Dichloropropene	ND	1.0	12/02/94	4339121
trans-1,3-Dichloropropene	ND	1.0	12/02/94	4339121
Trichlorofluoromethane	ND	1.0	12/02/94	4339121
Methylene chloride	ND	1.0	12/02/94	4339121
1,1,2,2-Tetrachloroethane	ND	1.0	12/02/94	4339121
SURROGATE RECOVERY	%	ACCEPTABLE LIMITS		
Bromochloromethane	96	(78 - 122)		

NOTE:

ND (NONE DETECTED)

Quanterra

INTRA-LAB BLANK REPORT

LAB #: B4K300000-004

- GC Volatiles -

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
1,1-Dichloroethylene	NA	5.0	11/28/94	4334004
cis-1,2-Dichloroethylene	NA	5.0	11/28/94	4334004
trans-1,2-Dichloro-ethylene	NA	5.0	11/28/94	4334004
1,2-Dichloropropane	NA	5.0	11/28/94	4334004
cis-1,3-Dichloropropene	NA	5.0	11/28/94	4334004
trans-1,3-Dichloropropene	NA	5.0	11/28/94	4334004
Trichlorofluoromethane	NA	5.0	11/28/94	4334004
Dichloromethane	NA	5.0	11/28/94	4334004
1,1,1,2-Tetrachloroethane	NA	5.0	11/28/94	4334004
1,1,2,2-Tetrachloroethane	NA	5.0	11/28/94	4334004
Tetrachloroethylene	NA	5.0	11/28/94	4334004
1,1,1-Trichloroethane	NA	5.0	11/28/94	4334004
1,1,2-Trichloroethane	NA	5.0	11/28/94	4334004
Trichloroethylene	NA	5.0	11/28/94	4334004
1,2,3-Trichloropropane	NA	5.0	11/28/94	4334004
Vinyl chloride	NA	5.0	11/28/94	4334004
Methyl tert-butyl ether	ND	5.0	11/28/94	4334004

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	100	(70 - 123)

NOTE:

ND (NONE DETECTED)

NA (NOT ANALYZED)

Quanterra

INTRA-LAB BLANK REPORT

LAB #: B4K300000-004

- GC Volatiles -

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Benzene	ND	5.0	11/28/94	4334004
Ethylbenzene	ND	5.0	11/28/94	4334004
Toluene	ND	5.0	11/28/94	4334004
Xylenes, Total	ND	5.0	11/28/94	4334004
Benzyl chloride	NA	5.0	11/28/94	4334004
Bromobenzene	NA	5.0	11/28/94	4334004
Bromodichloromethane	NA	5.0	11/28/94	4334004
Bromoform	NA	5.0	11/28/94	4334004
Bromomethane	NA	5.0	11/28/94	4334004
Carbon tetrachloride	NA	5.0	11/28/94	4334004
Chlorobenzene	ND	5.0	11/28/94	4334004
Dibromochloromethane	NA	5.0	11/28/94	4334004
Chloroethane	NA	5.0	11/28/94	4334004
2-Chloroethyl vinyl ether	NA	5.0	11/28/94	4334004
Chloroform	NA	5.0	11/28/94	4334004
1-Chlorohexane	NA	5.0	11/28/94	4334004
Chloromethane	NA	5.0	11/28/94	4334004
2-Chlorotoluene	NA	5.0	11/28/94	4334004
Dibromomethane	NA	5.0	11/28/94	4334004
1,2-Dichlorobenzene	ND	5.0	11/28/94	4334004
1,3-Dichlorobenzene	ND	5.0	11/28/94	4334004
1,4-Dichlorobenzene	ND	5.0	11/28/94	4334004
Dichlorodifluoromethane	NA	5.0	11/28/94	4334004
1,1-Dichloroethane	NA	5.0	11/28/94	4334004
1,2-Dichloroethane	NA	5.0	11/28/94	4334004

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	100	(70 - 123)

NOTE:

ND (NONE DETECTED)

NA (NOT ANALYZED)

QUALITY ASSURANCE / QUALITY CONTROL
PROGRAM SUMMARY
(cont'd)

At that time all associated samples must be re-analyzed. A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method check samples.

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) Recovery Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to two of three separate aliquots of a sequentially predetermined sample prior to extraction and analysis. Percent recovery determinations are calculated from both of the spiked samples by comparison to the actual values generated from the unspiked sample. These percent recovery determinations indicate the accuracy of the analysis at recovering actual analytical method compounds from the matrix. Relative percent difference determinations calculated from a comparison of the MS/MSD recoveries demonstrate the precision of the analytical method. Actual percent recovery and relative percent difference data is displayed alongside their respective acceptable analytical method performance limits in the QA/QC section of the report. The MS/MSD are considered in control when the precision is within established control limits and the associated check sample has been found to be acceptable. A minimum of ten percent (10%) of all analyses are MS/MSD quality control samples.

**********EXAMPLE**********

COMPOUND	SAMPLE CONC.	MS %REC	MSD %REC	RPD	QC LIMITS RPD	QC LIMITS RECOVERY
4,4'-DDT	0	95	112	16	22	66-119
Benzene	10	86	93	8	20	39-150
(cmpd. name)	sample result	1st% recov.	2nd% recov.	Rel.% diff.	accep. method perform range	

Analytical Result Qualifiers

The following qualifiers, as defined below, may be appended to analytical results in order to allow proper interpretation of the results presented:

J - indicates an estimated concentration (typically used when a dilution, matrix interference or instrumental limitation prevents accurate quantitation of a particular analyte).

B - indicates the presence of a particular analyte in the laboratory blank analyzed concurrently with the samples. Results must be interpreted accordingly.

DIL - indicates that because of matrix interferences and/or high analyte concentrations, it was necessary to dilute the sample to a point where the surrogate or spike concentrations fell below a quantifiable amount and could not be reported.

Quanterra
Environmental Services

QUALITY ASSURANCE / QUALITY CONTROL PROGRAM SUMMARY

Quanterra Environmental Services considers continuous analytical method performance evaluations to be an integral portion of the data package, and routinely includes the pertinent QA/QC data associated with various analytical result reports. Brief discussions of the various QA/QC procedures utilized to measure acceptable method and matrix performance follow.

Surrogate Spike Recovery Evaluations

Known concentrations of designated surrogate spikes, consisting of a number of similar, non-method compounds or method compound analogues, are added, as appropriate, to routine GC and GC/MS sample fractions prior to extraction and analysis. The percent recovery determinations calculated from the subsequent analysis is an indication of the overall method efficiency for the individual sample. This surrogate spike recovery data is displayed alongside acceptable analytical method performance limits at the bottom of each applicable analytical result report sheet.

NOTE: Acceptable method performance for Base/Neutral Acid extractables is indicated by two (2) of three (3) surrogates for each fraction with a minimum recovery of ten (10) percent each. For Pesticides one (1) of two (2) surrogates meeting performance criteria is acceptable.

Laboratory Analytical Method Blank Evaluations

Laboratory analytical method blanks are systematically prepared and analyzed in order to continuously evaluate the system interferences and background contamination levels associated with each analytical method. These method blanks include all aspects of actual laboratory method analysis (chemical reagents, glassware, etc.), substituting laboratory reagent water or solid for actual sample. The method blank must not contain any analytes above the reported detection limit. The following common laboratory contaminants are exceptions to this rule provided they are not present at greater than five times the detection limit.

Volatiles	Semi-volatiles	Metals
Methylene chloride	Dimethyl phthalate	Calcium
Toluene	Diethly phthalate	Magnesium
2-Butanone	Di-n-butyl phthalate	Sodium
Acetone	Butyl benzyl phthalate	
	Bis (2-ethylhexyl) phthalate	

A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method blanks.

Laboratory Analytical Method Check Sample Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to a laboratory reagent blank prior to extraction and analysis. Percent recovery determinations demonstrate the performance of the analytical method. Failure of a check sample to meet established laboratory recovery criteria is cause to stop the analysis until the problem is resolved.

Quanterra
Environmental Services

QUALITY CONTROL SECTION

- Quality Control Summary
- Laboratory Blanks
- Laboratory Control Sample
- Matrix Spike/Matrix Spike Duplicate Results
- Sample Custody Documentation

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

TRIP BLNK

WO #: A1E92103
LAB #: B4K210003-003
MATRIX: WATER

DATE SAMPLED: 11/17/94
DATE RECEIVED: 11/19/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzene	ND	1.0	USEPA 602	12/02/94	4339122
Chlorobenzene	ND	1.0	USEPA 602	12/02/94	4339122
1,2-Dichlorobenzene	ND	1.0	USEPA 602	12/02/94	4339122
1,3-Dichlorobenzene	ND	1.0	USEPA 602	12/02/94	4339122
1,4-Dichlorobenzene	ND	1.0	USEPA 602	12/02/94	4339122
Ethylbenzene	ND	1.0	USEPA 602	12/02/94	4339122
Toluene	ND	1.0	USEPA 602	12/02/94	4339122
Xylenes, Total	ND	1.0	USEPA 602	12/02/94	4339122
Methyl tert-butyl ether	ND	1.0	USEPA 602	12/02/94	4339122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	100	(73 - 131)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

TRIP BLNK

WO #: A1E92102
LAB #: B4K210003-003
MATRIX: WATER

DATE SAMPLED: 11/17/94
DATE RECEIVED: 11/19/94

GC Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Bromodichloromethane	ND	1.0	USEPA 601	12/02/94	4339121
Bromoform	ND	1.0	USEPA 601	12/02/94	4339121
Bromomethane	ND	1.0	USEPA 601	12/02/94	4339121
Carbon tetrachloride	ND	1.0	USEPA 601	12/02/94	4339121
Chlorobenzene	ND	1.0	USEPA 601	12/02/94	4339121
Dibromochloromethane	ND	1.0	USEPA 601	12/02/94	4339121
Chloroethane	ND	1.0	USEPA 601	12/02/94	4339121
2-Chloroethyl vinyl ether	ND	1.0	USEPA 601	12/02/94	4339121
Chloroform	ND	1.0	USEPA 601	12/02/94	4339121
Chloromethane	ND	1.0	USEPA 601	12/02/94	4339121
1,2-Dichlorobenzene	ND	1.0	USEPA 601	12/02/94	4339121
1,3-Dichlorobenzene	ND	1.0	USEPA 601	12/02/94	4339121
1,4-Dichlorobenzene	ND	1.0	USEPA 601	12/02/94	4339121
Dichlorodifluoromethane	ND	1.0	USEPA 601	12/02/94	4339121
1,1-Dichloroethane	ND	1.0	USEPA 601	12/02/94	4339121
1,2-Dichloroethane	ND	1.0	USEPA 601	12/02/94	4339121
1,1-Dichloroethene	ND	1.0	USEPA 601	12/02/94	4339121
cis-1,2-Dichloroethene	ND	1.0	USEPA 601	12/02/94	4339121
trans-1,2-Dichloroethene	ND	1.0	USEPA 601	12/02/94	4339121
1,2-Dichloropropane	ND	1.0	USEPA 601	12/02/94	4339121
cis-1,3-Dichloropropene	ND	1.0	USEPA 601	12/02/94	4339121
trans-1,3-Dichloropropene	ND	1.0	USEPA 601	12/02/94	4339121
Trichlorofluoromethane	ND	1.0	USEPA 601	12/02/94	4339121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	95	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

TRIP BLNK

WO #: A1E92102
LAB #: B4K210003-003
MATRIX: WATER

DATE SAMPLED: 11/17/94
DATE RECEIVED: 11/19/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Methylene chloride	ND	1.0	USEPA 601	12/02/94	4339121
1,1,2,2-Tetrachloroethane	ND	1.0	USEPA 601	12/02/94	4339121
Tetrachloroethene	ND	1.0	USEPA 601	12/02/94	4339121
1,1,1-Trichloroethane	ND	1.0	USEPA 601	12/02/94	4339121
1,1,2-Trichloroethane	ND	1.0	USEPA 601	12/02/94	4339121
Trichloroethene	ND	1.0	USEPA 601	12/02/94	4339121
Vinyl chloride	ND	1.0	USEPA 601	12/02/94	4339121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	95	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

07B00804

WO #: A1E90101
LAB #: B4K210003-002
MATRIX: SOLID

DATE SAMPLED: 11/17/94
DATE RECEIVED: 11/19/94

- - - - - - - - - - - - - - - - - - - GC Semi-Volatiles - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (mg/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Aldrin	ND	0.10	SW846 8080	11/22-11/29/94	4326120
alpha-BHC	ND	0.10	SW846 8080	11/22-11/29/94	4326120
beta-BHC	ND	0.10	SW846 8080	11/22-11/29/94	4326120
delta-BHC	ND	0.10	SW846 8080	11/22-11/29/94	4326120
gamma-BHC (Lindane)	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Chlordane	ND	1.0	SW846 8080	11/22-11/29/94	4326120
4,4'-DDD	ND	0.10	SW846 8080	11/22-11/29/94	4326120
4,4'-DDE	ND	0.10	SW846 8080	11/22-11/29/94	4326120
4,4'-DDT	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Dieldrin	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Endosulfan I	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Endosulfan II	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Endosulfan sulfate	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Endrin	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Endrin aldehyde	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Heptachlor	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Heptachlor epoxide	ND	0.10	SW846 8080	11/22-11/29/94	4326120
Methoxychlor	ND	0.50	SW846 8080	11/22-11/29/94	4326120
Toxaphene	ND	1.0	SW846 8080	11/22-11/29/94	4326120

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Tetrachloro-m-xylene	97	(32 - 154)
Dibutylchlorendate	91	(27 - 139)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

07B00804

WO #: A1E90
LAB #: B4K210003-002
MATRIX: SOLID

DATE SAMPLED: 11/17/94
DATE RECEIVED: 11/19/94

- - - - - - - - - - - - - - - - - - INORGANIC ANALYTICAL REPORT - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Solids, Total (TS)	93.7	1.0	%	MCAWW 160.3 M	11/21-11/23/94	4326124

NOTE: AS RECEIVED

Quanterra
Laboratory Services

ABB ENVIRONMENTAL SERVICES

07B00804

WO #: A1E90102
LAB #: B4K210003-002
MATRIX: SOLID

DATE SAMPLED: 11/17/94
DATE RECEIVED: 11/19/94

- GC Volatiles -

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,1-Dichloroethylene	ND	5.0	SW846 801020	11/29/94	4334003
cis-1,2-Dichloroethylene	ND	5.0	SW846 801020	11/29/94	4334003
trans-1,2-Dichloro-ethylene	ND	5.0	SW846 801020	11/29/94	4334003
1,2-Dichloropropane	ND	5.0	SW846 801020	11/29/94	4334003
Trichlorofluoromethane	ND	5.0	SW846 801020	11/29/94	4334003
Dichloromethane	ND	5.0	SW846 801020	11/29/94	4334003
1,1,1,2-Tetrachloroethane	ND	5.0	SW846 801020	11/29/94	4334003
1,1,2,2-Tetrachloroethane	ND	5.0	SW846 801020	11/29/94	4334003
Tetrachloroethylene	ND	5.0	SW846 801020	11/29/94	4334003
1,1,1-Trichloroethane	ND	5.0	SW846 801020	11/29/94	4334003
1,1,2-Trichloroethane	ND	5.0	SW846 801020	11/29/94	4334003
Trichloroethylene	ND	5.0	SW846 801020	11/29/94	4334003
1,2,3-Trichloropropane	ND	5.0	SW846 801020	11/29/94	4334003
Vinyl chloride	ND	5.0	SW846 801020	11/29/94	4334003

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	-	(70 - 123)
Bromochloromethane	112	(43 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra

ABB ENVIRONMENTAL SERVICES

07B00804

WO #: A1E90202
LAB #: B4K210003-002
MATRIX: SOLID

DATE SAMPLED: 11/17/94
DATE RECEIVED: 11/19/94

- GC Volatiles -

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzene	ND	5.3	SW846 801020	11/29/94	4334004
Chlorobenzene	ND	5.3	SW846 801020	11/29/94	4334004
1,2-Dichlorobenzene	ND	5.3	SW846 801020	11/29/94	4334004
1,3-Dichlorobenzene	ND	5.3	SW846 801020	11/29/94	4334004
1,4-Dichlorobenzene	ND	5.3	SW846 801020	11/29/94	4334004
Ethylbenzene	ND	5.3	SW846 801020	11/29/94	4334004
Toluene	ND	5.3	SW846 801020	11/29/94	4334004
Xylenes, Total	ND	5.3	SW846 801020	11/29/94	4334004
Methyl tert-butyl ether	ND	5.3	SW846 801020	11/29/94	4334004

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	104	(70 - 123)

NOTE: DRY WEIGHT
ND NOT DETECTED AT THE STATED REPORTING LIMIT

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Environmental Services

ABB ENVIRONMENTAL SERVICES

07Z00701

WO #: A1E8T103
LAB #: B4K210003-001
MATRIX: WATER

DATE SAMPLED: 11/18/94
DATE RECEIVED: 11/19/94

GC Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzene	ND	5.0	USEPA 602	12/02/94	4339122
Chlorobenzene	ND	5.0	USEPA 602	12/02/94	4339122
1,2-Dichlorobenzene	ND	5.0	USEPA 602	12/02/94	4339122
1,3-Dichlorobenzene	ND	5.0	USEPA 602	12/02/94	4339122
1,4-Dichlorobenzene	ND	5.0	USEPA 602	12/02/94	4339122
Ethylbenzene	ND	5.0	USEPA 602	12/02/94	4339122
Toluene	ND	5.0	USEPA 602	12/02/94	4339122
Xylenes, Total	ND	5.0	USEPA 602	12/02/94	4339122
Methyl tert-butyl ether	ND	5.0	USEPA 602	12/02/94	4339122

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	93	(73 - 131)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* ELEVATED DETECTION LIMIT DUE TO MATRIX INTERFERENCE.

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

07B00804

WO #: A1E90102
LAB #: B4K210003-002
MATRIX: SOLID

DATE SAMPLED: 11/17/94
DATE RECEIVED: 11/19/94

- GC Volatiles -

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzyl chloride	ND	5.0	SW846 801020	11/29/94	4334003
Bromobenzene	ND	5.0	SW846 801020	11/29/94	4334003
Bromodichloromethane	ND	5.0	SW846 801020	11/29/94	4334003
Bromoform	ND	5.0	SW846 801020	11/29/94	4334003
Bromomethane	ND	5.0	SW846 801020	11/29/94	4334003
Carbon tetrachloride	ND	5.0	SW846 801020	11/29/94	4334003
Chlorobenzene	ND	5.0	SW846 801020	11/29/94	4334003
Dibromochloromethane	ND	5.0	SW846 801020	11/29/94	4334003
Chloroethane	ND	5.0	SW846 801020	11/29/94	4334003
2-Chloroethyl vinyl ether	ND	5.0	SW846 801020	11/29/94	4334003
Chloroform	ND	5.0	SW846 801020	11/29/94	4334003
1-Chlorohexane	ND	5.0	SW846 801020	11/29/94	4334003
Chloromethane	ND	5.0	SW846 801020	11/29/94	4334003
2-Chlorotoluene	ND	5.0	SW846 801020	11/29/94	4334003
cis-1,3-Dichloropropene	ND	5.0	SW846 801020	11/29/94	4334003
Dibromomethane	ND	5.0	SW846 801020	11/29/94	4334003
trans-1,3-Dichloropropene	ND	5.0	SW846 801020	11/29/94	4334003
1,2-Dichlorobenzene	ND	5.0	SW846 801020	11/29/94	4334003
1,3-Dichlorobenzene	ND	5.0	SW846 801020	11/29/94	4334003
1,4-Dichlorobenzene	ND	5.0	SW846 801020	11/29/94	4334003
Dichlorodifluoromethane	ND	5.0	SW846 801020	11/29/94	4334003
1,1-Dichloroethane	ND	5.0	SW846 801020	11/29/94	4334003
1,2-Dichloroethane	ND	5.0	SW846 801020	11/29/94	4334003

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	-	(70 - 123)
Bromochloromethane	112	(43 - 143)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra

ABB ENVIRONMENTAL SERVICES

07Z00701

WO #: A1E8T102
LAB #: B4K210003-001
MATRIX: WATER

DATE SAMPLED: 11/18/94
DATE RECEIVED: 11/19/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Bromodichloromethane	ND	5.0	USEPA 601	12/02/94	4339121
Bromoform	ND	5.0	USEPA 601	12/02/94	4339121
Bromomethane	ND	5.0	USEPA 601	12/02/94	4339121
Carbon tetrachloride	ND	5.0	USEPA 601	12/02/94	4339121
Chlorobenzene	ND	5.0	USEPA 601	12/02/94	4339121
Dibromochloromethane	ND	5.0	USEPA 601	12/02/94	4339121
Chloroethane	ND	5.0	USEPA 601	12/02/94	4339121
2-Chloroethyl vinyl ether	ND	5.0	USEPA 601	12/02/94	4339121
Chloroform	ND	5.0	USEPA 601	12/02/94	4339121
Chloromethane	ND	5.0	USEPA 601	12/02/94	4339121
1,2-Dichlorobenzene	ND	5.0	USEPA 601	12/02/94	4339121
1,3-Dichlorobenzene	ND	5.0	USEPA 601	12/02/94	4339121
1,4-Dichlorobenzene	ND	5.0	USEPA 601	12/02/94	4339121
Dichlorodifluoromethane	ND	5.0	USEPA 601	12/02/94	4339121
1,1-Dichloroethane	ND	5.0	USEPA 601	12/02/94	4339121
1,2-Dichloroethane	ND	5.0	USEPA 601	12/02/94	4339121
1,1-Dichloroethene	ND	5.0	USEPA 601	12/02/94	4339121
cis-1,2-Dichloroethene	ND	5.0	USEPA 601	12/02/94	4339121
trans-1,2-Dichloroethene	ND	5.0	USEPA 601	12/02/94	4339121
1,2-Dichloropropane	ND	5.0	USEPA 601	12/02/94	4339121
cis-1,3-Dichloropropene	ND	5.0	USEPA 601	12/02/94	4339121
trans-1,3-Dichloropropene	ND	5.0	USEPA 601	12/02/94	4339121
Trichlorofluoromethane	ND	5.0	USEPA 601	12/02/94	4339121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	136*	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATE(S) OUTSIDE ACCEPTANCE CRITERIA DUE TO DEMONSTRATED MATRIX EFFECT.

Quanterra

ABB ENVIRONMENTAL SERVICES

07Z00701

WO #: A1E8T102
LAB #: B4K210003-001
MATRIX: WATER

DATE SAMPLED: 11/18/94
DATE RECEIVED: 11/19/94

- GC Volatiles -

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Methylene chloride	ND	5.0	USEPA 601	12/02/94	4339121
1,1,2,2-Tetrachloroethane	ND	5.0	USEPA 601	12/02/94	4339121
Tetrachloroethene	ND	5.0	USEPA 601	12/02/94	4339121
1,1,1-Trichloroethane	ND	5.0	USEPA 601	12/02/94	4339121
1,1,2-Trichloroethane	ND	5.0	USEPA 601	12/02/94	4339121
Trichloroethene	ND	5.0	USEPA 601	12/02/94	4339121
Vinyl chloride	ND	5.0	USEPA 601	12/02/94	4339121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	136*	(78 - 122)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
* SURROGATE(S) OUTSIDE ACCEPTANCE CRITERIA DUE TO DEMONSTRATED MATRIX EFFECT.

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Environmental Services

ANALYTICAL METHODS SUMMARY

Parameters	Methods
Volatile Organics	USEPA 601
Volatile Organics	USEPA 602
Pesticides	SW846 8080
Volatile Organics	SW846 801020
Solids, Total (TS)	MCAWW 160.3 MODIFIED

References:

MCAWW Methods for Chemical Analysis of Water and Wastes, EMSL: Cincinnati, OH: March 1983 and subsequent revisions

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, September, 1986 and subsequent revisions

USEPA Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, 40CFR, Part 136, Appendix A, October 26,1984 and subsequent revisions

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SAMPLE SUMMARY

The analytical results of the samples listed below are presented on the following pages.

WO #	LABORATORY ID	SAMPLE IDENTIFICATION
A1E8T	B4K210003-001	07Z00701
A1E90	B4K210003-002	07B00804
A1E92	B4K210003-003	TRIP BLNK

APPENDIX B

SOIL BORING AND MONITORING WELL LITHOLOGIC LOGS

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B026
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/07/97	**COMPLTD:** 04/08/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 108FT.	**DPTH TO ∇** 104 FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1				280	Top soil : sandy, clayey soil.		SW		
2					SAND: Approximately 20% silt and clay, very fine to fine, poor sort, damp, brownish gray.				
3				>5000					
4					SAND: As above, wet, yellowish brown.				
5				>5000					
6					6-7 feet SAND: As above, dark gray. 7-8 feet SANDY CLAY: Approximately 40% fine to medium sand, nonplastic, stiff, mottled reddish-brown and light gray, dry.				
7				>5000			SC		
8					8-9 feet SAND: Approximately 25% silt and clay, fine to medium, poor sort, damp to wet, grayish brown. 9-10 SANDY CLAY: Approximately 40% medium sand, track coarse sand, dry, reddish brown.				
9				>5000					
10					CLAY: Top 3 inches clayey sand abruptly turning to clay with approximately 30% fine to medium sand, damp to dry, mottled reddish brown, dark gray and light gray.		CL		
11				>5000					
12					12-12.4 feet SAND: Approximately 20% clay, some silt, very fine to medium, dry, reddish brown. 12.4-14 CLAY: Nonplastic, stiff, dry, approximately 30% fine sand, layered light red, light gray, and light brown.		SP / CL		
13				>5000					
14					CLAYEY SAND: Approximately 40-45% clay, clay occurs in stringers and chunks, fine to medium sand, very stiff dry, mottled light red and light gray.				
15				>5000					
16					SAND: top 3 inches are sandy clay, remainder is fine sand with approximately 30% clay. The clay occurs throughout and in chunks ~ 5mm in diameter hard, dry, mottled red and light red.		SC		
17				>5000					
18					SAND: Approximately 10% clay and silt, fine, soft, dry, layered red, light red, and light gray.		SW		
19				>5000					
20					SAND: 20-15% clay decreasing with depth, some silt, very fine to medium, soft, dry, mottled light red and yellowish brown.				
21				>5000					
22					22-23' SAND: Approximately 10% clay silt, fine sand, soft, dry, mottled light brownish yellow and light gray.				
23				>5000	23-24' SAND: Approximately 5% silt and clay, fine - medium sand, soft, dry, layered dark red and light gray.				
24									
25				>5000	24-26 SAND: As above with a single 1/4" x 1" fat clay chunk.				
26					26-26.5 SAND: As above. 26.5-27 CLAY: Approximately 20% fine sand. Sand occurs in layers, very stiff, plastic, dry, reddish brown. 27-28 SANDY CLAY: Approximately 35% fine sand, stiff, slighty plastic, dry, layered dark red and light gray.		CL / SC		
27				>5000					
28					28-28.4 SAND: As above, light red. 28.4-29 SAND: medium becoming fine, well sorted, dry, very soft, layered light brownish yellow and light gray. 29-30 SAND: Very fine to fine, clay layers (<.5mm) throughout, poor sort, soft dry, layered light gray, red, and brownish yellow.		SP		
29				>5000					
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B026
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/07/97	COMPLTD: 04/08/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 108FT.	DPTH TO ∇ 104 FT.
LOGGED BY: P. J. Wagner	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31				>5000	30-30.4 SAND: Approximately 30% clay, very fine to fine, dry, dark red. 30.4-32 SAND: trace silt very fine to fine, very soft, moderately well sort, dry, pale pink to light gray.		SP		
32					32-32.5 SAND: Approximately 25% clay, fine to medium, poor sort, dry, dark red with dark yellowish orange at 32.5. 32.5-34 SAND: Same as 30.4-32.				
33				>5000					
34					SAND: Very fine to fine, trace clay and silt, very soft, dry, moderate sort, pinkish white, layered with pink.				
35				>5000					
36					SAND: Fine to medium, trace silt and clay, very soft, dry, moderate sort, light gray with very pale red and pink layers.				
37				>5000					
38					SAND: As above, with one feldspar pebble (4mm), mostly pale pink.				
39				>5000					
40					SAND: Very fine to fine, very soft trace silt and clay, dry, moderate well sort, light gray and pale pink.				
41				>5000					
42					SAND: Very fine, to fine, trace medium and clay, very soft, poor sort, dry, layered light gray and yellow.				
43				>5000					
44					SAND: Very fine to fine, trace clay, moderate sort, very soft, dry, layered (1-2") yellow and pinkish gray on very light gray.				
45				600					
46					SAND: Very fine to fine, trace clay with more at top of spoon than bottom, moderate sort, very soft, dry, layered, 2-3 inches very light grayish brown, approximately 6 inches very light gray, 3-4 inches yellow and 5 inches pink at bottom.				
47				11					
48					SAND: Very fine to very coarse, 1 inch layer of very coarse to small gravel, trace clay and silt, very poor sort, very soft, dry, layered, approximately 6 inches pink and pale red,approximately 6 inches red, approximately 3 inches reddish-yellow, approximately 2 inches very pale brown, approximately 3 inches pink.		SW		
49				45					
50									
51				0					
52					SAND: Very fine to medium, trace coarse to small gravel, very soft, very poor sort, trace clay and silt, very light gray.		SP		
53				5	SAND: Fine, trace clay, well sorted, very soft, damp, very light gray.				
54					SAND: Very fine to fine, some medium, trace coarse to small gravel from 54-55', poor sort, very soft, dry. 54-55 feet - Very pale pink. 55-56 feet, layered reddish-yellow and light red.		SW		
55				0					
56					SAND: Very fine to coarse with some gravel at bottom, sequence fines towards the top of spoon, poor recovery (<1 foot), poor sort, very soft, dry, very light gray with pale red at bottom 3 inches.				
57				0					
58					58-58.5 SAND: Very fine to coarse, trace gravel and clay, very poor sort, very soft, dry, layered yellow and reddish yellow. 58.5-60 SAND: Very fine to coarse, some gravel, numerous clay layers up to 1/2-inch thick, very poor sort, soft, dry, pale reddish yellow to dark reddish yellow.				
59				3					
60									

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B026
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/07/97	**COMPLTD:** 04/08/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 108FT.	**DPTH TO ∇** 104 FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61				2	SAND: As above with 1-1/2-inch fat clay layer at bottom of spoon.		SW		
62					62-62.5 SAND: As above, but no significantly large clay layers. 62.5-64 SAND: Very fine to medium, trace clay, some small to medium gravel, very poor sort, very soft, dry, layered very light gray, pink, and pale reddish yellow.				
63				0					
64					64-64.3 SAND: Very fine to fine, some clay, very soft, dry, light brown to yellowish red. 64.3-66 SANDY SILTY CLAY: Approximately 30% very fine sand, approximately 20% silt, plastic, interspersed with layers and "blobs" of very fine light red sand sequence fines upwards, clay is very pale pink.		ML		
65				3					
66					66-68 SAND: Very fine to fine interspersed with 1-3 inches clayey sand layers, some fat clay "chunks" as well, well to moderate sort, very soft, dry, layered light brown, pale pink, light gray and yellow.		SC		
67				0					
68									
69				5	68-68.5 CLAYEY SAND: 20-40% clay, very fine to fine sand, soft, dry, very pale red. 68.5-69.5 SAND: Very fine, well sorted, very soft, dry, very light gray. 69.5-70 CLAYEY SAND: 40-20% clay (more clay at top), very fine sand, clay "chunks", poor sort, soft, dry, pale red becoming light gray.		SP		
70							SC		
71				0	70-70.4 CLAYEY SAND: As above, mostly pink. 70.4-72 SAND: Fine, trace very fine and clay, very soft, well sort, dry, very pale pink.		SP		
72					72-74 SAND: As before, light gray at top becoming pale yellow.				
73				0					
74					SAND: As before, light gray, poor recovery (<1 foot), some 1 mm lamellar layers of black grains.				
75				0					
76					SAND: Fine, well sorted, hard, dry, lamellar light gray, yellow, and light brown, and pink.				
77				0					
78					SAND: As before, most layers are 4-6 inches with two 1/4" layers of very fine brown sand.				
79				0					
80					80-81 SAND: As before with a 1/2-inch gray sandy clay layer at bottom. 81-82 SAND: Fine to medium, moderate sort, hard, dry, pale yellow becoming light gray.				
81				0					
82					SAND: Fine to medium, moderate well sorted, hard, dry, trace clay increasing to approximately 15% at bottom of spoon, light red becoming light gray.				
83				4					
84					SAND: Fine, well sorted hard, dry, very pale pink.				
85				0					
86					SAND: Very fine to fine, some clay and silt, poor sort, hard, dry, 86-87.5 is light pink 87.5-88 lamellar light red and very pale brown.		SW		
87				0					
88					SAND: Fine to medium, trace clay and silt, moderate sort, hard to soft, dry, burrow structure at 89 feet, layered very light gray, light red, and light brown.				
89				2					
90									

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B026
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/07/97	**COMPLTD:** 04/08/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 108FT.	**DPTH TO ∇** 104 FT.
LOGGED BY: P. J. Wagner	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
91				0	SAND: Fine to coarse, trace clay lining burrow structure at 90.5, poor sort, hard, dry, layered reddish yellow, red and light red.		SW		
92					SAND: Very fine sand to fine gravel. Gravel tends to occur in layers but is not confined to them, hard, dry, very poor sort, lamellar reddish brown, grayish pink and light gray.				
93				0					
94					SAND: Very fine to coarse, some clay, very poor sort, burrow structure, hard, dry light reddish brown, becoming pale pink.				
95				3					
96					SAND: Top 6 inches as above with trace very fine gravel, very pale brown. Remainder - fine, trace coarse, well sorted, hard, dry, very light gray.		SP		
97				0					
98					SAND: 98-99.5 Fine, trace medium, well sorted, dry, hard, light gray to yellow. 99.5-100 Fine to medium, some coarse, trace fine gravel, hard, very poor sort, dry, reddish yellow.				
99				0					
100					SAND: 100-100.7 Fine, well sorted, soft, dry, light gray. 100.7-102 Very fine sand to coarse gravel, (gravel tends to be in layers, hard, very poor sort, dry, light red becoming reddish yellow).				
101				0					
102					SAND: 102-103 Very fine to coarse, trace pebble, some then (1 mm) sandy clay layers, soft, poor sort, damp, light brown. 103-104 Medium, rapidly becoming very fine with depth, some silt and clay, soft, poor sort, wet, layered olive yellow then yellowish red, then light red and red.		SW		
103				4					
104					104-104.3 SAND: Fine to coarse, fine gravel, very poor sort, hard, wet, light reddish brown. 104.3-104.5 CLAY: Approximately 25% silt, some very fine sand, plastic, wet, light red and gray. 104.5-106 SAND: Very fine to fine, moderate well sort, trace clay, saturated, soft, dark red and gray mottled in an almost leopard pattern.		CL		
105				0			SP		
106									
107	07G02601			N/S					
108					106-106.8 SAND: Same as 104.5-106, looks bubbly. 106.8-108 SAND: Very fine with several 1/2-1-inch clay layers (plastic, gray) and approximately 25% large - fine gravel in the last 3 inch, trace clay and silt throughout, saturated, light reddish brown, strong brown, and light red.				
109									
110					END OF BORING @ 108 FEET				
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

TITLE: NAS Whiting Field	**LOG of WELL:**		**BORING NO.** 1438B027
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/09/97	**COMPLTD:** 04/10/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ∇** 95 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SW		
2									
3									
4									
5									
6									
7									
8									
9									
10			70/10	2475	Upper half of spoon; medium silty sand brown to dark tan. Lower half of spoon; fine sand in silty clay white, tan, orange.				
11									
12									
13									
14									
15									
16									
17									
18									
19									
20			5/10	195	Upper 1/4 medium silty sand, medium brown. Lower 2/4 medium silty clay, medium brown. Lower 1/2 medium silty sand, red-orange with white.		CL		
21							SW		
22									
23									
24									
25									
26									
27									
28									
29									
30							SP		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B027
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/09/97	**COMPLTD:** 04/10/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 95 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31				0	Upper 1/3 silty, clayey, medium, fine sand, orange. Lower 2/3 silty, medium to fine sand, off-white		SP		
32									
33									
34									
35					Upper 1/3 silty, very fine sand, white. Lower 2/3 very fine to medium sand, layered white.				
36				0					
37									
38									
39									
40					Medium fine sand, minor clay and silt, mica, heavy minerals no apparent layers - white.				
41			5/10	1					
42									
43									
44									
45					Upper medium fine sand, minor clay, silt, mica 10%, black grains, thin layers, white. Grades to medium, silty sand with coarse sand. Layers minor pebbles, orange.				
46			5/10	2					
47							SW		
48									
49									
50					Fining upwards from medium sand to medium fine sand - 10% coarse pebbles at bottom, no layers, white to pink.				
51			5/10	0			SP		
52									
53									
54									
55					Medium sand, no silt or clay ocher, orange to white.				
56			10/10	0					
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B027
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/09/97	COMPLTD: 04/10/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 107FT.	DPTH TO ▽ 95 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			10/10	0	Fine to very fine SAND in 6-inch layers between silty clay and clay layers, white to pink.		SP		
							CL		
							SP		
62					Fine to very fine SAND, micaeous and heavy minerals, one 1/2-inch clayey silty layer, off-white.		CL		
							SP		
63			8/10	0					
64					Fine to very fine SAND, micaeous with heavy minerals.				
65				0					
66									
67									
68									
69									
70					Fine to very fine SAND, micaeous with heavy minerals, one 1/16-inch clay layer.				
71				0					
72									
73									
74									
75					Fine 10% to medium SAND, mica with white/orange/tan.				
76			6/10	0					
77									
78									
79									
80					Medium SAND, minor mica with pink to white, one 1/2-inch, fine sand layer - discernable 1/16-inch color bands pink on white.				
81			6/10	0					
82									
83									
84									
85					Medium to coarse SAND, two finnig upward sequences mica within white/pink/orange. NOTE: Water shown at augers at land surface.				
86			6/10	0					
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B027
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/09/97	**COMPLTD:** 04/10/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 95 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
91			5/10	0	Medium to coarse SAND, 1/2 silty CLAY - fining upward to clay - ocher and pink very little mica.		SP		
92									
93									
94									
95					(Refusal 50+) Medium to course SAND with layers of pebbles up to 1/4-inch pink. Wet spoons = water table.				▽
96			5/10	0					
97							SC		
98									
99									
100					Medium to fine SAND grained down to silty fine sand, pink/orange.				
101			7/10	0					
102									
103									
104									
105					Medium to fine sand - 6-inch CH clay with 10% silt - vibrant horizontal layering of color, one burrow - color range from purple - red/orange to ocher/white, lower 1/2 mottled.				
106	07G02701		9/10	0			CL		
107					END OF BORING @ 107 FEET.		SC		
108									
109									
110									
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B028
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/11/97	**COMPLTD:** 04/11/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 105 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5									
6									
7									
8									
9									
10			10/10	0	Stiff, silty, clayey (30-40%) sand, 60-70% medium to coarse sand, ocher-orange, 1/4-inch concretions.				
11									
12									
13									
14									
15									
16									
17									
18									
19									
20			9/10	0	2 fining upward sequences: fat clay (CH) to 4-inch thick coarse SAND with pebbles. Upper 12-inch: obvious layers 1/16 inch to 4 inch, red-orange.		CH		
21							SP		
22									
23									
24									
25									
26									
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B028
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/11/97	**COMPLTD:** 04/11/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 105 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			6/10	0	Upper 1/3: silty clay, SAND medium to coarse, orange. Bottom 2/3: FINE SAND 1/16-inch layer of clay, micaceous.		SP		
32									
33									
34									
35					Fine, well sorted SAND layered light pastel colors, light gray to pink.				
36			8/10	0					
37									
38									
39									
40					Silty medium to very fine SAND, poorly sorted with random pebbles white/yellow/red-orange.		SW		
41			8/10	0					
42									
43									
44									
45					Medium to very fine SAND, coarsening upward to medium sand with mica and heavy minerals showing layering - white to gray.				
46			9/10	0					
47									
48									
49									
50					Fining upward sequence: poorly sorted, coarse to medium SAND with pebbles to poorly sorted medium to fine SAND, orange to white.				
51			6/10	0					
52									
53									
54									
55					Coarsening upward sequence: poorly sorted pebbles to coarse to medium SAND to medium to fine SAND, ocher.				
56			5/10	0					
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B028
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/11/97	**COMPLTD:** 04/11/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 105 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			6/10	0	Finning upward poorly sorted pebbles, coarse to medium SAND to medium to fine sand, ocher.		SW		
62									
63									
64									
65					Medium to fine SAND, micaceous, pink.				
66			5/10	2					
67									
68									
69									
70					Medium to fine micaceous SAND, ocher				
71			3/10	2					
72									
73									
74									
75					Medium to coarse SAND with pebbles showing layering, white to pink.				
76			5/10						
77									
78									
79									
80					Medium to fine SAND, micaceous and heavy min., ocher to white layers.				
81			7/10	5					
82									
83									
84									
85					As above but pink to white or light gray layers.				
86			4/10	3					
87									
88									
89									
90							SP		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B028
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/11/97	**COMPLTD:** 04/11/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 105 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
91			6/10	2	Coarsening upward, well sorted fine SAND to coarse sand with pebbles, poorly sorted, ocher to pink.		SP		
92									
93									
94									
95					Medium to fine SAND, micaceous and heavy min., light ocher to pink with minor pebbles.		SW		
96			8/10	3					
97									
98									
99									
100					Finning upward from poorly sorted medium to coarse grained SAND with pebble layers in lower 6 inches to medium light gray, fine to very fine SAND, white layers in ocher.				
101			8/10	<5					
102									
103									
104									
105					Finning upwards from poorly sorted very coarse SAND 50% and pebbles to medium to coarse SAND, ocher to white.				▽
106	07G02801		2/10	<5					
107					END OF BORING @ 107 FEET.				
108									
109									
110									
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B029
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/12/97	**COMPLTD:** 04/13/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 106.5 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SP		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15					Medium to fine silty SAND, well sorted micaeous with heavy minerals layered by color, tan to orange.				
16			4/10	5					
17									
18									
19									
20					Silty very fine SAND, micaceous, orange.				
21			7/10	38					
22									
23									
24									
25									
26									
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B029
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/12/97	COMPLTD: 04/13/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 107FT.	DPTH TO ▽ 106.5 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			8/10	27	Coarsening upward from fine well sorted SAND to medium quartz SAND to silty very fine SAND and CLAY, light gray to orange.		SP		
32									
33									
34									
35					Coarsening upward from medium well sorted SAND to coarse SAND, ocher-orange-white layers.				
36			5/10	12					
37									
38									
39									
40					Coarsening upward from silty medium SAND to coarse SAND, light purple.				
41			5/10	60					
42									
43									
44									
45					Medium to fine SAND, light ocher, well sorted.				
46			4/10	5					
47									
48									
49									
50					Silty fine to medium SAND, gray - ocher - purple.				
51			2/10	17					
52									
53									
54									
55					Fine to medium well sorted SAND, fining upward to fine SAND, light gray.				
56			2/10	0					
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B029
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/12/97	COMPLTD: 04/13/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 107FT.	DPTH TO ∇ 106.5 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			5/10	26	Fining upward, very poorly sorted gravel, sand, silt and clay in layers, wet, grading through coarse sand to medium silty sand, gray-ocher, pink.		SP		
62									
63									
64									
65					Silty fine SAND, ocher to pink, well sorted.				
66			1/10	13					
67									
68									
69									
70					Silty fine SAND, well sorted, color layers, ocher/orange.				
71			N/M	32					
72									
73									
74									
75					Medium to fine well sorted SAND, pink/ocher.				
76			5/10	0					
77									
78									
79									
80					Fining upward from medium to coarse SAND, moderate sort to medium to fine SAND, light gray to light pink.				
81			7/10	0					
82									
83									
84									
85					Coarsening upward from poorly sorted medium to fine SAND with pebbles to well sorted coarse SAND, light pink.				
86			4/10	15					
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B029
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/12/97	**COMPLTD:** 04/13/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ∇** 106.5 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
					Silty to medium and coarse SAND, gray to light pink.		SP		
91			6/10	15					
92									
93									
94									
95					Medium SAND, white to pink.				
96			7/10	0					
97									
98									
99									
100					As above.				
101			4/10	12					
102									
103									
104									
105					Medium and coarse SAND to medium SAND, light gray.				
106			6/10	0					∇
107					END OF BORING @ 107 FEET.				
108									
109									
110	07G029								
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B030
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/14/97	**COMPLTD:** 04/14/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 109FT.	**DPTH TO ∇** 106 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SW		
2									
3									
4									
5									
6									
7									
8									
9									
10					CL type clay, 10% silt to fine sand layers, white/ocher-orange, slightly plastic, stiff.		CL		
11			7/10	>5000					
12							SW		
13									
14									
15									
16									
17									
18									
19									
20					Strong odor. Silty, clayey, fine SAND, mottled white/ocher.		SM		
21			7/10	>5000					
22									
23									
24									
25									
26									
27									
28									
29									
30							SP		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B030
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/14/97	**COMPLTD:** 04/14/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 109FT.	**DPTH TO ▽** 106 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			5/10	46	Clayey, silty, SAND to silty (<5%), well sorted, micaceous with heavy min., fine SAND.		SP		
32									
33									
34									
35					Clayey, silty fine SAND grading to poorly sorted fine to medium SAND.		SW		
36			3/10	12					
37									
38									
39									
40									
41			10/10	0					
42					Silty fine to medium SAND.				
43									
44									
45					Well sorted fine SAND, light gray.		SP		
46			5/10	0					
47									
48									
49									
50					As above.				
51				0					
52									
53									
54									
55					Very poorly sorted, clayey, silty, medium grained SAND with pebbles, layered and spread, light gray to pink.		SW		
56				10					
57									
58									
59									
60							SP		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B030
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/14/97	COMPLTD: 04/14/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 109FT.	DPTH TO ▽ 106 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
					Well sorted, fine SAND, light gray.		SP		
61				0					
62									
63									
64									
65					Well sorted, fine SAND with heavy minerals, light yellow.				
66				0					
67									
68									
69									
70					Medium to fine SAND, angled layers 5 degrees, minor pebbles, white and ocher.				
71				0					
72									
73									
74									
75					As above.				
76			3/10	2					
77									
78									
79									
80					Medium to fine SAND, light pink.				
81			4/10	0					
82									
83									
84									
85					Well sorted, fine SAND, colored angled layers, light pink.				
86			3/10	>500					
87									
88									
89									
90									

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B030
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/14/97	COMPLTD: 04/14/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 109FT.	DPTH TO ∇ 106 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
					Fining upward, medium to fine SAND with minerals.		SP		
91			5/10	0					
92									
93									
94									
95					Poorly sorted medium to coarse SAND, layered 1/16-inch, pink to ocher.		SW		
96				0					
97									
98									
99									
100					Silty, clayey, fine SAND, multicolor, light gray ocher, pink, gray.				
101			4/10	0					
102									
103									
104									
105					Wet. Poorly sorted, fining upward, medium to coarse to medium fine grained SAND tan, heavy minerals, odor.				
106			6/10	125					∇
107					Coarsening upward medium to coarse SAND to very coarse SAND light grey, strong odor.				
108			8/10	180					
109					END OF BORING @ 109 FEET.				
110									
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B031
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/15/97	**COMPLTD:** 04/15/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ∇** 101.5 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2					Fill, silty, clayey medium to fine SAND, brown.				
3				0					
4									
5					Fill, silty clayey, medium to fine SAND, tan.				
6				0					
7									
8									
9									
10					10-45% Fine sand and silt in hard dry stiff CLAY with concretions or pisoliths, ocher to orange.		CL		
11				0					
12									
13									
14									
15					Four 6-inch layers fining upwards from silty well sorted medium SAND to well sorted, silty, clayey fine SAND, predominately orange.		SP		
16				0					
17									
18									
19									
20					Silty, clayey, well sorted fine to medium SAND, one 3-inch CH clay, very plastic with <10% fine sand, light gray to pink, mottled.		CH		
21			10/10	0			SP		
22									
23									
24									
25					Silty, clayey, fine SAND, speckled, mottled, white with ocher and orange blotches.				
26			10/10	2					
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B031
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/15/97	**COMPLTD:** 04/15/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 101.5 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			10/10	4	30-31: well sorted, orange, medium SAND (8 inches) and silty, sandy, CLAY, white and ocher, mottled. 31-32: well sorted, fine SAND, white with heavy minerals.		SP CL SP		
32									
33									
34									
35					Medium sorted, fine to medium SAND with heavy minerals, white.				
36			4/10	0					
37									
38									
39									
40					3 inches of above grading to clayey silty medium sorted medium to fine SAND, medium gray, slight odor.				
41			3/10	5					
42									
43									
44									
45					Well sorted, medium SAND with heavy minerals dark pink, slight odor.				
46			4/10	5					
47									
48									
49									
50					Well sorted layers approximately 3 inches of either medium or fine SAND with few pebbles at random, medium orange to light tan, gray, pink.				
51			4/10	0					
52									
53									
54									
55									
56									
57									
58									
59									
60							SW		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B031
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/15/97	**COMPLTD:** 04/15/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 101.5 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			6/10	10	Very poorly sorted, silty, clayey, medium to fine SAND with pebble layers and gravel, moderately distributed, medium gray, slight odor.		SW		
62									
63									
64									
65									
66									
67									
68									
69									
70					Well sorted fine SAND, light gray, yellow layers, mica, heavy minerals.		SP		
71			8/10	0					
72									
73									
74									
75									
76									
77									
78									
79									
80					Moderately sorted, medium to fine SAND, light gray to light ocher.				
81			2/10	0					
82									
83									
84									
85									
86									
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B031
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/15/97	COMPLTD: 04/15/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 107FT.	DPTH TO ∇ 101.5 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
91			6/10	2	Well sorted fine SAND with heavy minerals, light pink to gray.		SP		
92									
93									
94									
95									
96									
97									
98									
99									
100									
101			10/10	21	Moderately well sorted, medium to fine SAND, light pink to ocher - with 1 foot of poorly sorted clays, silty coarse SAND with pebbles and clay balls 1/4-inchs. Wet, medium to light gray, slight odor.				∇
102									
103									
104									
105					Moderate to well sorted medium to coarse SAND, brown.				
106			5/10	0					
107					END OF BORING @ 107 FEET.				
108	07G031								
109									
110									
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B032
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/16/97	COMPLTD: 04/16/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 107FT.	DPTH TO ∇ 105 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2					Silty clayey, fine SAND, hard with concretions, fine color layers, mottled, orange.				
3			7/10	0					
4									
5					Silty, clayey fine SAND, colored layers, medium brown, gray.				
6			6/10	110					
7									
8									
9									
10					40% Silty clays, fine to medium SAND with concretions (hard to cut) grading down to plastic CH type CLAY, mottled, light gray ocher, red- orange.				
11			10/10	170					
12									
13									
14									
15					Fine, sandy CLAY, very hard and dry to wet and plastic with concretions, light gray to pink.		CL		
16			10/10	45					
17									
18									
19									
20					Sandy (fine) CLAY, very hard and dry to plastic with concretions, light pink with color layers, light gray.				
21			8/10	105					
22									
23									
24									
25					Silty, fine SAND, pink and white, color layers.		SC		
26			9/10	38					
27									
28									
29									
30							SW		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B032
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/16/97	COMPLTD: 04/16/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 107FT.	DPTH TO ▽ 105 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			7/10	10	Fining upward, medium to fine SAND, color layers, orange to white.		SW		
32									
33									
34									
35					Fine SAND, dark pink.		SP		
36			4/10	0					
37									
38									
39									
40					Medium to fine SAND with pebble layers, heavy minerals, light gray to ocher.		SW		
41			4/10	5					
42									
43									
44									
45					Silty clays, fine SAND, color layers, light gray to orange-red.		SC		
46			6/10	14					
47									
48									
49									
50					Well sorted, fine SAND, ocher to white.		SP		
51				3					
52									
53									
54									
55					Well sorted, fine SAND with coarse sand layers. Layer of gravel sized quartzite, light ocher to light pink zones, with heavy mineral color layers.				
56				15					
57									
58									
59									
60							SW		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B032
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/16/97	**COMPLTD:** 04/16/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ▽** 105 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			3/10	42	Poorly sorted, clayey, silty with heavy minerals, fine SAND with layer of increased clay with gravel layers, light to brick red.		SW		
62									
63									
64									
65									
66									
67									
68									
69									
70					Well sorted, fine SAND, light gray and ocher.		SP		
71			4/10	7					
72									
73									
74									
75									
76									
77									
78									
79									
80					Well sorted, fine SAND with heavy minerals, light gray.				
81			8/10	4					
82									
83									
84									
85									
86									
87									
88									
89									
90							SW		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B032
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/16/97	**COMPLTD:** 04/16/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 107FT.	**DPTH TO ∇** 105 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
					Fining upward, coarse to fine SAND, brick red to ocher.		SW		
91			4/10	6					
92									
93									
94									
95									
96									
97									
98									
99									
100					Fine SAND, well sorted, 10% coarse grains, light gray.				
101			7/10	3			SP		
102									
103									
104									
105					Poorly sorted medium to coarse, silty, layered, gray – ocher, light brick red.		SW		∇
106			3/10	46					
107					END OF BORING @ 107 FEET				
108									
109									
110									
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

TITLE: NAS Whiting Field	**LOG of WELL:**		**BORING NO.** 1438B033
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/21/97	**COMPLTD:** 04/21/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 72FT.	**DPTH TO ▽** FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Silty, clayey fine to medium SAND with 1/2 to 1-inch layers of (CH) plastic clay, wet, strong odor.				
6			6/10	>5000					
7									
8									
9									
10					Clogged by soft clay. No sample, tried twice, drilled to 12-14.		CH		
11			0/10	N/S					
12					Silty with fine CLAY (CH), plastic, moist, pink - tan.				
13				>5000					
14									
15					Clayey, silty, fine to medium moderate sorted SAND, moist, light gray to predominately orange.		SC		
16			10/10	>5000					
17									
18									
19									
20					Clayey, silty, fine SAND, layered, mottled, gray to orange.				
21			8/10	>5000					
22									
23									
24									
25					Coarsening upward from silty CLAY (CH), plastic to silty, clayey, SAND, gray, red-orange, ocher, mottling.				
26			10/10	1500					
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B033
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/21/97	COMPLTD: 04/21/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 72FT.	DPTH TO ▽ FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			5/10	24	Moderately sorted, fine to medium SAND grains with silt and clay in upper 6 inches, heavy mineral layers.		SC		
32									
33									
34									
35					Coarsening upward, silty, clayey SAND with heavy mineral layers and coarse sand and pebble layers, light gray.				
36			10/10	240					
37									
38									
39									
40					Silty, clayey well sorted fine SAND with mica and heavy minerals, moist layers.				
41			1/10	500					
42									
43									
44									
45					Coarsening upward, medium to fine well sorted SAND, heavy mineral layers, light gray.		SP		
46			5/10	80					
47									
48									
49									
50					Fining upward, medium to fine SAND with pebble layers, heavy min. layers, light gray.				
51			8/10	43					
52									
53									
54									
55					Poorly sorted, fine to coarse SAND grains with pebble layers, random gravel, light pink to gray.				
56			3/10	24					
57									
58									
59									
60							SC		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B033
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/21/97	**COMPLTD:** 04/21/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 72FT.	**DPTH TO ▽** FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			5/10	12	Fining upwards from medium to coarse SAND to clayey silty fine to medium SAND, clay chips 1/4 width by 1/2-inch length ocher to light gray.		SC		
62									
63									
64									
65									
66									
67									
68									
69									
70					Silty fine SAND, heavy mineral layers, light gray.				
71			7/10	10					
72					END OF BORING @ 72 FEET.				
73									
74									
75									
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									
86									
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B034
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/22/97	COMPLTD: 04/22/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 62FT.	DPTH TO ∇ 60.5 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty, medium fine SAND, moist, light brown to dark grey – strong odor, appears to be fill.				
6			9/10	>5000					
7									
8									
9									
10					Poorly sorted 10% coarse sand in silty CLAY, almost plastic, not moist, hard with concretions, ocher to orange, mottled – strong odor.		CL		
11			10/10	>5000					
12									
13									
14									
15					Clayey silty 40% SAND, orange-brown, mottled, strong color.		SM		
16			10/10	>5000					
17									
18									
19									
20					Silty fine sand in CLAY, evenly distributed, pink to orange, soft, moist.		CL		
21			10/10	>5000					
22									
23									
24									
25					Clayey, silty fine to very fine SAND, moist, ocher with orange color layers.		SC		
26			10/10	>5000					
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B034
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/22/97	**COMPLTD:** 04/22/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 62FT.	**DPTH TO ▽** 60.5 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			10/10	>5000	Clayey, silty fine to very fine SAND with pebble layers and coarse sand layers, color layering, light pink and ocher to yellow and dark gray and black, heavy mineral layering.		SC		
32									
33									
34									
35					Fine to very fine SAND with heavy minerals - 1 burrow, very light gray - white.				
36			6/10	60					
37									
38									
39									
40					Fining upward from clayey, silty, medium to coarse SAND to silty fine SAND to silty fine SAND with heavy minerals and mica, light gray, minor ocher.				
41			9/10	160					
42									
43									
44									
45									
46									
47									
48									
49									
50					Coarsening upward, very fine to fine SAND with heavy minerals, light gray to white.				
51			6/10	40					
52									
53									
54									
55									
56									
57									
58									
59									
60							SW		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B034
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/22/97	**COMPLTD:** 04/22/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 62FT.	**DPTH TO ∇** 60.5 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			10/10	65 170	Fining upward from very fine SAND, moist with heavy minerals, light gray to very plastic CLAY (CH), light gray, pink, erosional surface, wet, very poorly sorted, clayey, silty coarse SAND with pebbles to gravel size material.		SW CL		∇
62				0	END OF BORING @ 62 FEET.		SC		
63									
64					NOTE: The 60-62 ft bls description above is from bottom to top.				
65									
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									
86									
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B035
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/22/97	COMPLTD: 04/22/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 42FT.	DPTH TO ▽ N/A FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty fine SAND, orange-brown to orange-tan.				
6			8/10	0					
7									
8									
9									
10					As above, bottom 8-inch CLAY. Plastic, light gray/orange.				
11			10/10	0			CL		
12									
13									
14									
15					Silty or very fine sand 10%, moist, CLAY, almost plastic.				
16			10/10	0					
17									
18									
19									
20					Wet, silty, clayey, coarse SAND grains, orange to bottom 5 inches, moist, very fine SAND with heavy minerals and mica.		SC		
21			7/10	0					
22									
23									
24									
25					Top 12 inches very fine sand grading, pink to CH CLAY, plastic, bottom 4 inches fine SAND, white.		SP		
26			6/10	0			CH		
27							SP		
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B035
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/22/97	**COMPLTD:** 04/22/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 42FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			4/10	0	Fine SAND, light gray to white with heavy minerals.		SP		
32									
33									
34									
35									
36									
37									
38									
39									
40					Fining upward, poorly sorted, silty, medium to coarse SAND, grading to very fine SAND with heavy minerals.		SW		
41			8/10	0					
42					END OF BORING @ 42 FEET.				
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field	**LOG of WELL:**		**BORING NO.** 1438B036
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/22/97	**COMPLTD:** 04/22/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 62FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Very wet, clayey, silty, medium SAND, grading to the bottom 6-inch of moist, clayey, silty, fine SAND, medium brown.				
6			8/10	0					
7									
8									
9									
10					Silt and fine sand in CLAY near plastic sand-rich zones, light gray to orange.		CL		
11			7/10	15					
12									
13									
14									
15					Fining upward from clayey, silty fine SAND to very fine sand in silty CLAY, light gray to light orange.		SC		
16			9/10	14					
17									
18									
19									
20					As above.				
21			10/10	25					
22									
23									
24									
25					Upper 18 inches clayey, silty fine SAND, purple, gray, mottled, lower 6 inches CH CLAY with fine sand layers or chip <1/16-inch thick, purple and gray, mottled.				
26			10/10	30					
27									
28									
29									
30							SW		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B036
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/22/97	**COMPLTD:** 04/22/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 62FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			9/10	10	Poorly sorted fine to coarse SAND with pebble layers, ocher, pink, light gray.		SW		
32									
33									
34									
35									
36									
37									
38									
39									
40					Silty to very fine SAND, medium gray clay-lined burrow		SP		
41			9/10	250					
42									
43									
44									
45									
46									
47									
48									
49									
50					Fine to medium SAND, deep purple to pink, ocher, color layers.				
51			9/10	70					
52									
53									
54									
55									
56									
57									
58									
59									
60							SW		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field	**LOG of WELL:**		**BORING NO.** 1438B036
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/22/97	**COMPLTD:** 04/22/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 62FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			2/10	49	Very poorly sorted fine SAND to gravel, light ocher in layers, clay cluster.		SW		
62					END OF BORING @ 62 FEET.				
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									
86									
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field	**LOG of WELL:**		**BORING NO.** 1438B037
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/23/97	**COMPLTD:** 04/23/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 52FT.	**DPTH TO ∇** n/a FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							CL		
2									
3									
4									
5					20% Fine sand in silty CLAY, damp, ocher, orange, mottled.				
6			10/10	0					
7									
8									
9									
10					As above damp to moist, pink and orange, low plastic, CLAY.				
11			8/10	0					
12									
13									
14									
15					Clayey, silty, fine to medium SAND, pink, orange.		SW		
16			9/10	0					
17									
18									
19									
20					As above, red-pink and ocher, mottle tiger.				
21			9/10	0					
22									
23									
24									
25					Coarsening upward, fine SAND with light gray heavy minerals to medium SAND, ocher.				
26			3/10	0					
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B037
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/23/97	COMPLTD: 04/23/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 52FT.	DPTH TO ▽ n/a FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			5/10	0	Fine SAND with heavy minerals, color layers, light pink to ocher.		SW		
32									
33									
34									
35									
36									
37									
38									
39									
40					Coarsening upward from clayey fine SAND, ocher to very fine SAND with heavy minerals, random and layered, light gray color layers.				
41			8/10	0					
42									
43									
44									
45									
46									
47									
48									
49									
50					Silty fine to medium SAND with pebble layers, pink and ocher.				
51			8/10	0					
52					END OF BORING @ 52 FEET.				
53									
54									
55									
56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B038
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/23/97	COMPLTD: 04/23/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 42FT.	DPTH TO ▽ N/A FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Upper 6 inches silty clay fine SAND, moist brown, strong odor. Lower 10 inches sandy hard CLAY, gray to orange, mottled.				
6			8/10	>5000			CL		
7									
8									
9									
10					As above. Clay, light gray to pink, mottled, strong odor.				
11			7/10	>5000					
12									
13									
14									
15					Silty fine SAND, heavy minerals, mica, color layer, light gray, primarily pink.		SC		
16			9/10	>5000					
17									
18									
19									
20					Clayey, silty fine SAND, olive brown with dark layers to white mottles in purple and red.				
21			5/10	>5000					
22									
23									
24									
25					Silty, fine SAND, light tan (white) to tan, with heavy minerals and mica, color layers.				
26			7/10	22					
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B038
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/23/97	COMPLTD: 04/23/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 42FT.	DPTH TO ▽ N/A FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
					Very fine SAND, light tan to white with brick red clay clusters.		SC		
31			8/10	90					
32									
33									
34									
35									
36									
37									
38									
39									
40					Clayey, silty fine SAND, ocher with heavy minerals.				
41			3/10	15					
42					END OF BORING @ 42 FEET.				
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B039
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/23/97	COMPLTD: 04/23/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 42FT.	DPTH TO ▽ N/A FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							CL		
2									
3									
4									
5					Fine, sandy, silty CLAY, hard, dry, mottled ocher, orange, and red.				
6			6/10	0					
7									
8									
9									
10					As above but moist, some plasticity, ocher/pink.				
11			8/10	0					
12									
13									
14									
15					Clayey, silty fine SAND, mottled light gray in orange-red.		SP		
16			8/10	0					
17									
18									
19									
20					Upper 14 inches as above, lower 6 inches, sandy CLAY with sand layers, red-orange, mottled.				
21			7/10	0					
22							CL		
23									
24									
25					Fine to medium SAND, light tan to ocher.		SW		
26			4/10	0					
27									
28									
29									
30							SP		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B039
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/23/97	**COMPLTD:** 04/23/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 42FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
					Fine SAND, light tan to white with reddish orange and ocher layers.		SP		
31			4/10	0					
32									
33									
34									
35									
36									
37									
38									
39									
40					As above.				
41			4/10	0					
42					END OF BORING @ 42 FEET.				
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field	**LOG of WELL:**		**BORING NO.** 1438B040
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/23/97	**COMPLTD:** 04/23/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 42FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					5.0 - 5.6 40% Fine sand in CLAY, medium orange. 5.6 - 7.0 20% Fine sand in silty CLAY, light gray/orange.		CL		
6			10/10	0					
7									
8									
9									
10					Silty, clayey, fine SAND, color layers predominately pink with light gray and ocher at 1/32 inch.		SC		
11			8/10	0					
12									
13									
14							SW		
15					Clayey, silty, fine SAND. 15-16 ocher, 16-17 mottled light grey on purple color layers.				
16			9/10	0					
17									
18									
19									
20					Very fine to fine SAND with 1/4-inch layers of pebbles with heavy minerals, light grayish white to light ocher.		SP		
21			5/10	0					
22									
23									
24									
25					Very fine to fine SAND. Light gray to light tan.				
26			9/10						
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B040
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/23/97	**COMPLTD:** 04/23/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 42FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
					As above with pebble layer at 31.75.		SP		
31			3/10						
32									
33									
34									
35									
36									
37									
38									
39									
40					Very fine SAND. Light gray with heavy minerals.				
41			6/10						
42					END OF BORING @ 42 FEET.				
43									
44									
45									
46									
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52									
53									
54									
55									
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59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B041
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/24/97	**COMPLTD:** 04/24/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 52FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SM		
2									
3									
4									
5					30% clayey, silty, fine SAND with hard concretions, moist, hard to soft, ocher and orange.				
6			9/10	0					
7									
8									
9									
10					10-10.5 As above.				
11			6/10	0	10.5-12.0 10% Fine sand, sand and silt in CLAY, moist, hard, not plastic, light gray, orange and red, mottle.		CL		
12									
13									
14									
15					15.0-15.5 Silty clayey fine SAND, brown. 15.5-16.0 Fine SAND with heavy min., light gray. 16.0-17.0 Silty, sandy clay, even mix, orange-pink.		SM		
16			7/10	0			SP		
17							CH		
18									
19									
20					Clayey, silty, fine SAND, light gray and pink, mottled.		SC		
21			8/10	0					
22									
23									
24									
25					25-26 Sand, silty CLAY, medium pink. 26-27 Fine SAND color layers, ocher and light gray.		CL		
26			8/10	0			SP		
27									
28									
29									
30							SC		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B041
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/24/97	**COMPLTD:** 04/24/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 52FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			8/10	0	Silty fine SAND, light gray.		SC		
32									
33									
34									
35									
36									
37									
38									
39									
40					Very fine to fine SAND with heavy minerals - some in layers, mica, light grey with two ocher layers. Odor present.				
41			10/10	0					
42									
43									
44									
45									
46									
47									
48									
49									
50					As above, no odor.				
51			4/10	0					
52					END OF BORING @ 52 FEET.				
53									
54									
55									
56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B042
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/24/97	**COMPLTD:** 04/24/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty, fine SAND, moist with concretion. Strong odor.				
6			10/10	>5000					
7									
8									
9									
10					10-11 Silty, sandy CLAY, moist, soft, red and brown. 11.0-11.5 5% silty CLAY plastic with sub millimeter silty lenses, light grey ocher and red. 11.5-12 As above, increase in moisture, softer, slight increase in silt content.		CL		
11			10/10	>5000					
12									
13									
14									
15					Very fine to fine SAND, light gray with ocher color layers or deeper gray color layers.		SP		
16			8/10	2100					
17									
18									
19									
20					20-21 Very fine 10% clayey SAND, light gray and ocher color. 21-22 Very fine SAND grading downward to an increase in thin <1mm clay layers orange to pink with white clay.		SM		
21			9/10	0					
22									
23									
24									
25					Silty, very fine to fine SAND, mottled and layered.				
26			10/10	0					
27									
28									
29									
30							SW		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B042
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/24/97	**COMPLTD:** 04/24/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			6/10	0	Poorly sorted fine to medium SAND with pebble layers and clay layers - color layers range from light gray, ocher, red and red-orange with abrupt color change, no mottles.		SW		
32					END OF BORING @ 32 FEET.				
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
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53									
54									
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56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field	**LOG of WELL:**		**BORING NO.** 1438B043
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/24/97	**COMPLTD:** 04/24/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					20% Clay, silty fine to very fine SAND, orange-brown.				
6			10/10	0					
7									
8									
9									
10					10-11 As above. 11-12 5% silt in CLAY which breaks easily along horizontal planes of discloration, thin silty layers, dry, hard, not plastic, light gray, brick red.				
11			10/10	0			CL		
12									
13									
14									
15					15.0-15.3 20% Clay, silty fine to very fine SAND, orange-brown. 15.3-15.6 CLAY CH layered. 15.6-16.5 Fine to very fine SAND, 1/64-inch layers clay, orange. 16.5-17.0 Fine sandy CLAY.		SC		
16			8/10	0			CH		
17							CL		
18									
19									
20					Clayey, silty fine SAND, red, grey.		SC		
21			10/10	0					
22									
23									
24									
25					As above 26-27 wet. 26.5-27.0 High clay content.				
26			10/10	0					
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B043
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/24/97	COMPLTD: 04/24/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 32FT.	DPTH TO ▽ N/A FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31				0	Very fine SAND, light gray with heavy min., pink color layers.		SC		
32					END OF BORING @ 32 FEET.				
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
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47									
48									
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52									
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54									
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56									
57									
58									
59									
60									

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B044
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/25/97	**COMPLTD:** 04/25/97
METHOD: Hollw Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty SAND, very fine to medium, dark ocher and red-brown, dry.				
6			10/10	0					
7									
8									
9									
10					10-10.5 As above. 10.5-12 Silty CLAY hard, dry not plastic with horizontal fissures (discolored) and color layers, light gray and orange.				
11			9/10	0			CL		
12									
13									
14									
15					Clayey, silty SAND, very fine - color layers pink, dark pink.		SC		
16			9/10	0					
17									
18									
19									
20					Silty, very fine SAND, light gray with brick-red, mottled.		SM		
21			9/10	0					
22									
23									
24									
25					As above with increase in clay content, minor layers.				
26			10/10	0					
27									
28									
29									
30							SW		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B044
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/25/97	**COMPLTD:** 04/25/97
METHOD: Hollw Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			10/10	0	Very poorly sorted fine SAND with medium to coarse layers (1/4-inch in thickness) of pebble and clay, moist, color layers of light gray with brick-red, mottles to olive gray with tan layers.		SW		
32					END OF BORING @ 32 FEET.				
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
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54									
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56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B045
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/25/97	**COMPLTD:** 04/25/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty, fine SAND, wet, strong odor, medium-brown.				
6			Hand	>5000					
7									
8									
9									
10					10-11 Clayey, silty, fine SAND, moist, color layered, orange-brown. 11-12 10% silt, hard CLAY, dry, light gray, brick-red horizontal fissures.				
11			10/10	1800			CL		
12									
13									
14									
15					15-16.5 Silty, fine to very fine SAND with clay balls up to 1/2-inch diameter, light pink to orange. 16.5-17 Hard 30% sandy CLAY, light purple, pink.		SC		
16			10/10	200					
17							CL		
18									
19									
20					Silty, very fine SAND, light gray-yellow with brick red mottles.				
21			10/10	280			SC		
22									
23									
24									
25					25-26.5 Fining upward from medium-fine SAND to very fine to fine SAND with one 1/16th-inch clay layer. Light orange to light yellow. 26.5-27 Very poorly sorted sandy CLAY with one pebble layer, medium gray, moist.				
26			6/10	45					
27							CL		
28									
29									
30							SP		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B045
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/25/97	COMPLTD: 04/25/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 32FT.	DPTH TO ∇ N/A FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			4/10	0	Fine to very fine SAND with heavy minerals in layers and random, light gray to white.		SP		
32					END OF BORING @ 32 FEET.				
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
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56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B046
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/28/97	**COMPLTD:** 04/28/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Silty, clayey, fine SAND, mottled, wet, light brown and orange.				
6			Hand	0					
7									
8									
9									
10					10-11 Silty, clayey fine SAND, light brown color layers. 11-12 Silty sandy 20% CLAY, horizontal fissures and sand layers, plastic.				
11			10/10	0			CL		
12									
13									
14									
15					20% Fine sand, CLAY, light pink with fine sand layers.				
16			10/10	0					
17									
18									
19									
20					Fine, sandy 35% CLAY, light pink to light gray.				
21			10/10	24					
22									
23									
24									
25					Very fine, silty, SAND, layered 4-6 inches thick with fine sand, to pure CLAY plastic (CH) mottled light grey with purple/red.		SC		
26			10/10	11			CL		
27							SP		
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B046
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/28/97	**COMPLTD:** 04/28/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31				3	Fine to very fine SAND with heavy min. in layers and random; light gray to white.		SP		
32					END OF BORING @ 32 FEET.				
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B047
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/28/97	COMPLTD: 04/28/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 72FT.	DPTH TO ∇ n/a FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty fine SAND, brown with orange and metalic black mottles, odor.				
6			8/10	>500					
7									
8									
9									
10					Clayey, silty fine SAND. Brick red, ocher, mottled.				
11			8/10	>5000					
12									
13									
14									
15					Very fine SAND, light gray with gray to dark gray color bands, heavy minerals.		SP		
16			8/10	300					
17									
18									
19									
20					Very fine to fine SAND, 10% silt 1/16th-inch clay layers, light gray to orange color layers.				
21			3/10	>5000					
22									
23									
24									
25					Silty CLAY, plastic, moist, medium gray with sandy layers, up to 30% fine sand and fining upward to clayey silty sand - errosional surface. 26.5-27.0 Very fine SAND.		CL		
26			10/10	>5000					
27							SC		
28									
29									
30				>5000			SP		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B047
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/28/97	**COMPLTD:** 04/28/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 72FT.	**DPTH TO ▽** n/a FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			3/10		Very fine to fine SAND with heavy minerals and mineral, layers, light gray to gray color layers.		SP		
32									
33									
34									
35				>5000	Poorly sorted fine to medium SAND with pebbles and fine sand layers, light gray to darker gray.		SW		
36			3/10						
37									
38									
39									
40				>5000	Clayey, silty fine SAND, medium gray color layers		SM		
41			5/10						
42									
43									
44									
45				200	Very poorly sorted medium to fine SAND with heavy minerals in layers, random 10% - Pebbles in several layers - mica, light gray with darker gray bands.		SW		
46			4/10						
47									
48									
49									
50				24	Fine SAND with heavy minerals, mica, light gray.		SP		
51			3/10						
52									
53									
54									
55				460	Poorly sorted silty, clayey, medium to fine SAND, medium gray with pebble layers.		SW		
56			3/10						
57									
58									
59									
60				33			SC		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B047
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/28/97	**COMPLTD:** 04/28/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 72FT.	**DPTH TO ▽** n/a FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
					Silty, clayey, fine SAND with mica and heavy minerals, wet, medium gray.		SC		
61			4/10						
62									
63									
64									
65									
66									
67									
68									
69									
70				0	Medium to fine SAND, ocher and orange.		SW		
71			2/10						
72					END OF BORING @ 72 FEET.				
73									
74									
75									
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									
86									
87									
88									
89									
90									

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B048
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/28/97	COMPLTD: 04/28/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 32FT.	DPTH TO ∇ N/A FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty fine SAND, medium-brown.				
6				0					
7									
8									
9									
10					As above with an increase in clay at 12.4-12.8.				
11				16					
12									
13									
14									
15					Clayey, silty, medium SAND, brick-red.				
16				0					
17									
18									
19									
20					20-21.5: Clayey, silty fine to medium SAND. 21.5-22: Fine to medium SAND, all brick-red.				
21				0					
22							SW		
23									
24									
25									
26									
27									
28									
29									
30							SM		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL:	BORING NO. 1438B048
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.04
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/28/97	COMPLTD: 04/28/97
METHOD: Hollow Stem Auger	CASE SIZE: n/a	SCREEN INT.: n/a	PROTECTION LEVEL: D
TOC ELEV.: FT.	MONITOR INST.: FID	TOT DPTH: 32FT.	DPTH TO ∇ N/A FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: n/a		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31				0	Silty, fine grained SAND with 10% heavy minerals, random and layered light grayish white with ocher to gray color layers 1/16 to 1/8 inch thick.		SM		
32					END OF BORING @ 32 FEET.				
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B049
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/29/97	**COMPLTD:** 04/29/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 32FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty fine SAND, orange-ocher.				
6			8/10	0					
7									
8									
9									
10					10-11.4 As above, increased layering (color) 11.4-12.0 Very clayey <30% coarse SAND, brick-red.				
11			9/10	0					
12									
13	07B04901		N/M						
14									
15					15-16 Very clayey 30%, medium to coarse SAND increasing in coarseness with depth and decreasing clay, brick red to orange.				
16			N/M	0					
17									
18									
19									
20					20-20.5 Very fine SAND with a 2-inch plastic CLAY layer. 20.5-22.0 Clayey silty fine to very fine SAND, pink and light gray color layers.		SP		
21			9/10	0			CL		
22							SC		
23									
24									
25									
26									
27									
28									
29									
30					Silty, clayey >20% poorly sorted fine SAND with random coarse grained sand, light gray with light purple mottles. 2-inch clay layer at 31.8 feet below land surface, no to low plastic, 20%-30% silt in clay.				
31			9/10	0					
32							CL SC		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B050
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/28/97	**COMPLTD:** 04/28/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty, fine SAND, increasing percentage of clay to 30% at 7.0 feet below land surface, medium brown.				
6			7/10	0					
7									
8									
9									
10					Clayey, silty, fine to medium SAND with layers of sandy clay, hard concretions, horizontal fissures, ocher to orange.				
11			7/10	0					
12									
13									
14									
15					15-15.8 As above. 15.8 - 16.6 Clayey fine to medium SAND, brick-red. 16.6 - 17.0 10% Fine to medium sand in plastic CLAY, light gray.				
16			9/10	0					
17							CL		
18									
19									
20					Very poorly sorted clayey silty fine to very fine SAND coarse sand and clay layers <1/16 inch, pink to light pink color layers.		SC		
21			NM	0					
22									
23									
24									
25					Very fine to fine SAND, ocher with purple-red mottle, increase to 40% CLAY at 26 feet.		SP		
26			9/10	0			SC		
27									
28									
29									
30					Silty, very fine to fine SAND, light ocher.		SP		
31			NM	0					
32									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B051
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/29/97	**COMPLTD:** 04/29/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 42FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty fine SAND, ocher, orange with dark gray mottling, strong odor.				
6			10/10	>5000					
7									
8									
9									
10					Silty (10%) CLAY, nonplastic horizontal and vertical fissures, ocher, orange-red mottles.		CL		
11			9/10	0					
12									
13									
14							SM		
15					Clayey, silty, fine SAND, light pink to light gray.				
16			9/10	>5000					
17									
18	07B05101		N/M						
19									
20					As above.				
21			10/10	>5000					
22									
23									
24									
25					Clayey silty fine SAND, finely layered to homogenous. 26.5-27.0, medium to fine SAND, no clay - deep purple with ocher mottles to orange.				
26			7/10	>5000					
27									
28									
29									
30							SC		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B051
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/29/97	**COMPLTD:** 04/29/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 42FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			N/M	3600	30-30.5 Clayey (30%) silty fine SAND, thinly layered with clay, light brown. 30.5-32 Fine to medium SAND, light gray to ocher color layers.		SC SP		
32									
33									
34									
35									
36									
37									
38									
39									
40					Silty, very fine SAND, light gray with ocher color layers, heavy minerals.				
41			3/10	36					
42					END OF BORING @ 42 FEET.				
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B052
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/29/97	**COMPLTD:** 04/29/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5									
6									
7									
8									
9									
10					10-10.8 Clayey, fine SAND, medium tan, ocher. 10.8-12.0 Clay, almost plastic with silt, light gray to orange to brick-red at fissures vertical and horizontal.				
11			7/10	0			CL		
12									
13									
14							SP		
15									
16									
17									
18									
19									
20					Very fine to fine SAND, heavy minerals in layers and random white with ocher color layers, mica.				
21			3/10	0					
22									
23									
24									
25									
26									
27									
28									
29									
30									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B052
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/29/97	**COMPLTD:** 04/29/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			2/10	0	Very fine SAND, layered, clayey, light gray, to poorly sorted fine to coarse SAND, light gray massive.		SP		
32					END OF BORING @ 32 FEET.				
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:**	**BORING NO.** 1438B053
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/29/97	**COMPLTD:** 04/29/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ▽** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SC		
2									
3									
4									
5					Clayey, silty fine SAND, tan-brown with orange mottles.				
6			9/10	0					
7									
8									
9									
10					Silty (10%) CLAY, low plastic, light gray, mottled orange to brick red, horizontal fissures.		CL		
11			8/10	0					
12									
13									
14									
15					Very fine to fine SAND, light gray with heavy min.		SP		
16			3/10	0					
17									
18									
19									
20					Silty fine SAND, pink with ocher color layers, random coarse sand grains.		SC		
21			4/10	0					
22									
23									
24									
25									
26									
27									
28									
29									
30							SW		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field	**LOG of WELL:**		**BORING NO.** 1438B053
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 04/29/97	**COMPLTD:** 04/29/97
METHOD: Hollow Stem Auger	**CASE SIZE:** n/a	**SCREEN INT.:** n/a	**PROTECTION LEVEL:** D
TOC ELEV.: FT.	**MONITOR INST.:** FID	**TOT DPTH:** 32FT.	**DPTH TO ∇** N/A FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** n/a		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			2/10	0	Fine to medium SAND, two 2-inch layers of gravel or pebbles in coarse sand, light gray.		SW		
32					END OF BORING @ 32 FEET.				
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-01S	**BORING NO.** 1438B056
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/08/97	**COMPLTD:** 05/08/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 97-112'	**PROTECTION LEVEL:** D
TOC ELEV.: 172.05 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 112.5FT.	**DPTH TO ▽** 101 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/14-15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SW		
2									
3									
4									
5									
6									
7									
8									
9									
10			9/10	0	10.0-10.1 Clayey silty 20% fine sand with concretions 1/4-inch diameter, brick red with ocher mottles. 10.1-2.0 Clayey, medium to coarse size SAND, brick red to brown.				
11									
12									
13									
14									
15									
16									
17									
18									
19									
20			9/10	0	20.0-20.8 Sandy (30% medium to coarse sand) silty CLAY, brick red with ocher layers and concretions. 20.8-21.0 CLAY, plastic, light gray, pink sub mm layers. 21.0-22.0 Very fine SAND, light pink.		CL		
21							CH		
22							SP		
23									
24									
25									
26									
27									
28									
29									
30							CL		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-01S	**BORING NO.** 1438B056
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/08/97	**COMPLTD:** 05/08/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 97-112'	**PROTECTION LEVEL:** D
TOC ELEV.: 172.05 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 112.5FT.	**DPTH TO ▽** 101 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/14-15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			6/10	0	30.0-30.4 CLAY, light gray to pink. 30.4-32 Very poorly sorted silt to coarse SAND size grains with heavy minerals light gray.		CL SW		
32									
33									
34									
35									
36									
37									
38									
39									
40					Very poorly sorted, very fine to coarse SAND with pebble layers, light gray to light pink.				
41			3/10	0					
42									
43									
44									
45									
46									
47									
48									
49									
50					As above.				
51			2/10	0					
52									
53									
54									
55									
56									
57									
58									
59									
60							SP		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-01S	**BORING NO.** 1438B056
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/08/97	**COMPLTD:** 05/08/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 97-112'	**PROTECTION LEVEL:** D
TOC ELEV.: 172.05 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 112.5FT.	**DPTH TO ▽** 101 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/14-15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			3/10	0	60.0-60.4 Very fine SAND, light gray. 60.4-60.7 Clay <10% silt, light pink/gray. 60.7-61.6 Silty clayey, fine to very fine SAND, layered 1/16-inches, light pink to light gray. 61.6-62.0 Very fine SAND, light gray.		SP CH SP		
62									
63									
64									
65									
66									
67									
68									
69									
70					Silty, very fine to fine SAND with trace heavy minerals, light gray to light pink.				
71			6/10	0					
72									
73									
74									
75									
76									
77									
78									
79									
80					Fine to medium SAND with coarse sand layers and odor. Layers with indications of angled layers shown by grain size, light gray/pink/ocher.		SW		
81			5/10	0					
82									
83									
84									
85									
86									
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL: WHF-1438-01S	BORING NO. 1438B056
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.15
CONTRACTOR: ABB Environmental Services		DATE STARTED: 05/08/97	COMPLTD: 05/08/97
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 97-112'	PROTECTION LEVEL: D
TOC ELEV.: 172.05 FT.	MONITOR INST.: FID	TOT DPTH: 112.5FT.	DPTH TO ▽ 101 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: 05/14-15/97		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
91			8/10	0	Very fine to medium SAND with random coarse size sand grains, color layers light pink/orange.		SW		
92									
93									
94									
95									
96									
97									
98									
99									
100			5/10	0	Medium to very coarse SAND, 10% clay and silt, pink, wet.				▽
101									
102									
103									
104									
105			8/10	0	As above, top ft. is light yellow, gray; bottom is red and purple.				
106									
107									
108									
109									
110			8/10	0	110-111 As above, increasing silt and clay. Clayey silty, very fine SAND in <1/16-inch layers, brick red, light gray, ocher.				
111									
112					END OF BORING @ 112.5 FEET.				
113									
114									
115									
116									
117									
118									
119									
120									

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-02S	**BORING NO.** 1438B054
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/06/97	**COMPLTD:** 05/06/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 102-117	**PROTECTION LEVEL:** D
TOC ELEV.: 174.35 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 122FT.	**DPTH TO ∇** 110 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/06/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SM		
2									
3									
4									
5									
6									
7									
8									
9									
10					Sandy, (fine), silty CLAY hard, brown to brick red, frequent concretions.				
11			8/10	5,000					
12									
13									
14									
15									
16									
17									
18									
19									
20					Clayey, silty, fine SAND, light pink.				
21			2/10	5,000					
22									
23									
24									
25									
26									
27									
28									
29									
30							CL		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL: WHF-1438-02S	BORING NO. 1438B054
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.15
CONTRACTOR: ABB Environmental Services		DATE STARTED: 05/06/97	COMPLTD: 05/06/97
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 102-117	PROTECTION LEVEL: D
TOC ELEV.: 174.35 FT.	MONITOR INST.: FID	TOT DPTH: 122FT.	DPTH TO ▽ 110 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: 05/06/97		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			3/10	1,800	Silty CLAY (4-inches) on top of 2-inches of fine SAND overlying clayey, silty fine SAND (4-inches).		CL SC		
32									
33			10/10						
34	07B05402								
35									
36									
37									
38									
39									
40					Silty fine SAND, light gray with light yellow color layered bands to red/brown with heavy minerals and mica.				
41			3/10	1,500					
42									
43									
44									
45									
46									
47									
48									
49									
50					As above with random (trace) coarse grains.				
51			2/10	700					
52									
53									
54									
55									
56									
57									
58									
59									
60							SW		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-02S	**BORING NO.** 1438B054
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/06/97	**COMPLTD:** 05/06/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 102-117	**PROTECTION LEVEL:** D
TOC ELEV.: 174.35 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 122FT.	**DPTH TO ▽** 110 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/06/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			4/10	34	Clayey, silty, very poorly sorted, medium to fine SAND with gravel layers, heavy minerals and mica, random clay clusters or balls, light gray to pink, WET.		SW		
62									
63									
64									
65									
66									
67									
68									
69									
70			3/10	28	Silty fine SAND with heavy minerals and mica, light gray to ocher to pink with color layers.		SP		
71									
72									
73									
74									
75									
76									
77									
78									
79									
80			7/10	0	80.0-80.5 Well sorted medium SAND, light gray. 80.0-82.0 Well sorted medium to fine SAND, light gray, slight color layers.				
81									
82									
83									
84									
85									
86									
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-02S	**BORING NO.** 1438B054
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/06/97	**COMPLTD:** 05/06/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 102-117	**PROTECTION LEVEL:** D
TOC ELEV.: 174.35 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 122FT.	**DPTH TO ▽** 110 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/06/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
91			3/10	280	Fine to medium SAND, light pink to pink.		SP		
92									
93									
94									
95									
96									
97									
98									
99									
100					Silty to fine to very fine SAND, with heavy minerals and mica, light gray to light pink two color layers.				
101			4/10	14					
102									
103									
104									
105									
106									
107									
108									
109									
110					Plastic CLAY with layers of silty, fine SAND gray/ocher/brick/red. Wet.		CL		▽
111			9/10	90					
112									
113									
114									
115					115.0-115.5 As above, moist, outside WET. 115.5-117.0 Clayey, silty, fine SAND with 3-1/4-inch clay layers, micaceous, color mottled and layered light gray to brick red.		SC		
116			9/10	8					
117									
118									
119									
120							CH		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-02S	**BORING NO.** 1438B054
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/06/97	**COMPLTD:** 05/06/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 102-117	**PROTECTION LEVEL:** D
TOC ELEV.: 174.35 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 122FT.	**DPTH TO ▽** 110 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/06/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 4				
121			6/10	12	120.0-121.0 CH or plastic CLAY with fine sand layers. 121.0-122.0 Very fine SAND with heavy mineral layers, light gray to ocher to pink.		CH SM		
122					END OF BORING @ 122 FEET.				
123									
124									
125									
126									
127									
128									
129									
130									
131									
132									
133									
134									
135									
136									
137									
138									
139									
140									
141									
142									
143									
144									
145									
146									
147									
148									
149									
150									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-02D	**BORING NO.** 1438B054
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 09/23/97	**COMPLTD:** 09/24/97
METHOD: Mud Rotary	**CASE SIZE:** 6" (out), 2" (in)	**SCREEN INT.:** 148'-153'	**PROTECTION LEVEL:** D
TOC ELEV.: 174.44 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 153FT.	**DPTH TO ▽** FT.
LOGGED BY: J. Williams	**WELL DEVELOPMENT DATE:** 10/13/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1–9							SM		
10–12			8/10	5,000	Sandy, (fine), silty CLAY hard, brown to brick, red frequent concretions.				
20–22			2/10	5,000	Clayey, silty, fine SAND, light pink.				
30–32			3/10	1,800	Silty CLAY (4-inches) on top of 2-inches of fine SAND overlying clayey, silty fine SAND (4-inches).		CL / SC		
33–34	07B05402		10/10						
40–42			3/10	1,500	Silty fine SAND, light gray with light yellow color layered bands to red/brown with heavy minerals and mica.				
50–52			2/10	700	As above with random (trace) coarse grains.				
60							SW		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-02D	**BORING NO.** 1438B054
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 09/23/97	**COMPLTD:** 09/24/97
METHOD: Mud Rotary	**CASE SIZE:** 6" (out), 2" (in)	**SCREEN INT.:** 148'-153'	**PROTECTION LEVEL:** D
TOC ELEV.: 174.44 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 153FT.	**DPTH TO ▽** FT.
LOGGED BY: J. Williams	**WELL DEVELOPMENT DATE:** 10/13/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
61–69			4/10	34	Clayey, silty, very poorly sorted, medium to fine SAND with gravel layers, heavy minerals and mica, random clay clusters or balls, light gray to pink, WET.		SW		
70–79			3/10	28	Silty fine SAND with heavy minerals and mica, light gray to ocher to pink with color layers.		SP		
80–89			7/10	0	80.0-80.5 Well sorted medium SAND, light gray. 80.0-82.0 Well sorted medium to fine SAND, light gray, slight color layers.				
90–99			3/10	280	Fine to medium SAND, light pink to pink.				
100–109			4/10	14	Silty to fine to very fine SAND, with heavy minerals and mica, light gray to light pink two color layers.				
110–114			9/10	90	Plastic CLAY with layers of silty, fine SAND gray/ocher/brick/red.		CL		
115–120			9/10	8	115.0-115.5 As above, moist, outside WET. 115.5-117.0 Clayey, silty, fine SAND with 3-1/4-inch clay layers, micaceous, color mottled and layered light gray to brick red.		SC		
							CH		

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-02D	**BORING NO.** 1438B054
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 09/23/97	**COMPLTD:** 09/24/97
METHOD: Mud Rotary	**CASE SIZE:** 6" (out), 2" (in)	**SCREEN INT.:** 148'-153'	**PROTECTION LEVEL:** D
TOC ELEV.: 174.44 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 153FT.	**DPTH TO ▽** FT.
LOGGED BY: J. Williams	**WELL DEVELOPMENT DATE:** 10/13/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
121			6/10	12	120.0-121.0 CH or plastic CLAY with fine sand layers. 121.0-122.0 Very fine SAND with heavy mineral layers, light gray to ocher to pink.		CH		
122							SM		
123									
124									
125									
126									
127									
128									
129									
130									
131									
132									
133									
134									
135									
136									
137			16/24	9	SAND, light gray to white, mostly fine to medium, some coarse sand, well graded. Some clayey SAND in bottom 1" of sample.		SW		
138									
139									
140							SC		
141									
142									
143									
144									
145			6/24	5	SAND, light gray to light brown, mostly fine to medium sand, poorly to moderately well graded.		GW		
146									
147									
148									
149									
150			N/A	NM	SAND, very coarse and GRAVEL, small to medium. END OF BORING @ 153 FEET.				
151									
152									
153									
154									
155									
156									
157									
158									
159									
160									
161									
162									
163									
164									
165									
166									
167									
168									
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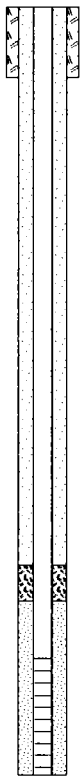
172									
173									
174									
175									
176									
177									
178									
179									
180									



TITLE: NAS Whiting Field	**LOG of WELL:** WHF-1438-03S		**BORING NO.** 1438B057
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/09/97	**COMPLTD:** 05/09/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 95-110'	**PROTECTION LEVEL:** D
TOC ELEV.: 175.54 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 122FT.	**DPTH TO ∇** 102 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SW		
2									
3									
4									
5									
6									
7									
8									
9									
10					Silty clayey fine SAND with concretions 1/4-inch to 3/4-inch, ocher, mottled, orange.		SM		
11				0					
12									
13									
14									
15									
16									
17									
18									
19									
20					Clayey fine to very fine SAND, trace heavy minerals, light gray and orange color layers 1/4-inch to 3-inches wide.		SP		
21			4/10	0					
22									
23									
24									
25									
26									
27									
28									
29									
30							SW		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-03S	**BORING NO.** 1438B057
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/09/97	**COMPLTD:** 05/09/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 95-110'	**PROTECTION LEVEL:** D
TOC ELEV.: 175.54 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 122FT.	**DPTH TO ▽** 102 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			5/10	0	Clayey, silty, very poorly sorted, fine to coarse SAND with layers of silty clay, light gray, orange.		SW		
32									
33									
34									
35									
36									
37									
38									
39									
40					Silty, fine to medium SAND with heavy minerals (trace) in 1/4-inch layers, light gray to orange.		SP		
41			2/10	0					
42									
43									
44									
45									
46									
47									
48									
49									
50					As above.				
51			2/10	0					
52									
53									
54									
55									
56									
57									
58									
59									
60							SC		

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-03S	**BORING NO.** 1438B057
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/09/97	**COMPLTD:** 05/09/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 95-110'	**PROTECTION LEVEL:** D
TOC ELEV.: 175.54 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 122FT.	**DPTH TO ▽** 102 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			5/10	0	Fining upwards from very poorly sorted (20%) clay in fine to coarse SAND with pebble size gravel grading upwards to clayey, silty, medium to coarse sand, light gray to orange.		SC		
62									
63									
64									
65									
66									
67									
68									
69									
70			1/10	0	Fine SAND, light yellow.				
71									
72									
73									
74									
75									
76									
77									
78									
79									
80			4/10	0	Silty, clayey, fine to medium SAND, 1/2-inch clay layer divides light gray to white 80 feet below land surface from orange to brick red 81-82 feet below land surface.				
81									
82									
83									
84									
85									
86									
87									
88									
89									
90									

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-03S	**BORING NO.** 1438B057
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/09/97	**COMPLTD:** 05/09/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 95-110'	**PROTECTION LEVEL:** D
TOC ELEV.: 175.54 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 122FT.	**DPTH TO ∇** 102 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
91			1/10	0	Clayey silty fine SAND, pink with pink color layers trace heavy minerals.		SC		
92									
93									
94									
95									
96									
97									
98									
99									
100					Silty fine SAND, tan, wet.				
101			1/10	0					∇
102									
103									
104									
105									
106									
107									
108									
109									
110					110-110.5 Silty, sandy CLAY, light gray to ocher. 110.5-111 CH CLAY plastic light gray. 111-111.3 Clayey very fine SAND with mica light gray/ocher/red. 111.3-112 CH CLAY plastic with fine sand and silt layers, light gray, wet.		CL		
111			9/10	0			CH		
							SC		
112							CH		
							SC		
113									
114									
115									
116									
117									
118									
119									
120									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-03S	**BORING NO.** 1438B057
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.04
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/09/97	**COMPLTD:** 05/09/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 95-110'	**PROTECTION LEVEL:** D
TOC ELEV.: 175.54 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 122FT.	**DPTH TO ▽** 102 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 4				
121				0	Silty fine SAND, trace heavy minerals, light gray, yellow.		SC		
122					END OF BORING @ 122 FEET.				
123									
124									
125									
126									
127									
128									
129									
130									
131									
132									
133									
134									
135									
136									
137									
138									
139									
140									
141									
142									
143									
144									
145									
146									
147									
148									
149									
150									

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-04S	**BORING NO.** 1438B055
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/07/97	**COMPLTD:** 05/07/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 100-115'	**PROTECTION LEVEL:** D
TOC ELEV.: 174.17 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 117FT.	**DPTH TO ▽** 105 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SM		
2									
3									
4									
5									
6									
7									
8									
9									
10					10-10.5 Silty, clayey fine to medium SAND, orange, medium ocher. 10.5-12.0 Silty (10-20%) fine sandy CLAY hard moist, with minor sand-rich layers light gray to ocher mottled with orange.				
11			8/10	0			CL		
12							SM		
13									
14									
15									
16									
17									
18									
19									
20					Clayey silty fine SAND, light ocher with light gray and orange mottles.				
21			9/10	0					
22									
23									
24									
25									
26									
27									
28									
29									
30							SP		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL: WHF-1438-04S	BORING NO. 1438B055
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.15
CONTRACTOR: ABB Environmental Services		DATE STARTED: 05/07/97	COMPLTD: 05/07/97
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 100-115'	PROTECTION LEVEL: D
TOC ELEV.: 174.17 FT.	MONITOR INST.: FID	TOT DPTH: 117FT.	DPTH TO ▽ 105 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: 05/15/97		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
31			4/10	0	Silty very fine SAND with 10% heavy minerals two-1/8-inch mineral layers, light gray to white.		SP		
32									
33									
34									
35									
36									
37									
38									
39									
40					Clayey, silty, poorly sorted fine SAND with 20% random coarse SAND grains, mica, ocher to orange.		SW		
41			5/10	0					
42									
43									
44									
45									
46									
47									
48									
49									
50					Fine SAND with 10% heavy minerals, light gray to white.		SP		
51			4/10	0					
52									
53									
54									
55									
56									
57									
58									
59									
60									

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-04S	**BORING NO.** 1438B055
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/07/97	**COMPLTD:** 05/07/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 100-115'	**PROTECTION LEVEL:** D
TOC ELEV.: 174.17 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 117FT.	**DPTH TO ▽** 105 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
61			4/10	0	Clayey silty fine SAND (feldspar), light pink.		SP		
62									
63									
64									
65									
66									
67									
68									
69									
70					70-70.5 Clayey silty fine SAND with pebbles and clay clast, light pink.		SM		
71			3/10	0	70.5-72 Silty, very fine SAND with heavy minerals, light gray to white.				
72									
73									
74									
75									
76									
77									
78									
79									
80					Poorly sorted fine to coarse SAND, some layering, trace heavy minerals, light gray, predominantly ocher.		SW		
81			4/10	0					
82									
83									
84									
85									
86									
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-04S	**BORING NO.** 1438B055
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 05/07/97	**COMPLTD:** 05/07/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 100-115'	**PROTECTION LEVEL:** D
TOC ELEV.: 174.17 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 117FT.	**DPTH TO ∇** 105 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 05/15/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
91			7.5/10	0	90-91 Fining upwards, very coarse SAND to medium sand. 91-92 Very fine to fine SAND, trace heavy minerals, light ocher with light pink color layers.				
92									
93									
94									
95									
96									
97									
98									
99									
100					100-100.9 Fining upwards, coarse to medium SAND, poorly sorted, light pink to ocher. 100.9-102 Silty, very fine to fine SAND, tan/orange to light ocher.				
101			7/10	0					
102									
103									
104									
105					105-105.5 Poorly sorted, clayey, silty, fine to coarse SAND, orange, WET, mild odor. 105.5-107 Poorly sorted clayey, silty, medium to very coarse SAND, ocher to light gray.				∇
106			6/10	0					
107									
108									
109									
110									
111									
112									
113									
114									
115					As above.				
116				0					
117					END OF BORING @ 117 FEET.				
118									
119									
120									

TITLE: NAS Whiting Field		**LOG of WELL:** WHF-1438-05S	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 2532.15
CONTRACTOR: ABB Environmental Services		**DATE STARTED:** 09/26/97	**COMPLTD:** 09/26/97
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 102-117'	**PROTECTION LEVEL:** D
TOC ELEV.: 176.66 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 117FT.	**DPTH TO ▽** 107 FT.
LOGGED BY: L. W. Smith	**WELL DEVELOPMENT DATE:** 10/14/97		**SITE:** 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1–9							CL		
10–12		22/24	9,18,23,21	0	10-12' SANDY CLAY: light red, dark red light gray, orange, mottled, low to medium plastic.				
13–19									
20–22		14/24	8,9,14,16	0	20-22' Fine SAND: Light gray to white, light red, poorly graded, trace dark minerals, light gray to white, light red.		SP		
23–29									
30–32		15/24	8,9,14,17	0	30-32' SAND: as above.				
33–39									
40–42		18/24	6,10,10,12	0	40-42' SAND: as above. SAND: Light gray and orange, mostly fine to medium some coarse sand and trace small gravel, well graded.				
43–49									
50–52		12/24	4,6,16,18	0	SAND: Light gray to white, fine sand with trace dark minerals, poorly graded.				
53–60									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NAS Whiting Field		LOG of WELL: WHF-1438-05S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.15
CONTRACTOR: ABB Environmental Services		DATE STARTED: 09/26/97	COMPLTD: 09/26/97
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 102-117'	PROTECTION LEVEL: D
TOC ELEV.: 176.66 FT.	MONITOR INST.: FID	TOT DPTH: 117FT.	DPTH TO ▽ 107 FT.
LOGGED BY: L. W. Smith	WELL DEVELOPMENT DATE: 10/14/97		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
61		12/24	3,8,9,1	0	SAND: Light red and light gray, medium SAND, little SM to large gravel well graded.		SP		
62									
63									
64									
65									
66									
67									
68									
69									
70									
71		11/24	3,7,6,9	0	As above				
72									
73									
74									
75									
76									
77									
78									
79									
80									
81		11/24	3,8,8,9	0	SAND: Light gray to white, fine sand, trace dark minerals, poorly graded.				
82									
83									
84									
85									
86									
87									
88									
89									
90					90-91' SAND: as above.				
91		10/24	6,8,10,10	0	91-92' SAND: Light gray and light red layered medium to coarse SAND, at bottom and fining upward, well graded.		SW		
92									
93									
94									
95									
96									
97									
98									
99									
100					100-102' SAND: Light gray, light red, red, and orange medium sand, some coarse sand, well graded.				
101		14/24	5,8,8,11	0					
102					101.5-102' CLAYEY SAND: Dark orange and brown, little silt and clay, well graded. Bottom 2" is CLAYEY SAND: Light gray and red, low to medium plastic. Wet at bottom of spoon.		SP		
103									
104									
105									
106									
107									▽
108									
109									
110					110-112' SAND: Light gray, fine to medium, trace dark. Minerals and mica, medium to poorly graded.				
111		11/24	3,5,6,10	0					
112									
113									
114									
115									
116									
117									
118									
119									
120									

TITLE: NAS Whiting Field		LOG of WELL: WHF-1438-06S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.15
CONTRACTOR: ABB Environmental Services		DATE STARTED: 09/25/97	COMPLTD: 09/25/97
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 101-116'	PROTECTION LEVEL: D
TOC ELEV.: 175.01 FT.	MONITOR INST.: FID	TOT DPTH: 116FT.	DPTH TO ▽ 107.1 FT.
LOGGED BY: J. Williams	WELL DEVELOPMENT DATE: 10/14/97		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1–9							CL		
10–11			8/10	0	SANDY CLAY, red, light gray and orange mottled, low plastic (CL).				
20–21			6/10	0	20-21: SILTY CLAY dark red and light gray, mottled, low plastic (CL). 21-22: Fine SAND, poorly graded, trace dark minerals, light gray to white.		SP		
30–31			6/10	0	SAND, layers of poorly graded fine to medium SAND, light gray to light red and red.				
40–41			7/10	0	Fine SAND poorly graded, trace dark minerals light gray to white.				
50–51			7/10	0	As above		CL		

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-8D	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/23/93	**COMPLTD:** 4/24/93
METHOD: Mud Rotary	**CASE SIZE:** 2"	**SCREEN INT.:** 164-174	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 177.86 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 174FT.	**DPTH TO ∇** 111.99 FT.
LOGGED BY: S. Consalvi	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1									
2									
3									
4									
5					SEE WHF-5-MW-8S FOR FULL LITHOLOGIC DATA.				
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-8D	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/23/93	**COMPLTD:** 4/24/93
METHOD: Mud Rotary	**CASE SIZE:** 2"	**SCREEN INT.:** 164-174	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 177.86 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 174FT.	**DPTH TO ▽** 111.99 FT.
LOGGED BY: S. Consalvi	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
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85									
86									
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-8D	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/23/93	**COMPLTD:** 4/24/93
METHOD: Mud Rotary	**CASE SIZE:** 2"	**SCREEN INT.:** 164-174	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 177.86 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 174FT.	**DPTH TO ∇** 111.99 FT.
LOGGED BY: S. Consalvi	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
91									
92									
93									
94									
95									
96									
97									
98									
99									
100									
101									
102									
103									
104									
105									
106									
107									
108									
109									
110									
111									∇
112									
113									
114									
115									
116									
117									
118									
119									
120									
121									
122									
123									
124									
125									
126									
127									
128									
129									
130				NA	CLAYEY SAND/SANDY CLAY (interbeded) - maroon interbeded with yellow orange and light yellow, fine grained, trace to no silt, (Top 1.4'); saturated; over sand, off white, fine grained.		SC	14,36,38,30	
131			1.6/2						
132									
133									
134									
135				NA			SP	22,26,31,29	

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		LOG of WELL: WHF-5-8D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 02532.15
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 4/23/93	COMPLTD: 4/24/93
METHOD: Mud Rotary	CASE SIZE: 2"	SCREEN INT.: 164-174	PROTECTION LEVEL: Modified D
TOC ELEV.: 177.86 FT.	MONITOR INST.: FID	TOT DPTH: 174FT.	DPTH TO ▽ 111.99 FT.
LOGGED BY: S. Consalvi	WELL DEVELOPMENT DATE:		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
136			0.9/2		SAND - v. pale red to light tan, fine grained dry, firmly packed, poorly graded, wet.		SP		
137									
138									
139									
140				NA	SAND - red to pale red, fine and very fine grains, poorly graded,wet.		SP	27,28,33,37	
141			0.8/2						
142									
143									
144									
145									
146									
147									
148									
149									
150				NA	SAND - pale orange, fine grained, dense, trace gravel, wet.		SP	37,39,42,38	
151			0.5/2						
152									
153									
154									
155				NA	Same as above (0.4'), V. pale red, no gravel over CLAYEY SAND (0.4'), V. pale grey with interbeded red layers.		SP	42,49,50,R	
156			0.8/2						
157									
158									
159									
160									
161									
162									
163									
164									
165				NA	SAND - v. pale red and pale red, fine to medium grained, overlain by medium to coarse sand, wet.		SP	18,19,22,15	
166									
167									
168									
169									
170				NA	SAND - light tan, fine grained, sub-rounded, trace red consolidated silt (pockets).		SP	38,50,40,42	
171			0.6/2						
172									
173									
174									
175				NA	Same as above, light tan to beige, trace coarse sand.		SP	41,48,>50	
176									
177									
178									
179									
180									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-9S	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/22/93	**COMPLTD:** 4/25/93
METHOD: MUD ROTARY	**CASE SIZE:** 2"	**SCREEN INT.:** 118-128 FT.	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 175.55 FT.	**MONITOR INST.:** FID/OVA	**TOT DPTH:** 129FT.	**DPTH TO ∇** 111.47 FT.
LOGGED BY: G. Kanchibhatla	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1									
2					SEE WHF-5-9D FOR LITHOLOGICAL DESCRIPTIONS.				
3									
4									
5									
6									
7									
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39									
40									
41									
42									
43									
44									
45									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-9S	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/22/93	**COMPLTD:** 4/25/93
METHOD: MUD ROTARY	**CASE SIZE:** 2"	**SCREEN INT.:** 118-128 FT.	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 175.55 FT.	**MONITOR INST.:** FID/OVA	**TOT DPTH:** 129FT.	**DPTH TO ∇** 111.47 FT.
LOGGED BY: G. Kanchibhatla	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
46									
47									
48									
49									
50									
51									
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54									
55									
56									
57									
58									
59									
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83									
84									
85									
86									
87									
88									
89									
90									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-9S	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/22/93	**COMPLTD:** 4/25/93
METHOD: MUD ROTARY	**CASE SIZE:** 2"	**SCREEN INT.:** 118-128 FT.	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 175.55 FT.	**MONITOR INST.:** FID/OVA	**TOT DPTH:** 129FT.	**DPTH TO ∇** 111.47 FT.
LOGGED BY: G. Kanchibhatla	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					Continued from PAGE 2			
118–120		■	2.0/2.0	0	SAND - yellow-orange to pale red, fine, trace silt, moderately dense, saturated.		SP	22,38,49,26
126–128		■	2.0/2.0	N/A	SAND - As above, fine, saturated, lenses of sandy clay, plastic, moist, mottled		SP	12,14,32,46

WELL DATA

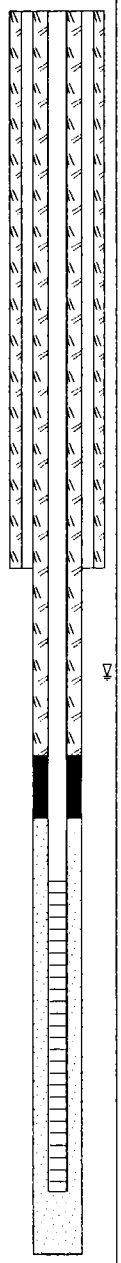

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-9D	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/21/93	**COMPLTD:** 4/22/93
METHOD: MUD ROTARY	**CASE SIZE:** 2"	**SCREEN INT.:** 170-180 FT.	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 175.97 FT.	**MONITOR INST.:** FID/OVA	**TOT DPTH:** 180FT.	**DPTH TO ▽** 111.47 FT.
LOGGED BY: G. Kanchibhatla	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1									
2									
3									
4									
5				0					
6									
7									
8									
9									
10				0					
11									
12									
13									
14									
15				3					
16									
17									
18									
19									
20				1					
21									
22									
23									
24									
25				0	SAND - pink and white, very fine to fine.		SP	2,2,6,13	
26			1/1						
27									
28									
29									
30				0	CLAYEY SAND (4") - low plasticity. SAND - white, fine, poorly graded.		SP	14,16,23,28	
31			1.7/2						
32									
33									
34									
35				0	Same as above.			11,13,17,20	
36			1.5/2						
37									
38									
39									
40				0			SP	5,19,22,27	

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-9D	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/21/93	**COMPLTD:** 4/22/93
METHOD: MUD ROTARY	**CASE SIZE:** 2"	**SCREEN INT.:** 170-180 FT.	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 175.97 FT.	**MONITOR INST.:** FID/OVA	**TOT DPTH:** 180FT.	**DPTH TO ▽** 111.47 FT.
LOGGED BY: G. Kanchibhatla	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
41			1.3/2		Same as above.		SP		
42									
43									
44									
45				0	Same as above.		SP	5,17,14,19	
46			1.3/2						
47									
48									
49									
50				0	Same as above.		SP	6,12,15,21	
51			1.5/2						
52									
53									
54									
55				0	Same as above.		SP	9,18,18,22	
56			1.3/2						
57									
58									
59									
60				0			SP	5,13,19,23	
61			1.5/2						
62									
63									
64									
65				0	Same as above.		SP	14,20,23,27	
66			1.7/2						
67									
68									
69									
70				1	Same as above (Top 10"). CLAY (5") - gray, medium plasticity. SAND (5") - white and pink, fine.		SP	12,9,20,23	
71			1.7/2						
72									
73									
74									
75				2	Same as above.		SP	19,23,27,30	
76			1.7/2						
77									
78									
79									
80				2			SP	19,24,27,35	

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-9D	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/21/93	**COMPLTD:** 4/22/93
METHOD: MUD ROTARY	**CASE SIZE:** 2"	**SCREEN INT.:** 170-180 FT.	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 175.97 FT.	**MONITOR INST.:** FID/OVA	**TOT DPTH:** 180FT.	**DPTH TO ∇** 111.47 FT.
LOGGED BY: G. Kanchibhatla	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
81			1.5/2		Same as above.		SP		
82									
83									
84									
85				0	SAND - white and pink, very fine to fine, trace silt.		SP	12,20,17,26	
86			1.7/2						
87									
88									
89									
90				0	Same as above - yellow.		SP	WR,WR,31,29	
91			1.5/2						
92									
93									
94									
95				0	Same as above - yellow to white, wet.		SP	WR,WR,29,33	
96			1.3/2						
97									
98									
99									
100				0	Same as above.		SP	17,19,27,28	
101			1.8/2						
102									
103									
104									
105				0	CLAY - brown, stiff to medium stiff, wet.		CL	2,4,6,8	
106			2/2						
107				0				4,6,8,9	
108			2/2						
109									
110					CLAY - dark gray, stiff, plastic, moist.		CH		
111			2/2						∇
112				0	Same as above (1'). CLAY - light orange with burgandy and light tan mottling, stiff, plastic, moist.			Pushed	
113			2/2						
114									
115				0	Same as above, trace silt, less stiff.		CH	4,6,8,10	
116			1.2/2						
117				0	Same as above, some silt, stiff, trace gravel and consolidated silt (color is same as clay).			9,15,14,16	
118			2/2						
119									
120				0			SP	14,19,24,16	

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		LOG of WELL: WHF-5-9D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 02532.15
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 4/21/93	COMPLTD: 4/22/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 170-180 FT.	PROTECTION LEVEL: Modified D
TOC ELEV.: 175.97 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 180FT.	DPTH TO ▽ 111.47 FT.
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 3				
121			0.7/2		SAND - off-white to pink, fine, poorly graded, light brown layering, trace silt, saturated.		SP		
122									
123									
124									
125									
126									
127									
128									
129									
130				0	Same as above, with 2 " thich clay layer (appx. 130' deep), same clay as 117'.		SP	21,28,26,31	
131			1/2						
132									
133									
134									
135									
136									
137									
138									
139									
140				0	SAND - off-white to light brown, fine to medium grained, trace to no silt, angular.		SP	18,26,29,29	
141			0.8/2						
142									
143									
144									
145									
146									
147									
148									
149									
150				0	Same as above, bottom 2" light orange.		SP	37,39,43,52	
151			1/2						
152									
153									
154									
155									
156									
157									
158									
159									
160				0			SP	37,33,42,49	

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-9D	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532.15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 4/21/93	**COMPLTD:** 4/22/93
METHOD: MUD ROTARY	**CASE SIZE:** 2"	**SCREEN INT.:** 170-180 FT.	**PROTECTION LEVEL:** Modified D
TOC ELEV.: 175.97 FT.	**MONITOR INST.:** FID/OVA	**TOT DPTH:** 180FT.	**DPTH TO ∇** 111.47 FT.
LOGGED BY: G. Kanchibhatla	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 4				
161			1.2/2		Same as above (10"), light pink to off-white, overlaid by clay (4") light gray to off-white, trace orange mottles, some silt in small lenses, stiff, plastic.		SP		
162									
163									
164									
165									
166									
167									
168									
169									
170				0	SAND - light tan to light brown, fine to medium, sub-rounded to sub-angular, some coarse sand (bottom 4"), white, sub-rounded.		SP	24,26,23,27	
171			1.4/2						
172									
173									
174									
175				0	SAND - light tan to light brown, fine grained, trace fines, dense, some coarse sand, white, red, sub-angular.		SP	36,51,-,-	
176			1.4/2						
177									
178									
179									
180							SP		
181									
182									
183									
184									
185									
186									
187									
188									
189									
190									
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192									
193									
194									
195									
196									
197									
198									
199									
200									

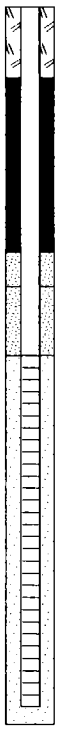

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-33-5	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532-15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 5/21/93	**COMPLTD:** 5/21/93
METHOD: HOLLOW STEM AUGER	**CASE SIZE:** 2"	**SCREEN INT.:** 113-128 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 178.39 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 126FT.	**DPTH TO ▽** 114.59 FT.
LOGGED BY: G. Kanchibhatla	**WELL DEVELOPMENT DATE:**		**SITE:** 33

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
10–11		■	2.0/2.0	0	SILTY SAND - reddish brown, fine, poorly graded, slightly moist.		SM	3,4,5,4	
20–21		■	2.0/2.0	0	Same as above.		SM	3,3,5,4	
30–31		■	2.0/2.0	0	SILTY SAND (10") - Same as above. SAND (14") - white, very fine to fine, 4" lense of silty sand, beige to light orange.		SM SP	3,8,9,22	
40–41		■	1.5/2.0	0	SAND - white, very fine to fine, poorly graded.		SP	7,13,17,16	
50–51		■	1.5/2.0	0	SAND - white to pale pink, fine, poorly graded.		SP	11,18,6,20	
60–61		■	1.5/2.0	0	SAND - same as above.		SP CH	5,9,13,15	

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-33-5	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532-15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 5/21/93	**COMPLTD:** 5/21/93
METHOD: HOLLOW STEM AUGER	**CASE SIZE:** 2"	**SCREEN INT.:** 113-128 FT.	**PROTECTION LEVEL:** D
TOC ELEV.: 178.39 FT.	**MONITOR INST.:** FID	**TOT DPTH:** 126FT.	**DPTH TO ∇** 114.59 FT.
LOGGED BY: G. Kanchibhatla	**WELL DEVELOPMENT DATE:**		**SITE:** 33

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN
					Continued from PAGE 1			
66–69							CH	
70				0	CLAY (8") - fat. SAND - light gray to white, very fine to fine, some silt, clay lenses, gray to light gray, fat, 2 inches thick.			5,16,20,20
71–72		■	1.5/2.0				SP	
73–79								
80				0	CLAY (8") - fat, soft, plastic, damp. SAND - light gray to white, fine, dry.		CH	5,21,38,35
81		■	1.5/2.0					
82							SP	
83–84								
85–89					SAND - light gray to pale purple, fine, dry.			
90				0			SP	10,24,27
91		■	1.5/2.0					
92–99								
100				0	Same as above.		SP	11,23,24,34
101		■	1.75/2.0					
102–109								
110				0	CLAY - gray, plastic, moist.		SP	13,12,15,16
111		■	1.0/2.0					
112					SAND - white to purple, fine to medium grained, slightly moist.			
113–114					SILTY SAND - white, fine to medium grained, moist to wet.			
115				0	CLAY - grey, plastic, moist.		CH	18,22,28,25
116		■	1.75/2.0					
117					SAND - white, fine, saturated, loose.			
118–119								
120				0	Same as above.		SP	0,0,24,30
121		■	1.5/2.0					
122–124								
125							SP	
126		■	1.0/2.0					
127–130								

WELL DATA

 ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX C

APPENDIX C

SUMMARY OF ORGANIC VAPOR ANALYZER RESULTS

Table C-1
Summary of Soil Sample Headspace Organic Vapor Analyzer Results, April 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Sample Depth (feet below land surface)	Soil Boring Location Designation									
	07B026	07B027	07B028	07B029	07B030	07B031	07B032	07B033	07B034	07B035
0 to 2	280	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 to 4	>5,000	NS	NS	NS	NS	0	0	NS	NS	NS
4 to 6	>5,000	NS	NS	NS	NS	0	98	>5,000	>5,000	0
6 to 8	>5,000	NS	NS	NS	NS	0	NS	NS	NS	NS
8 to 10	>5,000	NS	NS	NS	NS	NS	NS	NS	NS	NS
10 to 12	>5,000	2,475	0	NS	>5,000	0	100	NS	>5,000	0
12 to 14	>5,000	NS	NS	NS	NS	NS	NS	>5,000	NS	NS
14 to 16	>5,000	NS	NS	5	NS	4	45	>5,000	>5,000	0
16 to 18	>5,000	NS	NS	NS	NS	NS	NS	NS	NS	NS
18 to 20	>5,000	NS	NS	NS	NS	NS	NS	NS	NS	NS
20 to 22	>5,000	195	0	38	>5,000	0	101	>5,000	>5,000	0
25 to 27	>5,000	NS	NS	NS	NS	2	38	1,500	>5,000	0
30 to 32	>5,000	0	0	27	40	4	6	20	>5,000	0
35 to 37	>5,000	0	0	12	12	0	0	240	600	NS
40 to 42	>5,000	1	0	35	0	5	5	500	160	0
45 to 47	600	2	0	5	NM	5	14	80	NS	NS
50 to 52	0	0	0	17	0	0	3	43	40	NS
55 to 57	0	0	0	0	10	NS	15	24	NS	NS
60 to 62	2	0	0	26	0	10	42	12	170 (wet)	NS
65 to 67	3	0	2	13	NM	NS	NS	NS	NS	NS
70 to 72	0	0	2	32	0	0	7	10	NS	NS
75 to 77	0	0	NS	0	2	NS	NS	NS	NS	NS
80 to 82	0	0	5	0	0	0	0	NS	NS	NS
85 to 87	0	0	3	15	500	NS	NS	NS	NS	NS

See notes at end of table.

Table C-1 (Continued)
Summary of Soil Sample Headspace Organic Vapor Analyzer Results, April 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Sample Depth (feet below land surface)	Soil Boring Location Designation									
	07B026	07B027	07B028	07B029	07B030	07B031	07B032	07B033	07B034	07B035
90 to 92	0	0	2	15	0	2	6	NS	NS	NS
95 to 97	13	0	3	0	0	NS	NS	NS	NS	NS
100 to 102	0	NM (wet)	<5	12	0	21 (wet)	3	NS	NS	NS
105 to 107	0 (wet)	NM (wet)	<5	0 (wet)	121 (wet)	43 (wet)	46 (wet)	NS	NS	NS
110 to 112	NS	NS	NS	NS	170 (wet)	NS	NS	NS	NS	NS
115 to 117	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
120 to 122	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

See notes at end of table.

Table C-1 (Continued)
Summary of Soil Sample Headspace Organic Vapor Analyzer Results, April 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Sample Depth (feet below land surface)	Soil Boring Location Designation										
	07B036	07B037	07B038	07B039	07B040	07B041	07B042	07B043	07B044	07B045	07B046
0 to 2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 to 4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4 to 6	0	0	>5,000	0	0	0	>5,000	NM	0	>5,000	0
6 to 8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8 to 10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10 to 12	15	0	>5,000	0	0	0	>5,000	NM	0	1,800	0
12 to 14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14 to 16	14	0	>5,000	0	0	0	2100	0	0	200	0
16 to 18	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
18 to 20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20 to 22	25	0	>5,000	0	0	0	0	0	0	280	24
25 to 27	30	0	22	0	NM	0	0	NM	0	45	11
30 to 32	10	0	90	0	NM	0	0	NM	NM	0	3
35 to 37	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
40 to 42	250	0	15	0	NM	0	NS	NS	NS	NS	NS
45 to 47	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
50 to 52	70	0	NS	NS	NS	0	NS	NS	NS	NS	70
55 to 57	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

See notes at end of table.

Table C-1 (Continued)
Summary of Soil Sample Headspace Organic Vapor Analyzer Results, April 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Sample Depth (feet below land surface)	Soil Boring Location Designation										
	07B036	07B037	07B038	07B039	07B040	07B041	07B042	07B043	07B044	07B045	07B046
60 to 62	49	NS	NS	NS	NS	NS	NS	NS	NS	NS	49
65 to 67	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
70 to 72	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
75 to 77	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
80 to 82	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
85 to 87	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
90 to 92	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
95 to 97	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
100 to 102	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
105 to 107	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
110 to 112	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
115 to 117	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
120 to 122	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

See notes at end of table.

Table C-1 (Continued)
Summary of Soil Sample Headspace Organic Vapor Analyzer Results, April 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Sample Depth (feet below land surface)	Soil Boring Location Designation										
	07B047	07B048	07B049	07B050	07B051	07B052	07B053	07B054	07B055	07B056	07B057
0 to 2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 to 4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4 to 6	>5,000	0	0	0	>5,000	NS	0	NS	NS	NS	NS
6 to 8	NS	NS	NS	NS	NS	NS	NS	>5,000	NS	NS	NS
8 to 10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10 to 12	>5,000	0	0	0	>5,000	0	0	NM	0	0	NM
12 to 14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14 to 16	300	0	0	0	>5,000	NS	0	NS	NS	NS	NS
16 to 18	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
18 to 20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20 to 22	>5,000	0	0	0	>5,000	0	0	>5,000	0	0	NM
25 to 27	>5,000	NS	NS	0	>5,000	NS	NS	NS	NS	NS	NS
30 to 32	>5,000	0	0	0	3600	0	0	1800	0	0	NM
35 to 37	>5,000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
40 to 42	>5,000	NS	NS	NS	36	NS	NS	1,500	0	0	NM
45 to 47	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
50 to 52	24	NS	NS	NS	NS	NS	NS	700	0	0	NM
55 to 57	460	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
60 to 62	33	NS	NS	NS	NS	NS	NS	34	0	0	NM
65 to 67	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

See notes at end of table.

Table C-1 (Continued)
Summary of Soil Sample Headspace Organic Vapor Analyzer Results, April 1997

Site Assessment Report
Site 1438-1439
Naval Air Station Whiting Field
Milton, Florida

Sample Depth (feet below land surface)	Soil Boring Location Designation										
	07B047	07B048	07B049	07B050	07B051	07B052	07B053	07B054	07B055	07B056	07B057
70 to 72	0	NS	NS	NS	NS	NS	NS	28	0	0	NM
75 to 77	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
80 to 82	NS	NS	NS	NS	NS	NS	NS	0	0	0	NM
85 to 87	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
90 to 92	NS	NS	NS	NS	NS	NS	NS	280	0	0	NM
95 to 97	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
100 to 102	NS	NS	NS	NS	NS	NS	NS	14	0	0	NM
105 to 107	NS	NS	NS	NS	NS	NS	NS	NS	0 (wet)	0	NS
110 to 112	NS	NS	NS	NS	NS	NS	NS	90 (wet)	NS	0	NM (wet)
115 to 117	NS	NS	NS	NS	NS	NS	NS	8 (wet)	0	NS	NS
120 to 122	NS	NS	NS	NS	NS	NS	NS	12 (wet)	NS	NS	NM

Notes: All concentrations are reported in parts per million.

NM = not measured.
NS = not sampled.
> = greater than.

APPENDIX D

APPENDIX D

LABORATORY ANALYTICAL DATA

DEP Form # 62-770.900(3)
Form Title: Petroleum or Petroleum Products Water Sampling Log
Effective Date: _____

Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW-3S	SAMPLE ID: U760030 1	DATE: 6/10/97
SITE NAME: TANKS 1438 & 1439	SITE LOCATION: NAS WHITING FIELD, MILTON, FL.		

PURGE DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 111.40	DEPTH TO WATER (ft): 105.74	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) x WELL CAPACITY =

= (111.40 - 105.74) x 0.16 = 0.91 gal

PURGE METHOD: Bailer	PURGING INITIATED AT: 11:07	PURGING ENDED AT: 11:42
	PURGE RATE (gpm): — 0.1	TOTAL VOLUME PURGED (gal): 2.5

WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
0.2	0.25	6.27	24.0	86	—	—	Clear	—
0.5	0.5	6.03	23.5	95	—	—	"	—
0.7	0.75	6.02	23.5	111	—	—	"	—
2.2	2.0	4.01	23.5	42	—	—	"	—
2.8	2.5	3.98	23.0	44	—	—	"	—

SAMPLING DATA

SAMPLED BY / AFFILIATION: R. Stephens / M. Cusick / ABB	SAMPLER(S) SIGNATURE(S): [signature]	
SAMPLING METHOD(S): Bailer	SAMPLING INITIATED AT: 12:10	SAMPLING ENDED AT: 12:17

FIELD DECONTAMINATION: (Y) N | FIELD-FILTERED: Y (N) | DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
3	CG	40 ml	HCl	NONE	<2	601/602 (VOLATILES)
1	AG	1 LITER	H_2SO_4		<2	TRPH (FLO PRO)
2	AG	125 ml	NONE		—	504 (EDB)
1	HDP	500 ml	HNO_3		<2	239.2 (Lead)
2	AG	1 LITER	NONE		—	610 (Semi volatiles)

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)

WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.

FLORIDA

DEP Form # 62-770.900(3)
Form Title: Petroleum or Petroleum Products Water Sampling Log
Effective Date: September 23, 1997

Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW-25	SAMPLE ID: U7600201	DATE: 6/11/97
SITE NAME: TANKS 1438 - 1439		SITE LOCATION: NAS WHITING FIELD, MILTON, FL	

PURGE DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 116.70	DEPTH TO WATER (ft): 103.58	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) x WELL CAPACITY =

= (116.7 - 103.6) x .16 = 2.1

PURGE METHOD: Bladder Pump	PURGING INITIATED AT: 07:40	PURGING ENDED AT: 08:36	
	PURGE RATE (gpm): 0.2	TOTAL VOLUME PURGED (gal): 8.0	

WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
0.25	0.5	6.26	22	195	Yellow-brn	diesel	cloudy	—
1	2.3	5.96	21	155	—	diesel	clear	—
2.5	4.5	6.10	21	200	—	diesel	clear	—
3.3	6.7	6.17	21	215	—	↓	clear	—
3.7	7.4	6.26	21	229	—	↓	clear	—
4	8.0	6.27	21	238	—	↓	clear	—

SAMPLING DATA

SAMPLED BY / AFFILIATION: R. Stephens / M. Cusick ABB		SAMPLER(S) SIGNATURE(S): [signature]	
SAMPLING METHOD(S): Bladder pump / Bailer (VOAs)		SAMPLING INITIATED AT: 08:45	SAMPLING ENDED AT: 09:04
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N)		DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
3	CG	40 ml	HCl	None	<2	601/602 VOA
1	AG	1 l	H_2SO_4	↓	<2	FL-PRO TRPH
2	AG	125 ml	—	↓	—	504 EDB
1	HDP	500 ml	HNO_3	↓	<2	239.2 Lead
2	AG	1 l	—	↓	—	610 semi VOA

REMARKS: —

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)

WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.

DEP Form # 62-770.900(3)
Form Title: Petroleum or Petroleum Products Water Sampling Log
Effective Date: _____

Petroleum or Petroleum Products
Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW-15	SAMPLE ID: 476001	DATE: 6/10/97
SITE NAME: TANKS 1438 & 1439		SITE LOCATION: NAS WHITING FIELD, MILTON, FL	

PURGE DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 112.40	DEPTH TO WATER (ft): 100.64	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) x WELL CAPACITY =

= (112.40 - 100.64) x 0.16 = 1.9

PURGE METHOD: BLADDER PUMP	PURGING INITIATED AT: 14:45	PURGING ENDED AT: 15:30
	PURGE RATE (gpm): 0.2	TOTAL VOLUME PURGED (gal): 8.0

~~TIME WELL VOLS. PURGED~~	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
1448	.2/.2	5.47	27	72	—	—	clear	—
1455	1v/2gal	5.45	23.5	35	—	—	clear	—
1505	2v/4gal	4.86	23	31	—	—	clear	—
1520	3v/6gal	4.65	23	30	—	—	clear	—
1530	4v/8gal	4.64	23	30	—	—	clear	—

SAMPLING DATA

SAMPLED BY / AFFILIATION: R. Stephens / M. Casick / ABB	SAMPLER(S) SIGNATURE(S): [signature]	
SAMPLING METHOD(S): Bladder Pump / Bailer (VOAs)	SAMPLING INITIATED AT: 1535	SAMPLING ENDED AT: 1610
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N)	DUPLICATE: (Y) N

SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
3	CG	40ML	HCl	NONE	<2	601/602 VOA
1	AG	1L	H_2SO_4	↓	<2	TRPH FL-PRO
2	AG	125ML	—		—	504 EDB
1	HDP	500ML	HNO_3		<2	239.2 Pb+
2	AG	1L	—		—	610 SEMI VOA

REMARKS: COLLECTED MS / MSD & DUPLICATE SAMPLES

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)

WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.

FLORIDA

DEP Form # 62-770.900(3)
Form Title: Petroleum or Petroleum Products Water Sampling Log
Effective Date: _____

Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW-4S	SAMPLE ID: U7600401	DATE: 6/10/97
SITE NAME: TANKS 1438 & 1439	SITE LOCATION: NAS WHITING FIELD, MILTON, FL		

PURGE DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 115.20	DEPTH TO WATER (ft): 113.95	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) x WELL CAPACITY =

= (115.20 - 113.95) x 0.16 = 0.2

PURGE METHOD: BLADDER PUMP	PURGING INITIATED AT: 12:05	PURGING ENDED AT: 12:31
	PURGE RATE (gpm): —	TOTAL VOLUME PURGED (gal): 0.4

WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
1	0.2	5.52	24	70	—	—	CLEAR	—
1	0.4	5.76	23	78	—	—	"	—
PURGED DRY @ 12:31					—	—	"	—

SAMPLING DATA

SAMPLED BY / AFFILIATION: ABB JWILKEY / RSTEPHENS	SAMPLER(S) SIGNATURE(S): [signature]	
SAMPLING METHOD(S): BAILER	SAMPLING INITIATED AT: 1500	SAMPLING ENDED AT: 1508

FIELD DECONTAMINATION: (Y) N | FIELD-FILTERED: Y (N) | DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
3	CG	40ML	HCl	None	<2	VOLATILES (601/602)
1	AG	1L	H_2SO_4		<2	TRPH (FL-PRO)
2	AG	125ML	None		—	EDB (504)
1	HDP	500ML	HNO_3		<2	Lead (239.2)
2	AG	1L	None		—	SEMIVOLATILES (610)

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)

WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.

DEP Form # 62-770.900(3)
Form Title: Petroleum or Petroleum Products Water Sampling Log
Effective Date: _____

Petroleum or Petroleum Products
Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW-55	SAMPLE ID: U7G00501	DATE: 10/15/97
SITE NAME: TANKS 1438 – 1439	SITE LOCATION: NAS WHITING FIELD, MILTON, FL		

PURGE DATA

WELL DIAMETER (in): 2	TOTAL WELL DEPTH (ft): 117	DEPTH TO WATER (ft): 107 (est)	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) x WELL CAPACITY =

= (117 - 107) x 0.16 = 1.6

PURGE METHOD: Bladder Pump	PURGING INITIATED AT: 07:30	PURGING ENDED AT: 09:58
	PURGE RATE (gpm): ~~0.25~~ 0.1	TOTAL VOLUME PURGED (gal): 15

WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
3	5	5.95	17	80	clear	None	clear	—
6	10	5.95	18	79	clear	—	clear	—
9	15	5.95	18	78	clear	—	clear	—

SAMPLING DATA

SAMPLED BY / AFFILIATION: R. Stephens / L. Smith - ABB	SAMPLER(S) SIGNATURE(S): [signature]	
SAMPLING METHOD(S): Bladder Pump / Bailer (VOAs)	SAMPLING INITIATED AT: 10:00	SAMPLING ENDED AT: 10:20
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N)	DUPLICATE: (Y) N

SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
3	CG	40 ml	HCl	None	<2	601/602 (VOA)
1	AG	1 l	H_2SO_4	↓	<2	FL-PRO TRPH
2	AG	125 ml	—	↓	—	504 EDB
1	HDP	500 ml	HNO_3	↓	<2	239.2 Pb+
2	AG	1 l	—	↓	—	610 SEMIVOA

REMARKS: COLLECTED DUPLICATE SAMPLE U7G00501D

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)

WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.

DEP Form # 62-770.900(3)
Form Title: Petroleum or Petroleum Products Water Sampling Log
Effective Date: _____

Petroleum or Petroleum Products
Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW-2D	SAMPLE ID: 47600202	DATE: 10/15/97
SITE NAME: TANKS 1438-1439	SITE LOCATION: NAS WHITING FIELD, MILTON, FL		

PURGE DATA

WELL DIAMETER (in): 2	TOTAL WELL DEPTH (ft): 153	DEPTH TO WATER (ft): 103 (est.)	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) x WELL CAPACITY =

= (153 - 103) x 0.16 = 8.0

PURGE METHOD: Bladder Pump	PURGING INITIATED AT: 07:15	PURGING ENDED AT: 10:18
	PURGE RATE (gpm): 0.27	TOTAL VOLUME PURGED (gal): 45

WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (umhos)	COLOR	ODOR	APPEARANCE	OTHER
1.9	15	5.96	19	35	clear	None	clear	—
3.8	30	5.87	18	28	clear	none	clear	—
5.6	45	5.92	19	28	clear	none	clear	—

SAMPLING DATA

SAMPLED BY / AFFILIATION: R. Stephens / L. Smith ABB	SAMPLER(S) SIGNATURE(S): [signature]	
SAMPLING METHOD(S): Bladder Pump / Bailer (VOA)	SAMPLING INITIATED AT: 10:25	SAMPLING ENDED AT: 10:32
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N)	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
3	CG	40ml	HCl	None	<2	601/602 (VOA)
1	AG	1l	H_2SO_4		<2	FL-PRO TRPH
2	AG	125ml	—		—	504 EDB
1	HDP	500ml	HNO_3		<2	239.2 Pb+
2	AG	1l	—		—	610 SOMIVOAs

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)

WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.

FLORIDA

DEP Form # 62-770.900(3)
Form Title: Petroleum or Petroleum Products Water Sampling Log
Effective Date: _____

Petroleum or Petroleum Products Water Sampling Log

FDEP FACILITY NO.:	WELL NO.: MW-65	SAMPLE ID: 4760060/	DATE: 10/14/97
SITE NAME: TANKS 1438-1439		SITE LOCATION: NAS WHITING FIELD, MILTON, FL	

PURGE DATA

WELL DIAMETER (in): 2	TOTAL WELL DEPTH (ft): 116	DEPTH TO WATER (ft): 107 (est.)	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) x WELL CAPACITY =

= (116 - 107) x 0.16 = 1.44

PURGE METHOD: Bladder Pump	PURGING INITIATED AT: 15:50	PURGING ENDED AT: 16:34
	PURGE RATE (gpm): 0.34	TOTAL VOLUME PURGED (gal): 15

WELL VOLS. PURGED	CUMUL. VOLUME PURGED (gal)	pH	TEMP. (°C)	COND. (µmhos)	COLOR	ODOR	APPEARANCE	OTHER
3.5	5	4.97	21	90	clear	none	clear	—
7.0	10	4.90	18	55	clear	none	clear	—
10.4	15	5.02	18	50	clear	none	clear	—

SAMPLING DATA

SAMPLED BY / AFFILIATION: R. Stephens - L. Smith ABB	SAMPLER(S) SIGNATURE(S): [signature]	
SAMPLING METHOD(S): Bladder Pump / Bailer (VOA)	SAMPLING INITIATED AT: 16:35	SAMPLING ENDED AT: 16:40
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N)	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATIONS			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (ml)	FINAL pH	
3	CG	40ml	HCl	None	<2	601/602 (VOA)
1	AG	1l	H_2SO_4	↓	<2	FL-PRO TRPH
2	AG	125ml	—		—	504 EDB
1	HDP	500 ml	HNO_3		<2	239.2 Pb^{++}
2	AG	1l	—		—	610 SEMI VOAS

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; HDP = HIGH DENSITY POLYETHYLENE; O = OTHER (SPECIFY)

WELL CAPACITY: 1.25" = 0.06 gal/ft; 2" = 0.16 gal/ft; 4" = 0.65 gal/ft; 6" = 1.47 gal/ft; 8" = 2.61 gal/ft; 12" = 5.88 gal/ft

NOTE: this does not constitute all the information required by Chapter 62-160, F.A.C.

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:		MD889005				MD889006				MD889007				ME933004			
Site		WHF-1438/39				WHF-1438/39				WHF-1438/39				WHF-1438/39			
Locator		U7G00101				U7G00101D				U7G00201				U7G00202			
Collect Date:		10-JUN-97				10-JUN-97				11-JUN-97				15-OCT-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Volatile Organics (601/602)	ug/l																
1,1,1-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
1,1,2,2-Tetrachloroethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
1,1,2-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
1,1-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
1,1-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
1,2-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
1,2-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
1,2-Dichloropropane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
1,3-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
1,4-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
2-Chloroethylvinyl ether		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Bromodichloromethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Bromoform		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Bromomethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Carbon tetrachloride		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Chlorobenzene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Chloroethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Chloroform		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Chloromethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Dibromochloromethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Dichlorodifluoromethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	250	U	ug/l	250	5	U	ug/l	5
Tetrachloroethene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Trichloroethene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Trichlorofluoromethane		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Vinyl chloride		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
cis-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
trans-1,2-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
trans-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1	U	ug/l	1
Benzene		1	U	ug/l	1	1	U	ug/l	1	1600		ug/l	50	1	U	ug/l	1
Ethylbenzene		1	U	ug/l	1	1	U	ug/l	1	880		ug/l	50	1	U	ug/l	1
Toluene		1	U	ug/l	1	1	U	ug/l	1	780		ug/l	50	1	U	ug/l	1
Xylenes (total)		1.6	J	ug/l	1	1.6	J	ug/l	1	3300	U	ug/l	50	-		ug/l	
Methyl tert-butyl ether		1	U	ug/l	1	1	U	ug/l	1	50	U	ug/l	50	1.3		ug/l	1
m,p-Xylene		1.6	J	ug/l	2	1.6	J	ug/l	2	2200		ug/l	100	2	U	ug/l	2
o-Xylene		1	U	ug/l	1	1	U	ug/l	1	1100		ug/l	50	1	U	ug/l	1
PAHs (Modified 610)	ug/l																
Acenaphthene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Acenaphthylene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Anthracene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Benzo (a) anthracene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Benzo (a) pyrene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Benzo (b) fluoranthene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Benzo (g,h,i) perylene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Benzo (k) fluoranthene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Chrysene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Dibenzo (a,h) anthracene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Fluoranthene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:		MD889005				MD889006				MD889007				ME933004			
Site		WHF-1438/39				WHF-1438/39				WHF-1438/39				WHF-1438/39			
Locator		U7G00101				U7G00101D				U7G00201				U7G00202			
Collect Date:		10-JUN-97				10-JUN-97				11-JUN-97				15-OCT-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluorene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Indeno (1,2,3-cd) pyrene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
1-Methylnaphthalene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	5.8		ug/l	1.9	1.9	U	ug/l	1.9
2-Methylnaphthalene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	8.4		ug/l	1.9	1.9	U	ug/l	1.9
Naphthalene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	23		ug/l	1.9	1.9	U	ug/l	1.9
Phenanthrene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
Pyrene		1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9	1.9	U	ug/l	1.9
EDB	ug/l																
Ethylene dibromide		.02	U	ug/l	.02	.02	U	ug/l	.02	.58		ug/l	.02	.02	U	ug/l	.02
lead		3	U	ug/l	3	3	U	ug/l	3	10.6		ug/l	3	3	U	ug/l	3
Total petroleum hydrocarbons		520		ug/l	100	480		ug/l	100	4200		ug/l	100	100	U	ug/l	100

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:		MD889003				MD889004				ME933002				ME933003			
Site		WHF-1438/39				WHF-1438/39				WHF-1438/39				WHF-1438/39			
Locator		U7G00301				U7G00401				U7G00501				U7G00501D			
Collect Date:		10-JUN-97				10-JUN-97				15-OCT-97				15-OCT-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Volatile Organics (601/602)	ug/l																
1,1,1-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,3-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,4-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
2-Chloroethylvinyl ether		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromodichloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1.1		ug/l	1
Bromoform		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromomethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1.2		ug/l	1
Chloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dichlorodifluoromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5
Tetrachloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichlorofluoromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Vinyl chloride		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,2-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Benzene		24		ug/l	1	3.2		ug/l	1	17		ug/l	1	18		ug/l	1
Ethylbenzene		5.8		ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)		39		ug/l	1	3.2		ug/l	1	-		ug/l		-		ug/l	
Methyl tert-butyl ether		1.2		ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
m,p-Xylene		39		ug/l	2	3.2		ug/l	2	2	U	ug/l	2	2	U	ug/l	2
o-Xylene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
PAHs (Modified 610)	ug/l																
Acenaphthene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:		MD889003				MD889004				ME933002				ME933003			
Site		WHF-1438/39				WHF-1438/39				WHF-1438/39				WHF-1438/39			
Locator		U7G00301				U7G00401				U7G00501				U7G00501D			
Collect Date:		10-JUN-97				10-JUN-97				15-OCT-97				15-OCT-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Acenaphthylene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Anthracene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Benzo (a) anthracene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Benzo (a) pyrene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Benzo (b) fluoranthene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Benzo (g,h,i) perylene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Benzo (k) fluoranthene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Chrysene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Dibenzo (a,h) anthracene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Fluoranthene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Fluorene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Indeno (1,2,3-cd) pyrene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
1-Methylnaphthalene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
2-Methylnaphthalene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Naphthalene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Phenanthrene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Pyrene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
EDB	ug/l																
Ethylene dibromide		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
lead		3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3	3	U	ug/l	3
Total petroleum hydrocarbons		280		ug/l	100	120		ug/l	100	100	U	ug/l	100	100	U	ug/l	100

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:		ME933001			
Site		WHF-1438/39			
Locator		U7G00601			
Collect Date:		14-OCT-97			
		VALUE	QUAL	UNITS	DL
Volatile Organics (601/602)	ug/l				
1,1,1-Trichloroethane		1	U	ug/l	1
1,1,2,2-Tetrachloroethane		1	U	ug/l	1
1,1,2-Trichloroethane		1	U	ug/l	1
1,1-Dichloroethane		1	U	ug/l	1
1,1-Dichloroethene		1	U	ug/l	1
1,2-Dichlorobenzene		1	U	ug/l	1
1,2-Dichloroethane		1	U	ug/l	1
1,2-Dichloropropane		1	U	ug/l	1
1,3-Dichlorobenzene		1	U	ug/l	1
1,4-Dichlorobenzene		1	U	ug/l	1
2-Chloroethylvinyl ether		1	U	ug/l	1
Bromodichloromethane		1	U	ug/l	1
Bromoform		1	U	ug/l	1
Bromomethane		1	U	ug/l	1
Carbon tetrachloride		1	U	ug/l	1
Chlorobenzene		1	U	ug/l	1
Chloroethane		1	U	ug/l	1
Chloroform		1	U	ug/l	1
Chloromethane		1	U	ug/l	1
Dibromochloromethane		1	U	ug/l	1
Dichlorodifluoromethane		1	U	ug/l	1
Methylene chloride		5	U	ug/l	5
Tetrachloroethene		1	U	ug/l	1
Trichloroethene		1	U	ug/l	1
Trichlorofluoromethane		1	U	ug/l	1
Vinyl chloride		1	U	ug/l	1
cis-1,3-Dichloropropene		1	U	ug/l	1
trans-1,2-Dichloroethene		1	U	ug/l	1
trans-1,3-Dichloropropene		1	U	ug/l	1
Benzene		1	U	ug/l	1
Ethylbenzene		1	U	ug/l	1
Toluene		1	U	ug/l	1
Xylenes (total)		-		ug/l	
Methyl tert-butyl ether		1	U	ug/l	1
m,p-Xylene		2	U	ug/l	2
o-Xylene		1	U	ug/l	1
PAHs (Modified 610)	ug/l				
Acenaphthene		2	U	ug/l	2

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:		ME933001			
Site		WHF-1438/39			
Locator		U7G00601			
Collect Date:		14-OCT-97			
		VALUE	QUAL	UNITS	DL
Acenaphthylene		2	U	ug/l	2
Anthracene		2	U	ug/l	2
Benzo (a) anthracene		2	U	ug/l	2
Benzo (a) pyrene		2	U	ug/l	2
Benzo (b) fluoranthene		2	U	ug/l	2
Benzo (g,h,i) perylene		2	U	ug/l	2
Benzo (k) fluoranthene		2	U	ug/l	2
Chrysene		2	U	ug/l	2
Dibenzo (a,h) anthracene		2	U	ug/l	2
Fluoranthene		2	U	ug/l	2
Fluorene		2	U	ug/l	2
Indeno (1,2,3-cd) pyrene		2	U	ug/l	2
1-Methylnaphthalene		2	U	ug/l	2
2-Methylnaphthalene		2	U	ug/l	2
Naphthalene		2	U	ug/l	2
Phenanthrene		2	U	ug/l	2
Pyrene		2	U	ug/l	2
EDB	ug/l				
Ethylene dibromide		.02	U	ug/l	.02
lead		3	U	ug/l	3
Total petroleum hydrocarbons		100	U	ug/l	100

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:		MD398002			
Site		WHF-1438/39			
Locator		07B02701			
Collect Date:		10-APR-97			
		VALUE	QUAL	UNITS	DL
UST GC VOLATILES	ug/kg				
Bromodichloromethane		1.1	U	ug/kg	1.1
Bromoform		1.1	U	ug/kg	1.1
Bromomethane		1.1	U	ug/kg	1.1
Carbon tetrachloride		1.1	U	ug/kg	1.1
Chlorobenzene		1.1	U	ug/kg	1.1
2-Chloroethyl vinyl ether		1.1	U	ug/kg	1.1
Chloroform		1.1	U	ug/kg	1.1
Chloromethane		1.1	U	ug/kg	1.1
Dibromochloromethane		1.1	U	ug/kg	1.1
1,2-Dichlorobenzene		1.1	U	ug/kg	1.1
1,3-Dichlorobenzene		1.1	U	ug/kg	1.1
1,4-Dichlorobenzene		1.1	U	ug/kg	1.1
Dichlorodifluoromethane		1.1	U	ug/kg	1.1
1,1-Dichloroethane		1.1	U	ug/kg	1.1
1,2-Dichloroethane		1.1	U	ug/kg	1.1
1,1-Dichloroethene		1.1	U	ug/kg	1.1
trans-1,2-Dichloroethene		1.1	U	ug/kg	1.1
1,2-Dichloropropane		1.1	U	ug/kg	1.1
cis-1,3-Dichloropropene		1.1	U	ug/kg	1.1
trans-1,3-Dichloropropene		1.1	U	ug/kg	1.1
Methylene chloride		5	U	ug/kg	5
1,1,2,2-Tetrachloroethane		1.1	U	ug/kg	1.1
Tetrachloroethene		1.1	U	ug/kg	1.1
1,1,1-Trichloroethane		1.1	U	ug/kg	1.1
1,1,2-Trichloroethane		1.1	U	ug/kg	1.1
Trichloroethene		1.1	U	ug/kg	1.1
Trichlorofluoromethane		1.1	U	ug/kg	1.1
Vinyl chloride		1.1	U	ug/kg	1.1
Benzene		1.1	U	ug/kg	1.1
Ethylbenzene		1.1	U	ug/kg	1.1
Toluene		1.1	U	ug/kg	1.1
Xylenes (total)		1.1	U	ug/kg	1.1
Methyl tert-butyl ether		1.1	U	ug/kg	1.1
UST SEMIVOLATILES	ug/kg				
Acenaphthene		53	U	ug/kg	53
Acenaphthylene		53	U	ug/kg	53
Anthracene		53	U	ug/kg	53
Benzo (a) anthracene		53	U	ug/kg	53
Benzo (a) pyrene		53	U	ug/kg	53
Benzo (b) fluoranthene		53	U	ug/kg	53
Benzo (g,h,i) perylene		53	U	ug/kg	53
Benzo (k) fluoranthene		53	U	ug/kg	53
Chrysene		53	U	ug/kg	53
Dibenzo (a,h) anthracene		53	U	ug/kg	53
Fluoranthene		53	U	ug/kg	53
Fluorene		53	U	ug/kg	53
Indeno (1,2,3-cd) pyrene		53	U	ug/kg	53
1-Methylnaphthalene		53	U	ug/kg	53
2-Methylnaphthalene		53	U	ug/kg	53

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:		MD398002			
Site		WHF-1438/39			
Locator		07B02701			
Collect Date:		10-APR-97			
		VALUE	QUAL	UNITS	DL
Naphthalene		53	U	ug/kg	53
Phenanthrene		53	U	ug/kg	53
Pyrene		53	U	ug/kg	53
EDB	ug/kg				
Ethylene dibromide		.21	U	ug/kg	.21
TRPH	mg/kg				
Total petroleum hydrocarbons		3.3		mg/kg	1.7
Lead		.73		mg/kg	.63

Naval Air Station Whiting Field
Sites 1438/39 SPLP Analytical Data

Lab Sample Number:		ME832003DL				ME832003				ME832001				ME832002			
Site		WHF-1438/39				WHF-1438/39				WHF-1438/39				WHF-1438/39			
Locator		U7B02605				U7B02605				U7B03505				U7B32A05			
Collect Date:		26-SEP-97				26-SEP-97				25-SEP-97				26-SEP-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Volatile Organics (601/602)	ug/kg																
1,1,1-Trichloroethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
1,1,2,2-Tetrachloroethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
1,1,2-Trichloroethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
1,1-Dichloroethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
1,1-Dichloroethene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
1,2-Dichlorobenzene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
1,2-Dichloroethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
1,2-Dichloropropane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
1,3-Dichlorobenzene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
1,4-Dichlorobenzene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
2-Chloroethylvinyl ether		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Bromodichloromethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Bromoform		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Bromomethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Carbon tetrachloride		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Chlorobenzene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Chloroethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Chloroform		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Chloromethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Dibromochloromethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Dichlorodifluoromethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Methylene chloride		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Tetrachloroethene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Trichloroethene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Trichlorofluoromethane		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Vinyl chloride		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
cis-1,3-Dichloropropene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
trans-1,2-Dichloroethene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
trans-1,3-Dichloropropene		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Benzene		-		ug/kg		290	U	ug/kg	290	1.3	U	ug/kg	1.3	25		ug/kg	2.2
Ethylbenzene		-		ug/kg		11000		ug/kg	290	1.3	U	ug/kg	1.3	70		ug/kg	2.2
Toluene		-		ug/kg		290	U	ug/kg	290	1.3	U	ug/kg	1.3	3.9		ug/kg	2.2
Xylenes (total)		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
Methyl tert-butyl ether		-		ug/kg		290	U	ug/kg	290	1.3	U	ug/kg	1.3	2.2	U	ug/kg	2.2
m,p-Xylene		-		ug/kg		580	U	ug/kg	580	2.5	U	ug/kg	2.5	59		ug/kg	4.4
o-Xylene		-		ug/kg		290	U	ug/kg	290	4		ug/kg	1.3	8		ug/kg	2.2
PAHs (Modified 610)	ug/kg																
Acenaphthene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Acenaphthylene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Anthracene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Benzo (a) anthracene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Benzo (a) pyrene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Benzo (b) fluoranthene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Benzo (g,h,i) perylene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Benzo (k) fluoranthene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Chrysene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Dibenzo (a,h) anthracene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Fluoranthene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56

Naval Air Station Whiting Field
Sites 1438/39 SPLP Analytical Data

Lab Sample Number:		ME832003DL				ME832003				ME832001				ME832002			
Site		WHF-1438/39				WHF-1438/39				WHF-1438/39				WHF-1438/39			
Locator		U7B02605				U7B02605				U7B03505				U7B32A05			
Collect Date:		26-SEP-97				26-SEP-97				25-SEP-97				26-SEP-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluorene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Indeno (1,2,3-cd) pyrene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
1-Methylnaphthalene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
2-Methylnaphthalene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Naphthalene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Phenanthrene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
Pyrene		1100	U	ug/kg	1100	-		ug/kg		62	U	ug/kg	62	56	U	ug/kg	56
EDB	ug/kg																
Ethylene dibromide		-		ug/kg		-		ug/kg		-		ug/kg		-		ug/kg	
lead		-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	
Total petroleum hydrocarbons		-		mg/kg		-		mg/kg		-		mg/kg		-		mg/kg	

Naval Air Station Whiting Field
Sites 1438/39 SPLP Analytical Data

Lab Sample Number:		ME832007			ME832005			ME832006		
Site		WHF-1438/39			WHF-1438/39			WHF-1438/39		
Locator		U7B02605L			U7B03505L			U7B32A05L		
Collect Date:		26-SEP-97			25-SEP-97			26-SEP-97		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
Volatile Organics (601/602)	ug/l									
1,1,1-Trichloroethane		-	ug/l		-	ug/l		-	ug/l	
1,1,2,2-Tetrachloroethane		-	ug/l		-	ug/l		-	ug/l	
1,1,2-Trichloroethane		-	ug/l		-	ug/l		-	ug/l	
1,1-Dichloroethane		-	ug/l		-	ug/l		-	ug/l	
1,1-Dichloroethene		-	ug/l		-	ug/l		-	ug/l	
1,2-Dichlorobenzene		-	ug/l		-	ug/l		-	ug/l	
1,2-Dichloroethane		-	ug/l		-	ug/l		-	ug/l	
1,2-Dichloropropane		-	ug/l		-	ug/l		-	ug/l	
1,3-Dichlorobenzene		-	ug/l		-	ug/l		-	ug/l	
1,4-Dichlorobenzene		-	ug/l		-	ug/l		-	ug/l	
2-Chloroethylvinyl ether		-	ug/l		-	ug/l		-	ug/l	
Bromodichloromethane		-	ug/l		-	ug/l		-	ug/l	
Bromoform		-	ug/l		-	ug/l		-	ug/l	
Bromomethane		-	ug/l		-	ug/l		-	ug/l	
Carbon tetrachloride		-	ug/l		-	ug/l		-	ug/l	
Chlorobenzene		-	ug/l		-	ug/l		-	ug/l	
Chloroethane		-	ug/l		-	ug/l		-	ug/l	
Chloroform		-	ug/l		-	ug/l		-	ug/l	
Chloromethane		-	ug/l		-	ug/l		-	ug/l	
Dibromochloromethane		-	ug/l		-	ug/l		-	ug/l	
Dichlorodifluoromethane		-	ug/l		-	ug/l		-	ug/l	
Methylene chloride		-	ug/l		-	ug/l		-	ug/l	
Tetrachloroethene		-	ug/l		-	ug/l		-	ug/l	
Trichloroethene		-	ug/l		-	ug/l		-	ug/l	
Trichlorofluoromethane		-	ug/l		-	ug/l		-	ug/l	
Vinyl chloride		-	ug/l		-	ug/l		-	ug/l	
cis-1,3-Dichloropropene		-	ug/l		-	ug/l		-	ug/l	
trans-1,2-Dichloroethene		-	ug/l		-	ug/l		-	ug/l	
trans-1,3-Dichloropropene		-	ug/l		-	ug/l		-	ug/l	
Benzene		5 U	ug/l	5	1 U	ug/l	1	1.9	ug/l	1
Ethylbenzene		140	ug/l	5	5.1	ug/l	1	2.6	ug/l	1
Toluene		5 U	ug/l	5	18	ug/l	1	1 U	ug/l	1
Xylenes (total)		-	ug/l		-	ug/l		-	ug/l	
Methyl tert-butyl ether		5 U	ug/l	5	1 U	ug/l	1	1 U	ug/l	1
m,p-Xylene		12	ug/l	10	20	ug/l	2	3	ug/l	2
o-Xylene		5 U	ug/l	5	8	ug/l	1	1 U	ug/l	1
PAHs (Modified 610)	ug/l									
Acenaphthene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Acenaphthylene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Anthracene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Benzo (a) anthracene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Benzo (a) pyrene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Benzo (b) fluoranthene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Benzo (g,h,i) perylene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Benzo (k) fluoranthene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Chrysene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Dibenzo (a,h) anthracene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Fluoranthene		2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2

Naval Air Station Whiting Field
Sites 1438/39 SPLP Analytical Data

Lab Sample Number:		ME832007				ME832005				ME832006			
Site		WHF-1438/39				WHF-1438/39				WHF-1438/39			
Locator		U7B02605L				U7B03505L				U7B32A05L			
Collect Date:		26-SEP-97				25-SEP-97				26-SEP-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluorene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Indeno (1,2,3-cd) pyrene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
1-Methylnaphthalene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
2-Methylnaphthalene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Naphthalene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Phenanthrene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
Pyrene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
EDB	ug/l												
Ethylene dibromide		-		ug/l		-		ug/l		-		ug/l	
lead		-		ug/l		-		ug/l		-		ug/l	
Total petroleum hydrocarbons		-		mg/l		-		mg/l		-		mg/l	

Naval Air Station Whiting Field, Milton, Florida
UST Site 1438/39 Report Analytical Data

Lab Sample Number:		MB958003				ME053002				MB928002				ME042003			
Site		WHITING				WHITING				WHITING				WHITING			
Locator		33G00501				33G00501				05G00801				05G00801			
Collect Date:		26-SEP-96				24-JUN-97				23-SEP-96				24-JUN-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l																
Chloromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromomethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethene		10	U	ug/l	10	2	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethene (total)		10	U	ug/l	10	3	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroform		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethane		10	U	ug/l	10	1	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Butanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon tetrachloride		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromodichloromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloropropane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
cis-1,3-Dichloropropene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichloroethene		10	U	ug/l	10	150		ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibromochloromethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2-Trichloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzene		10	U	ug/l	10	10	U	ug/l	10	11		ug/l	10	2	J	ug/l	10
trans-1,3-Dichloropropene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromoform		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methyl-2-pentanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene		10	U	ug/l	10	10	U	ug/l	10	2	J	ug/l	10	3	J	ug/l	10
Toluene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2,2-Tetrachloroethane		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chlorobenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethylbenzene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Styrene		10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Xylenes (total)		10	U	ug/l	10	10	U	ug/l	10	3	J	ug/l	10	10	U	ug/l	10
CLP SEMIVOLATILES 90-SOW	ug/l																
Phenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
bis(2-Chloroethyl) ether		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Chlorophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
1,3-Dichlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
1,4-Dichlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
1,2-Dichlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Methylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,2-oxybis(1-Chloropropane)		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Methylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
N-Nitroso-di-n-propylamine		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachloroethane		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Nitrobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Isophorone		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Nitrophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dimethylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
UST Site 1438/39 Report Analytical Data

Lab Sample Number:		MB958003				ME053002				MB928002				ME042003		
Site		WHITING				WHITING				WHITING				WHITING		
Locator		33G00501				33G00501				05G00801				05G00801		
Collect Date:		26-SEP-96				24-JUN-97				23-SEP-96				24-JUN-97		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
bis(2-Chloroethoxy) methane		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dichlorophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
1,2,4-Trichlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Naphthalene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Chloroaniline		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachlorobutadiene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Chloro-3-methylphenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Methylnaphthalene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachlorocyclopentadiene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4,6-Trichlorophenol		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4,5-Trichlorophenol		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
2-Chloronaphthalene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Nitroaniline		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Dimethylphthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Acenaphthylene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,6-Dinitrotoluene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
3-Nitroaniline		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Acenaphthene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dinitrophenol		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
4-Nitrophenol		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Dibenzofuran		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dinitrotoluene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Diethylphthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Chlorophenyl-phenylether		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Fluorene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Nitroaniline		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
4,6-Dinitro-2-methylphenol		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
N-Nitrosodiphenylamine		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Bromophenyl-phenylether		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachlorobenzene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Pentachlorophenol		25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Phenanthrene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Anthracene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Carbazole		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Di-n-butylphthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Fluoranthene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Pyrene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Butylbenzylphthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
3,3-Dichlorobenzidine		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (a) anthracene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Chrysene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
bis(2-Ethylhexyl) phthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Di-n-octylphthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (b) fluoranthene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (k) fluoranthene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (a) pyrene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Indeno (1,2,3-cd) pyrene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Dibenzo (a,h) anthracene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (g,h,i) perylene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
CLP PESTICIDES/PCBS 90-SOW	ug/l																
alpha-BHC		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
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Lab Sample Number:		MB958003				ME053002				MB928002				ME042003			
Site		WHITING				WHITING				WHITING				WHITING			
Locator		33G00501				33G00501				05G00801				05G00801			
Collect Date:		26-SEP-96				24-JUN-97				23-SEP-96				24-JUN-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
beta-BHC		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
delta-BHC		.05	UJ	ug/l	.05	-		ug/l		.05	UJ	ug/l	.05	-		ug/l	
gamma-BHC (Lindane)		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Heptachlor		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Aldrin		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Heptachlor epoxide		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Endosulfan I		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Dieldrin		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
4,4-DDE		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Endrin		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Endosulfan II		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
4,4-DDD		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Endosulfan sulfate		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
4,4-DDT		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Methoxychlor		.5	U	ug/l	.5	-		ug/l		.5	U	ug/l	.5	-		ug/l	
Endrin ketone		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Endrin aldehyde		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
alpha-Chlordane		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
gamma-Chlordane		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Toxaphene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	-		ug/l	
Aroclor-1016		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1221		2	U	ug/l	2	-		ug/l		2	U	ug/l	2	-		ug/l	
Aroclor-1232		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1242		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1248		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1254		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1260		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
CLP METALS AND CYANIDE	ug/l																
Aluminum		200	U	ug/l	200	-		ug/l		179	J	ug/l	200	-		ug/l	
Antimony		60	U	ug/l	60	-		ug/l		60	U	ug/l	60	-		ug/l	
Arsenic		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Barium		70.4	J	ug/l	200	-		ug/l		39.4	J	ug/l	200	-		ug/l	
Beryllium		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	-		ug/l	
Cadmium		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	-		ug/l	
Calcium		1460	J	ug/l	5000	-		ug/l		1140	J	ug/l	5000	-		ug/l	
Chromium		10	U	ug/l	10	-		ug/l		1.4	J	ug/l	10	-		ug/l	
Cobalt		.57	J	ug/l	50	-		ug/l		.51	J	ug/l	50	-		ug/l	
Copper		25	U	ug/l	25	-		ug/l		5.5	J	ug/l	25	-		ug/l	
Iron		100	UJ	ug/l	100	-		ug/l		258	J	ug/l	100	-		ug/l	
Lead		3	UJ	ug/l	3	-		ug/l		3.1	J	ug/l	3	-		ug/l	
Magnesium		1920	J	ug/l	5000	-		ug/l		1230	J	ug/l	5000	-		ug/l	
Manganese		2.1	J	ug/l	15	-		ug/l		19.9	J	ug/l	15	-		ug/l	
Mercury		.2	U	ug/l	.2	-		ug/l		.2	U	ug/l	.2	-		ug/l	
Nickel		40	U	ug/l	40	-		ug/l		1.3	J	ug/l	40	-		ug/l	
Potassium		5000	UJ	ug/l	5000	-		ug/l		5000	UJ	ug/l	5000	-		ug/l	
Selenium		5	U	ug/l	5	-		ug/l		4	J	ug/l	5	-		ug/l	
Silver		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Sodium		2210	J	ug/l	5000	-		ug/l		5360	J	ug/l	5000	-		ug/l	
Thallium		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Vanadium		50	U	ug/l	50	-		ug/l		50	U	ug/l	50	-		ug/l	
Zinc		20	UJ	ug/l	20	-		ug/l		35.9	J	ug/l	20	-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
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Lab Sample Number:	MB958003				ME053002				MB928002				ME042003			
Site	WHITING				WHITING				WHITING				WHITING			
Locator	33G00501				33G00501				05G00801				05G00801			
Collect Date:	26-SEP-96				24-JUN-97				23-SEP-96				24-JUN-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Cyanide	.88	R	ug/l	10	-		ug/l		.88	R	ug/l	10	-		ug/l	

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Lab Sample Number:		MB928009			MB928003			ME042004			ME042005		
Site		WHITING			WHITING			WHITING			WHITING		
Locator		05G00801F			05G00802			05G00802			05G00802D		
Collect Date:		23-SEP-96			23-SEP-96			24-JUN-97			24-JUN-97		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l												
Chloromethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon disulfide		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene		-	ug/l		10 U	ug/l	10	4 J	ug/l	10	10 U	ug/l	10
Dibromochloromethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene		-	ug/l		10 U	ug/l	10	1 J	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene		-	ug/l		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)		-	ug/l		10 U	ug/l	10	1 J	ug/l	10	10 U	ug/l	10
CLP SEMIVOLATILES 90-SOW	ug/l												
Phenol		-	ug/l		10 U	ug/l	10	-	ug/l		-	ug/l	
bis(2-Chloroethyl) ether		-	ug/l		10 U	ug/l	10	-	ug/l		-	ug/l	
2-Chlorophenol		-	ug/l		10 U	ug/l	10	-	ug/l		-	ug/l	
1,3-Dichlorobenzene		-	ug/l		10 U	ug/l	10	-	ug/l		-	ug/l	
1,4-Dichlorobenzene		-	ug/l		10 U	ug/l	10	-	ug/l		-	ug/l	

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Lab Sample Number:	MB928009				MB928003				ME042004				ME042005			
Site	WHITING				WHITING				WHITING				WHITING			
Locator	05G00801F				05G00802				05G00802				05G00802D			
Collect Date:	23-SEP-96				23-SEP-96				24-JUN-97				24-JUN-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2-Methylphenol	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2,2-oxybis(1-Chloropropane)	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
4-Methylphenol	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
N-Nitroso-di-n-propylamine	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Hexachloroethane	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Nitrobenzene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Isophorone	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2-Nitrophenol	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2,4-Dimethylphenol	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
bis(2-Chloroethoxy) methane	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2,4-Dichlorophenol	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
1,2,4-Trichlorobenzene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Naphthalene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
4-Chloroaniline	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Hexachlorobutadiene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
4-Chloro-3-methylphenol	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2-Methylnaphthalene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Hexachlorocyclopentadiene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2,4,6-Trichlorophenol	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2,4,5-Trichlorophenol	-		ug/l		25	U	ug/l	25	-		ug/l		-		ug/l	
2-Chloronaphthalene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2-Nitroaniline	-		ug/l		25	U	ug/l	25	-		ug/l		-		ug/l	
Dimethylphthalate	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Acenaphthylene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2,6-Dinitrotoluene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
3-Nitroaniline	-		ug/l		25	U	ug/l	25	-		ug/l		-		ug/l	
Acenaphthene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2,4-Dinitrophenol	-		ug/l		25	U	ug/l	25	-		ug/l		-		ug/l	
4-Nitrophenol	-		ug/l		25	U	ug/l	25	-		ug/l		-		ug/l	
Dibenzofuran	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
2,4-Dinitrotoluene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Diethylphthalate	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
4-Chlorophenyl-phenylether	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Fluorene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
4-Nitroaniline	-		ug/l		25	U	ug/l	25	-		ug/l		-		ug/l	
4,6-Dinitro-2-methylphenol	-		ug/l		25	U	ug/l	25	-		ug/l		-		ug/l	
N-Nitrosodiphenylamine	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
4-Bromophenyl-phenylether	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Hexachlorobenzene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Pentachlorophenol	-		ug/l		25	U	ug/l	25	-		ug/l		-		ug/l	
Phenanthrene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Anthracene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Carbazole	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Di-n-butylphthalate	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Fluoranthene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Pyrene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Butylbenzylphthalate	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
3,3-Dichlorobenzidine	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Benzo (a) anthracene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Chrysene	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
bis(2-Ethylhexyl) phthalate	-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
UST Site 1438/39 Report Analytical Data

Lab Sample Number:		MB928009				MB928003				ME042004				ME042005		
Site		WHITING				WHITING				WHITING				WHITING		
Locator		05G00801F				05G00802				05G00802				05G00802D		
Collect Date:		23-SEP-96				23-SEP-96				24-JUN-97				24-JUN-97		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Di-n-octylphthalate		-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Benzo (b) fluoranthene		-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Benzo (k) fluoranthene		-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Benzo (a) pyrene		-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Indeno (1,2,3-cd) pyrene		-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Dibenzo (a,h) anthracene		-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
Benzo (g,h,i) perylene		-		ug/l		10	U	ug/l	10	-		ug/l		-		ug/l	
CLP PESTICIDES/PCBS 90-SOW	ug/l																
alpha-BHC		-		ug/l		.05	U	ug/l	.05	-		ug/l		-		ug/l	
beta-BHC		-		ug/l		.05	U	ug/l	.05	-		ug/l		-		ug/l	
delta-BHC		-		ug/l		.05	UJ	ug/l	.05	-		ug/l		-		ug/l	
gamma-BHC (Lindane)		-		ug/l		.05	U	ug/l	.05	-		ug/l		-		ug/l	
Heptachlor		-		ug/l		.05	U	ug/l	.05	-		ug/l		-		ug/l	
Aldrin		-		ug/l		.05	U	ug/l	.05	-		ug/l		-		ug/l	
Heptachlor epoxide		-		ug/l		.05	U	ug/l	.05	-		ug/l		-		ug/l	
Endosulfan I		-		ug/l		.05	U	ug/l	.05	-		ug/l		-		ug/l	
Dieldrin		-		ug/l		.1	U	ug/l	.1	-		ug/l		-		ug/l	
4,4-DDE		-		ug/l		.1	U	ug/l	.1	-		ug/l		-		ug/l	
Endrin		-		ug/l		.1	U	ug/l	.1	-		ug/l		-		ug/l	
Endosulfan II		-		ug/l		.1	U	ug/l	.1	-		ug/l		-		ug/l	
4,4-DDD		-		ug/l		.1	U	ug/l	.1	-		ug/l		-		ug/l	
Endosulfan sulfate		-		ug/l		.1	U	ug/l	.1	-		ug/l		-		ug/l	
4,4-DDT		-		ug/l		.1	U	ug/l	.1	-		ug/l		-		ug/l	
Methoxychlor		-		ug/l		.5	U	ug/l	.5	-		ug/l		-		ug/l	
Endrin ketone		-		ug/l		.1	U	ug/l	.1	-		ug/l		-		ug/l	
Endrin aldehyde		-		ug/l		.1	U	ug/l	.1	-		ug/l		-		ug/l	
alpha-Chlordane		-		ug/l		.05	U	ug/l	.05	-		ug/l		-		ug/l	
gamma-Chlordane		-		ug/l		.05	U	ug/l	.05	-		ug/l		-		ug/l	
Toxaphene		-		ug/l		5	U	ug/l	5	-		ug/l		-		ug/l	
Aroclor-1016		-		ug/l		1	U	ug/l	1	-		ug/l		-		ug/l	
Aroclor-1221		-		ug/l		2	U	ug/l	2	-		ug/l		-		ug/l	
Aroclor-1232		-		ug/l		1	U	ug/l	1	-		ug/l		-		ug/l	
Aroclor-1242		-		ug/l		1	U	ug/l	1	-		ug/l		-		ug/l	
Aroclor-1248		-		ug/l		1	U	ug/l	1	-		ug/l		-		ug/l	
Aroclor-1254		-		ug/l		1	U	ug/l	1	-		ug/l		-		ug/l	
Aroclor-1260		-		ug/l		1	U	ug/l	1	-		ug/l		-		ug/l	
CLP METALS AND CYANIDE	ug/l																
Aluminum		200	U	ug/l	200	152	J	ug/l	200	-		ug/l		-		ug/l	
Antimony		4.1	J	ug/l	60	60	U	ug/l	60	-		ug/l		-		ug/l	
Arsenic		10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Barium		38.9	J	ug/l	200	18.2	J	ug/l	200	-		ug/l		-		ug/l	
Beryllium		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Cadmium		5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Calcium		936	J	ug/l	5000	2440	J	ug/l	5000	-		ug/l		-		ug/l	
Chromium		1.2	J	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Cobalt		.47	J	ug/l	50	50	U	ug/l	50	-		ug/l		-		ug/l	
Copper		2	J	ug/l	25	2.6	J	ug/l	25	-		ug/l		-		ug/l	
Iron		100	UJ	ug/l	100	119	J	ug/l	100	-		ug/l		-		ug/l	
Lead		3	UJ	ug/l	3	2.7	J	ug/l	3	-		ug/l		-		ug/l	
Magnesium		1270	J	ug/l	5000	340	J	ug/l	5000	-		ug/l		-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
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Lab Sample Number:	MB928009				MB928003				ME042004				ME042005			
Site	WHITING				WHITING				WHITING				WHITING			
Locator	05G00801F				05G00802				05G00802				05G00802D			
Collect Date:	23-SEP-96				23-SEP-96				24-JUN-97				24-JUN-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Manganese	18.4	J	ug/l	15	30.3	J	ug/l	15	-		ug/l		-		ug/l	
Mercury	.2	U	ug/l	.2	.2	U	ug/l	.2	-		ug/l		-		ug/l	
Nickel	1.2	J	ug/l	40	40	U	ug/l	40	-		ug/l		-		ug/l	
Potassium	5000	UJ	ug/l	5000	5000	UJ	ug/l	5000	-		ug/l		-		ug/l	
Selenium	5	U	ug/l	5	5	U	ug/l	5	-		ug/l		-		ug/l	
Silver	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Sodium	5670	J	ug/l	5000	2790	J	ug/l	5000	-		ug/l		-		ug/l	
Thallium	10	U	ug/l	10	10	U	ug/l	10	-		ug/l		-		ug/l	
Vanadium	50	U	ug/l	50	50	U	ug/l	50	-		ug/l		-		ug/l	
Zinc	20	UJ	ug/l	20	17.9	J	ug/l	20	-		ug/l		-		ug/l	
Cyanide	10		ug/l	10	.88	R	ug/l	10	-		ug/l		-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
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Lab Sample Number:		MB928004			ME007003			MB928005			ME007004		
Site		WHITING			WHITING			WHITING			WHITING		
Locator		05G00901			05G00901			05G00902			05G00902		
Collect Date:		24-SEP-96			18-JUN-97			24-SEP-96			19-JUN-97		
		VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l												
Chloromethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon disulfide		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene		10 U	ug/l	10	1 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)		10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
CLP SEMIVOLATILES 90-SOW	ug/l												
Phenol		10 U	ug/l	10	-	ug/l		10 U	ug/l	10	-	ug/l	
bis(2-Chloroethyl) ether		10 U	ug/l	10	-	ug/l		10 U	ug/l	10	-	ug/l	
2-Chlorophenol		10 U	ug/l	10	-	ug/l		10 U	ug/l	10	-	ug/l	
1,3-Dichlorobenzene		10 U	ug/l	10	-	ug/l		10 U	ug/l	10	-	ug/l	
1,4-Dichlorobenzene		10 U	ug/l	10	-	ug/l		10 U	ug/l	10	-	ug/l	

Naval Air Station Whiting Field, Milton, Florida
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Lab Sample Number:	MB928004				ME007003				MB928005				ME007004			
Site	WHITING				WHITING				WHITING				WHITING			
Locator	05G00901				05G00901				05G00902				05G00902			
Collect Date:	24-SEP-96				18-JUN-97				24-SEP-96				19-JUN-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Methylphenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Methylphenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
N-Nitroso-di-n-propylamine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachloroethane	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Nitrobenzene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Isophorone	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Nitrophenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dimethylphenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
bis(2-Chloroethoxy) methane	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dichlorophenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
1,2,4-Trichlorobenzene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Naphthalene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Chloroaniline	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachlorobutadiene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Chloro-3-methylphenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Methylnaphthalene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachlorocyclopentadiene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4,6-Trichlorophenol	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4,5-Trichlorophenol	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
2-Chloronaphthalene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2-Nitroaniline	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Dimethylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Acenaphthylene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,6-Dinitrotoluene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
3-Nitroaniline	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Acenaphthene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dinitrophenol	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
4-Nitrophenol	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Dibenzofuran	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
2,4-Dinitrotoluene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Diethylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Chlorophenyl-phenylether	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Fluorene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Nitroaniline	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
N-Nitrosodiphenylamine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
4-Bromophenyl-phenylether	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Hexachlorobenzene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Pentachlorophenol	25	U	ug/l	25	-		ug/l		25	U	ug/l	25	-		ug/l	
Phenanthrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Anthracene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Carbazole	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Di-n-butylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Fluoranthene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Pyrene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Butylbenzylphthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
3,3-Dichlorobenzidine	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (a) anthracene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Chrysene	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
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Lab Sample Number:		MB928004				ME007003				MB928005				ME007004			
Site		WHITING				WHITING				WHITING				WHITING			
Locator		05G00901				05G00901				05G00902				05G00902			
Collect Date:		24-SEP-96				18-JUN-97				24-SEP-96				19-JUN-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Di-n-octylphthalate		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (b) fluoranthene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (k) fluoranthene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (a) pyrene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Indeno (1,2,3-cd) pyrene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Dibenzo (a,h) anthracene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Benzo (g,h,i) perylene		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
CLP PESTICIDES/PCBS 90-SOW	ug/l																
alpha-BHC		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
beta-BHC		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
delta-BHC		.05	UJ	ug/l	.05	-		ug/l		.05	UJ	ug/l	.05	-		ug/l	
gamma-BHC (Lindane)		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Heptachlor		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Aldrin		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Heptachlor epoxide		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Endosulfan I		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Dieldrin		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
4,4-DDE		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Endrin		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Endosulfan II		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
4,4-DDD		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Endosulfan sulfate		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
4,4-DDT		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Methoxychlor		.5	U	ug/l	.5	-		ug/l		.5	U	ug/l	.5	-		ug/l	
Endrin ketone		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
Endrin aldehyde		.1	U	ug/l	.1	-		ug/l		.1	U	ug/l	.1	-		ug/l	
alpha-Chlordane		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
gamma-Chlordane		.05	U	ug/l	.05	-		ug/l		.05	U	ug/l	.05	-		ug/l	
Toxaphene		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	-		ug/l	
Aroclor-1016		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1221		2	U	ug/l	2	-		ug/l		2	U	ug/l	2	-		ug/l	
Aroclor-1232		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1242		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1248		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1254		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Aroclor-1260		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
CLP METALS AND CYANIDE	ug/l																
Aluminum		200	U	ug/l	200	-		ug/l		200	U	ug/l	200	-		ug/l	
Antimony		60	U	ug/l	60	-		ug/l		60	U	ug/l	60	-		ug/l	
Arsenic		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Barium		83.9	J	ug/l	200	-		ug/l		21.8	J	ug/l	200	-		ug/l	
Beryllium		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	-		ug/l	
Cadmium		5	U	ug/l	5	-		ug/l		5	U	ug/l	5	-		ug/l	
Calcium		2480	J	ug/l	5000	-		ug/l		822	J	ug/l	5000	-		ug/l	
Chromium		10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Cobalt		.85	J	ug/l	50	-		ug/l		1	J	ug/l	50	-		ug/l	
Copper		1.7	J	ug/l	25	-		ug/l		3.1	J	ug/l	25	-		ug/l	
Iron		100	UJ	ug/l	100	-		ug/l		249	J	ug/l	100	-		ug/l	
Lead		3	UJ	ug/l	3	-		ug/l		3	UJ	ug/l	3	-		ug/l	
Magnesium		2260	J	ug/l	5000	-		ug/l		462	J	ug/l	5000	-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
UST Site 1438/39 Report Analytical Data

Lab Sample Number:	MB928004				ME007003				MB928005				ME007004			
Site	WHITING				WHITING				WHITING				WHITING			
Locator	05G00901				05G00901				05G00902				05G00902			
Collect Date:	24-SEP-96				18-JUN-97				24-SEP-96				19-JUN-97			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Manganese	22.4	J	ug/l	15	-		ug/l		28.1	J	ug/l	15	-		ug/l	
Mercury	.2	U	ug/l	.2	-		ug/l		.2	U	ug/l	.2	-		ug/l	
Nickel	40	U	ug/l	40	-		ug/l		40	U	ug/l	40	-		ug/l	
Potassium	5000	UJ	ug/l	5000	-		ug/l		5000	UJ	ug/l	5000	-		ug/l	
Selenium	5	U	ug/l	5	-		ug/l		5	U	ug/l	5	-		ug/l	
Silver	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Sodium	3790	J	ug/l	5000	-		ug/l		2130	J	ug/l	5000	-		ug/l	
Thallium	10	U	ug/l	10	-		ug/l		10	U	ug/l	10	-		ug/l	
Vanadium	50	U	ug/l	50	-		ug/l		50	U	ug/l	50	-		ug/l	
Zinc	20	UJ	ug/l	20	-		ug/l		20	UJ	ug/l	20	-		ug/l	
Cyanide	.88	R	ug/l	10	-		ug/l		.88	R	ug/l	10	-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
UST Site 1438/39 Report Analytical Data

Lab Sample Number:		ME007005				MB928010		
Site		WHITING				WHITING		
Locator		05G00902D				05G00902F		
Collect Date:		19-JUN-97				24-SEP-96		
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW	ug/l								
Chloromethane		10	U	ug/l	10	-		ug/l	
Bromomethane		10	U	ug/l	10	-		ug/l	
Vinyl chloride		10	U	ug/l	10	-		ug/l	
Chloroethane		10	U	ug/l	10	-		ug/l	
Methylene chloride		10	U	ug/l	10	-		ug/l	
Acetone		10	U	ug/l	10	-		ug/l	
Carbon disulfide		10	U	ug/l	10	-		ug/l	
1,1-Dichloroethene		10	U	ug/l	10	-		ug/l	
1,1-Dichloroethane		10	U	ug/l	10	-		ug/l	
1,2-Dichloroethene (total)		10	U	ug/l	10	-		ug/l	
Chloroform		10	U	ug/l	10	-		ug/l	
1,2-Dichloroethane		10	U	ug/l	10	-		ug/l	
2-Butanone		10	U	ug/l	10	-		ug/l	
1,1,1-Trichloroethane		10	U	ug/l	10	-		ug/l	
Carbon tetrachloride		10	U	ug/l	10	-		ug/l	
Bromodichloromethane		10	U	ug/l	10	-		ug/l	
1,2-Dichloropropane		10	U	ug/l	10	-		ug/l	
cis-1,3-Dichloropropene		10	U	ug/l	10	-		ug/l	
Trichloroethene		10	U	ug/l	10	-		ug/l	
Dibromochloromethane		10	U	ug/l	10	-		ug/l	
1,1,2-Trichloroethane		10	U	ug/l	10	-		ug/l	
Benzene		10	U	ug/l	10	-		ug/l	
trans-1,3-Dichloropropene		10	U	ug/l	10	-		ug/l	
Bromoform		10	U	ug/l	10	-		ug/l	
4-Methyl-2-pentanone		10	U	ug/l	10	-		ug/l	
2-Hexanone		10	U	ug/l	10	-		ug/l	
Tetrachloroethene		10	U	ug/l	10	-		ug/l	
Toluene		10	U	ug/l	10	-		ug/l	
1,1,2,2-Tetrachloroethane		10	U	ug/l	10	-		ug/l	
Chlorobenzene		10	U	ug/l	10	-		ug/l	
Ethylbenzene		10	U	ug/l	10	-		ug/l	
Styrene		10	U	ug/l	10	-		ug/l	
Xylenes (total)		10	U	ug/l	10	-		ug/l	
CLP SEMIVOLATILES 90-SOW	ug/l								
Phenol		-		ug/l		-		ug/l	
bis(2-Chloroethyl) ether		-		ug/l		-		ug/l	
2-Chlorophenol		-		ug/l		-		ug/l	
1,3-Dichlorobenzene		-		ug/l		-		ug/l	
1,4-Dichlorobenzene		-		ug/l		-		ug/l	

Naval Air Station Whiting Field, Milton, Florida
UST Site 1438/39 Report Analytical Data

Lab Sample Number:	ME007005			MB928010		
Site	WHITING			WHITING		
Locator	05G00902D			05G00902F		
Collect Date:	19-JUN-97			24-SEP-96		
	VALUE QUAL	UNITS	DL	VALUE QUAL	UNITS	DL
1,2-Dichlorobenzene	-	ug/l		-	ug/l	
2-Methylphenol	-	ug/l		-	ug/l	
2,2-oxybis(1-Chloropropane)	-	ug/l		-	ug/l	
4-Methylphenol	-	ug/l		-	ug/l	
N-Nitroso-di-n-propylamine	-	ug/l		-	ug/l	
Hexachloroethane	-	ug/l		-	ug/l	
Nitrobenzene	-	ug/l		-	ug/l	
Isophorone	-	ug/l		-	ug/l	
2-Nitrophenol	-	ug/l		-	ug/l	
2,4-Dimethylphenol	-	ug/l		-	ug/l	
bis(2-Chloroethoxy) methane	-	ug/l		-	ug/l	
2,4-Dichlorophenol	-	ug/l		-	ug/l	
1,2,4-Trichlorobenzene	-	ug/l		-	ug/l	
Naphthalene	-	ug/l		-	ug/l	
4-Chloroaniline	-	ug/l		-	ug/l	
Hexachlorobutadiene	-	ug/l		-	ug/l	
4-Chloro-3-methylphenol	-	ug/l		-	ug/l	
2-Methylnaphthalene	-	ug/l		-	ug/l	
Hexachlorocyclopentadiene	-	ug/l		-	ug/l	
2,4,6-Trichlorophenol	-	ug/l		-	ug/l	
2,4,5-Trichlorophenol	-	ug/l		-	ug/l	
2-Chloronaphthalene	-	ug/l		-	ug/l	
2-Nitroaniline	-	ug/l		-	ug/l	
Dimethylphthalate	-	ug/l		-	ug/l	
Acenaphthylene	-	ug/l		-	ug/l	
2,6-Dinitrotoluene	-	ug/l		-	ug/l	
3-Nitroaniline	-	ug/l		-	ug/l	
Acenaphthene	-	ug/l		-	ug/l	
2,4-Dinitrophenol	-	ug/l		-	ug/l	
4-Nitrophenol	-	ug/l		-	ug/l	
Dibenzofuran	-	ug/l		-	ug/l	
2,4-Dinitrotoluene	-	ug/l		-	ug/l	
Diethylphthalate	-	ug/l		-	ug/l	
4-Chlorophenyl-phenylether	-	ug/l		-	ug/l	
Fluorene	-	ug/l		-	ug/l	
4-Nitroaniline	-	ug/l		-	ug/l	
4,6-Dinitro-2-methylphenol	-	ug/l		-	ug/l	
N-Nitrosodiphenylamine	-	ug/l		-	ug/l	
4-Bromophenyl-phenylether	-	ug/l		-	ug/l	
Hexachlorobenzene	-	ug/l		-	ug/l	
Pentachlorophenol	-	ug/l		-	ug/l	
Phenanthrene	-	ug/l		-	ug/l	
Anthracene	-	ug/l		-	ug/l	
Carbazole	-	ug/l		-	ug/l	
Di-n-butylphthalate	-	ug/l		-	ug/l	
Fluoranthene	-	ug/l		-	ug/l	
Pyrene	-	ug/l		-	ug/l	
Butylbenzylphthalate	-	ug/l		-	ug/l	
3,3-Dichlorobenzidine	-	ug/l		-	ug/l	
Benzo (a) anthracene	-	ug/l		-	ug/l	
Chrysene	-	ug/l		-	ug/l	
bis(2-Ethylhexyl) phthalate	-	ug/l		-	ug/l	

Naval Air Station Whiting Field, Milton, Florida
UST Site 1438/39 Report Analytical Data

Lab Sample Number:		ME007005				MB928010			
Site		WHITING				WHITING			
Locator		05G00902D				05G00902F			
Collect Date:		19-JUN-97				24-SEP-96			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Di-n-octylphthalate		-		ug/l		-		ug/l	
Benzo (b) fluoranthene		-		ug/l		-		ug/l	
Benzo (k) fluoranthene		-		ug/l		-		ug/l	
Benzo (a) pyrene		-		ug/l		-		ug/l	
Indeno (1,2,3-cd) pyrene		-		ug/l		-		ug/l	
Dibenzo (a,h) anthracene		-		ug/l		-		ug/l	
Benzo (g,h,i) perylene		-		ug/l		-		ug/l	
CLP PESTICIDES/PCBS 90-SOW	ug/l								
alpha-BHC		-		ug/l		-		ug/l	
beta-BHC		-		ug/l		-		ug/l	
delta-BHC		-		ug/l		-		ug/l	
gamma-BHC (Lindane)		-		ug/l		-		ug/l	
Heptachlor		-		ug/l		-		ug/l	
Aldrin		-		ug/l		-		ug/l	
Heptachlor epoxide		-		ug/l		-		ug/l	
Endosulfan I		-		ug/l		-		ug/l	
Dieldrin		-		ug/l		-		ug/l	
4,4-DDE		-		ug/l		-		ug/l	
Endrin		-		ug/l		-		ug/l	
Endosulfan II		-		ug/l		-		ug/l	
4,4-DDD		-		ug/l		-		ug/l	
Endosulfan sulfate		-		ug/l		-		ug/l	
4,4-DDT		-		ug/l		-		ug/l	
Methoxychlor		-		ug/l		-		ug/l	
Endrin ketone		-		ug/l		-		ug/l	
Endrin aldehyde		-		ug/l		-		ug/l	
alpha-Chlordane		-		ug/l		-		ug/l	
gamma-Chlordane		-		ug/l		-		ug/l	
Toxaphene		-		ug/l		-		ug/l	
Aroclor-1016		-		ug/l		-		ug/l	
Aroclor-1221		-		ug/l		-		ug/l	
Aroclor-1232		-		ug/l		-		ug/l	
Aroclor-1242		-		ug/l		-		ug/l	
Aroclor-1248		-		ug/l		-		ug/l	
Aroclor-1254		-		ug/l		-		ug/l	
Aroclor-1260		-		ug/l		-		ug/l	
CLP METALS AND CYANIDE	ug/l								
Aluminum		-		ug/l		200	U	ug/l	200
Antimony		-		ug/l		4.4	J	ug/l	60
Arsenic		-		ug/l		10	U	ug/l	10
Barium		-		ug/l		14.2	J	ug/l	200
Beryllium		-		ug/l		5	U	ug/l	5
Cadmium		-		ug/l		5	U	ug/l	5
Calcium		-		ug/l		625	J	ug/l	5000
Chromium		-		ug/l		10	U	ug/l	10
Cobalt		-		ug/l		.55	J	ug/l	50
Copper		-		ug/l		25	U	ug/l	25
Iron		-		ug/l		100	UJ	ug/l	100
Lead		-		ug/l		3	UJ	ug/l	3
Magnesium		-		ug/l		370	J	ug/l	5000

Naval Air Station Whiting Field, Milton, Florida
UST Site 1438/39 Report Analytical Data

Lab Sample Number:	ME007005				MB928010			
Site	WHITING				WHITING			
Locator	05G00902D				05G00902F			
Collect Date:	19-JUN-97				24-SEP-96			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Manganese	-		ug/l		20.2	J	ug/l	15
Mercury	-		ug/l		.2	U	ug/l	.2
Nickel	-		ug/l		40	U	ug/l	40
Potassium	-		ug/l		5000	UJ	ug/l	5000
Selenium	-		ug/l		5	U	ug/l	5
Silver	-		ug/l		10	U	ug/l	10
Sodium	-		ug/l		2270	J	ug/l	5000
Thallium	-		ug/l		10	U	ug/l	10
Vanadium	-		ug/l		50	U	ug/l	50
Zinc	-		ug/l		20	UJ	ug/l	20
Cyanide	-		ug/l		10		ug/l	10

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:	MD398001			MD398003			MD412001			MD412002		
Site	WHF-1438/39			WHF-1438/39			WHF-1438/39			WHF-1438/39		
Locator	07G02601			07G02701			07G02801			07G02901		
Collect Date:	09-APR-97			10-APR-97			12-APR-97			13-APR-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Benzene	2400	ug/l	100	390	ug/l	13	110	ug/l	3	49	ug/l	1.3
Toluene	3500	ug/l	100	130	ug/l	13	3 U	ug/l	3	2.3	ug/l	1.3
Ethylbenzene	2000	ug/l	100	310	ug/l	13	17	ug/l	3	16	ug/l	1.3
Xylenes (Total)	5600	ug/l	100	1200	ug/l	13	126	ug/l	3	85	ug/l	1.3

Naval Air Station Whiting Field
Sites 1438/39 Analytical Data

Lab Sample Number:	MD412003			MD437001			MD437002		
Site	WHF-1438/39			WHF-1438/39			WHF-1438/39		
Locator	07G03001			07G03101			07B03201		
Collect Date:	14-APR-97			15-APR-97			16-APR-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Benzene	600	ug/l	50	240	ug/l	10	980	ug/l	63
Toluene	1900	ug/l	50	340	ug/l	10	2300	ug/l	63
Ethylbenzene	700	ug/l	50	200	ug/l	10	500	ug/l	63
Xylenes (Total)	2770	ug/l	50	710	ug/l	10	2210	ug/l	63

Naval Air Station Whiting Field
Sites 1438/39 QA/QC Analytical Data

Lab Sample Number:		MD889002				ME933005				MD889001				ME832004			
Site		WHF-1438/39				WHF-1438/39				WHF-1438/39				WHF-1438/39			
Locator		U7R02901				U7R04001				U7T04401				U7T07801			
Collect Date:		10-JUN-97				14-OCT-97				10-JUN-97				26-SEP-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Volatile Organics (601/602)	ug/l																
1,1,1-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
1,1,2,2-Tetrachloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
1,1,2-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
1,1-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
1,1-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
1,2-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
1,2-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
1,2-Dichloropropane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
1,3-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
1,4-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
2-Chloroethylvinyl ether		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Bromodichloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Bromoform		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Bromomethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Carbon tetrachloride		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Chlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Chloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Chloroform		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Chloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Dibromochloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Dichlorodifluoromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Methylene chloride		5	U	ug/l	5	5	U	ug/l	5	5	U	ug/l	5	-		ug/l	
Tetrachloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Trichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Trichlorofluoromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Vinyl chloride		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
cis-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
trans-1,2-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
trans-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	-		ug/l	
Benzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Xylenes (total)		1	U	ug/l	1	-		ug/l		1	U	ug/l	1	-		ug/l	
Methyl tert-butyl ether		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
m,p-Xylene		2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2	2	U	ug/l	2
o-Xylene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
PAHs (Modified 610)	ug/l																
Acenaphthene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Acenaphthylene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Anthracene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Benzo (a) anthracene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Benzo (a) pyrene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Benzo (b) fluoranthene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Benzo (g,h,i) perylene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Benzo (k) fluoranthene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Chrysene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Dibenzo (a,h) anthracene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Fluoranthene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	

Naval Air Station Whiting Field
Sites 1438/39 QA/QC Analytical Data

Lab Sample Number:		MD889002				ME933005				MD889001				ME832004			
Site		WHF-1438/39				WHF-1438/39				WHF-1438/39				WHF-1438/39			
Locator		U7R02901				U7R04001				U7T04401				U7T07801			
Collect Date:		10-JUN-97				14-OCT-97				10-JUN-97				26-SEP-97			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Fluorene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Indeno (1,2,3-cd) pyrene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
1-Methylnaphthalene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
2-Methylnaphthalene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Naphthalene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Phenanthrene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
Pyrene		1.9	U	ug/l	1.9	2	U	ug/l	2	-		ug/l		-		ug/l	
EDB	ug/l																
Ethylene dibromide		.02	U	ug/l	.02	.02	U	ug/l	.02	-		ug/l		-		ug/l	
lead		3	U	ug/l	3	3	U	ug/l	3	-		ug/l		-		ug/l	
Total petroleum hydrocarbons		.1	U	mg/l	.1	.1	U	mg/l	.1	-		mg/l		-		mg/l	

Naval Air Station Whiting Field
Sites 1438/39 QA/QC Analytical Data

Lab Sample Number:		ME933006			
Site		WHF-1438/39			
Locator		U7T07901			
Collect Date:		14-OCT-97			
		VALUE	QUAL	UNITS	DL
Volatile Organics (601/602)	ug/l				
1,1,1-Trichloroethane		1	U	ug/l	1
1,1,2,2-Tetrachloroethane		1	U	ug/l	1
1,1,2-Trichloroethane		1	U	ug/l	1
1,1-Dichloroethane		1	U	ug/l	1
1,1-Dichloroethene		1	U	ug/l	1
1,2-Dichlorobenzene		1	U	ug/l	1
1,2-Dichloroethane		1	U	ug/l	1
1,2-Dichloropropane		1	U	ug/l	1
1,3-Dichlorobenzene		1	U	ug/l	1
1,4-Dichlorobenzene		1	U	ug/l	1
2-Chloroethylvinyl ether		1	U	ug/l	1
Bromodichloromethane		1	U	ug/l	1
Bromoform		1	U	ug/l	1
Bromomethane		1	U	ug/l	1
Carbon tetrachloride		1	U	ug/l	1
Chlorobenzene		1	U	ug/l	1
Chloroethane		1	U	ug/l	1
Chloroform		1	U	ug/l	1
Chloromethane		1	U	ug/l	1
Dibromochloromethane		1	U	ug/l	1
Dichlorodifluoromethane		1	U	ug/l	1
Methylene chloride		5	U	ug/l	5
Tetrachloroethene		1	U	ug/l	1
Trichloroethene		1	U	ug/l	1
Trichlorofluoromethane		1	U	ug/l	1
Vinyl chloride		1	U	ug/l	1
cis-1,3-Dichloropropene		1	U	ug/l	1
trans-1,2-Dichloroethene		1	U	ug/l	1
trans-1,3-Dichloropropene		1	U	ug/l	1
Benzene		1	U	ug/l	1
Ethylbenzene		1	U	ug/l	1
Toluene		1	U	ug/l	1
Xylenes (total)		-		ug/l	
Methyl tert-butyl ether		1	U	ug/l	1
m,p-Xylene		2	U	ug/l	2
o-Xylene		1	U	ug/l	1
PAHs (Modified 610)	ug/l				
Acenaphthene		-		ug/l	

Naval Air Station Whiting Field
Sites 1438/39 QA/QC Analytical Data

Lab Sample Number:		ME933006		
Site		WHF-1438/39		
Locator		U7T07901		
Collect Date:		14-OCT-97		
		VALUE	QUAL	UNITS	DL
Acenaphthylene		-		ug/l	
Anthracene		-		ug/l	
Benzo (a) anthracene		-		ug/l	
Benzo (a) pyrene		-		ug/l	
Benzo (b) fluoranthene		-		ug/l	
Benzo (g,h,i) perylene		-		ug/l	
Benzo (k) fluoranthene		-		ug/l	
Chrysene		-		ug/l	
Dibenzo (a,h) anthracene		-		ug/l	
Fluoranthene		-		ug/l	
Fluorene		-		ug/l	
Indeno (1,2,3-cd) pyrene		-		ug/l	
1-Methylnaphthalene		-		ug/l	
2-Methylnaphthalene		-		ug/l	
Naphthalene		-		ug/l	
Phenanthrene		-		ug/l	
Pyrene		-		ug/l	
EDB	ug/l				
Ethylene dibromide		-		ug/l	
lead		-		ug/l	
Total petroleum hydrocarbons		-		mg/l	

Quanterra Environmental Services

Quanterra Incorporated
5910 Breckenridge Parkway, Suite H
Tampa, Florida 33610

813 621-0784 Telephone
813 623-6021 Fax

ANALYTICAL REPORT

PROJECT NO. 8527.38

NAS WHITING FIELD

Lot #: B7F160152

Richard Stephens

ABB Environmental Services

QUANTERRA INCORPORATED

Certification Numbers: E84059,HRS84297
FDEP CompQAP: 870270G

Nancy Robertson
Project Manager

July 3, 1997

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B7F160152

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
u7g00301 06/10/97 00:10 001				
Total Organic Carbon	6	1	mg/L	MCAWW 415.1
u7g00101 06/10/97 15:35 002				
Total Organic Carbon	14	1	mg/L	MCAWW 415.1
u7g00201 06/11/97 08:45 003				
Total Organic Carbon	21	2	mg/L	MCAWW 415.1

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METHODS SUMMARY

B7F160152

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Total Kjeldahl Nitrogen	MCAWW 351.3	MCAWW 351.3
Total Organic Carbon	MCAWW 415.1	MCAWW 415.1

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

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SAMPLE SUMMARY

B7F160152

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CA6F1	001	u7g00301	06/10/97	00:10
CA6FG	002	u7g00101	06/10/97	15:35
CA6FJ	003	u7g00201	06/11/97	08:45

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

Client Sample ID: u7g00301

General Chemistry

Lot-Sample #...: B7F160152-001 **Work Order #...:** CA6F1 **Matrix.....:** WATER
Date Sampled...: 06/10/97 **Date Received..:** 06/16/97

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Kjeldahl Nitrogen	ND	1	mg/L	MCAWW 351.3	06/28/97	7180111
Total Organic Carbon	**6**	**1**	**mg/L**	**MCAWW 415.1**	**06/18-06/19/97**	**7170266**

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

Client Sample ID: u7g00101

General Chemistry

Lot-Sample #...: B7F160152-002 Work Order #...: CA6FG Matrix.....: WATER
Date Sampled...: 06/10/97 Date Received..: 06/16/97

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Kjeldahl Nitrogen	ND	1	mg/L	MCAWW 351.3	06/28/97	7180111
Total Organic Carbon	14	1	mg/L	MCAWW 415.1	06/18/97	7170266

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

Client Sample ID: u7g00201

General Chemistry

Lot-Sample #...: B7F160152-003 Work Order #...: CA6FJ Matrix.....: WATER
Date Sampled...: 06/11/97 Date Received..: 06/16/97

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Kjeldahl Nitrogen	ND	1	mg/L	MCAWW 351.3	06/28/97	7180111
Total Organic Carbon	21	2	mg/L	MCAWW 415.1	06/18-06/19/97	7170266

Quanterra

Quality Control Summary

Quanterra QC Program Summary

Method Blanks

Laboratory Control Samples

Matrix Spike/Matrix Spike Duplicates

Chain-of-Custody

Quanterra Environmental Services

Quanterra Quality Control Program Summary

Quanterra Environmental Services considers continuous analytical method performance evaluations to be an integral portion of the data package, and routinely includes the pertinent QA/QC data associated with analytical results. Brief discussions of the various QA/QC procedures utilized to measure acceptable method and matrix performance follow. Further documentation of specific policies and procedures in use are available, upon request, from the Quanterra Quality Control Department.

The program described below provides Quanterra's interpretation of QC requirements described in SW-846, 3rd edition -Final Update II. Additional interpretations specific to other aspects of methods performed, such as instrument calibration and bench procedures, are described in program-specific documents (e.g. US Corps of Engineers, AFCEE, etc.) and associated method standard operating procedures. Where explicit program requirements or project requirements exist, certain elements of the Quanterra QC Program may be superseded by these requirements.

Elements of the Quanterra QC Program

Where other clear regulatory guidance, contract specifications, or client requirements are not available, the Quanterra QC Program provides guidance for Batch QC requirements. The Quality Control Batch is a set of up to 20 field samples of similar matrix, which are processed together under the same conditions, within the same time frame. Included in each Quality Control Batch is a Method Blank, Laboratory Control Sample, and Matrix Spike Duplicate. For methods that require independent sample preparation prior to analysis, the QC Batch is defined at the preparation stage. For methods that do not require independent sample preparation, the QC Batch is defined at the instrument. The QC Batch Number is provided on each result page in association with the parameter(s) presented, and may be used to cross-reference sample results with the associated QC data.

Method Blank Evaluations

Laboratory analytical method blanks are systematically prepared and analyzed in order to continuously evaluate the system interference and background contamination levels associated with each applicable analytical method. Method blanks include all aspects of actual laboratory procedures involving sample preparation and analysis, substituting analyte-free water or solid for the actual sample. Under normal circumstances, the Method Blank should not exhibit analytes of interest above the reported detection limit. Due to the presence of some analytes in a typical laboratory setting, the following common laboratory contaminants are exceptions to this rule, provided they are not present in the method blank at greater than five times the reporting limit.

Volatiles	Semi-Volatiles	Metals
Methylene chloride	Dimethyl phthalate	Calcium
Toluene	Diethyl phthalate	Magnesium
2-Butanone	Di-n-butyl-phthalate	Sodium
Acetone	Butyl benzyl phthalate	
	Bis (2-ethylhexyl) phthalate	

A method blank is performed with each analytical batch. A minimum of 5% of all laboratory analyses are method blanks.

Laboratory Control Sample (LCS) Evaluations

Known concentrations of designated matrix spike (target analyte) compounds are added to a method blank prior to extraction and analysis. Percent recovery determinations of individual target analytes in the LCS demonstrate the laboratory's method performance for the QC Batch relative to these target analytes (or other individual components represented by a subset of control analytes). Percent recovery data is displayed alongside acceptance criteria, that is typically derived from laboratory historical data. Failure of a Laboratory Control Sample to meet established recovery criteria for control analytes is cause for corrective actions to occur, which typically includes re-extraction and re-analysis of all samples associated with the QC Batch. An LCS is performed with each analytical batch. A minimum of 5% of all laboratory analyses are laboratory control samples.

Quanterra Quality Control Program Summary (continued)

Surrogate Spike Recovery Evaluations

For GC and GC/MS analyses, known concentrations of designated surrogate spikes, consisting of a number of similar, non-method compounds or method compound analogues, are added to sample fractions prior to sample extraction and analysis. The percent recovery determinations calculated from the subsequent analysis is one indication of the overall method efficiency for the individual sample. The surrogate spike recovery data is displayed alongside acceptance limits at the bottom of each applicable analytical result report page. Where sufficient laboratory-generated data does not yet exist to determine appropriate control limits, advisory limits may be enacted until sufficient data is collected to allow implementation of control limits.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Evaluations

In conjunction with the analysis of a client-provided field sample, a known concentration of designated matrix spike compounds (target analytes) are added to two aliquots of the actual sample. Percent recovery determinations are calculated from both spiked aliquots, using target analyte concentrations already present in the actual sample as a baseline. The percent recovery determinations indicate the accuracy of the method specific to the target analytes (or other individual components represented by a subset of control analytes) in the individual sample matrix. Comparison of the percent recoveries in the two spiked aliquots yields a relative percent difference (RPD). Percent recovery and relative percent difference data is displayed alongside historical criteria, that may be used to judge individual sample matrix effects for specific analytes. MS/MSD data is evaluated by the laboratory with respect to the individual sample matrix. In cases where MS/MSD data indicate sample method performance outside of historical criteria, the laboratory control sample results are referenced to ensure acceptable method performance by the laboratory for the sample batch. For analyses which are inappropriately suited for matrix spikes (e.g. pH), non-spiked duplicate analyses are performed to generate precision data. Matrix spike duplicates are typically performed on at least one sample within each analytical batch. A minimum of 10% of all laboratory analyses are matrix spikes or duplicates.

Corrective Action Evaluations

The goal of the Quanterra Quality Control Program is to generate data that demonstrates process control, and allows for client usability of data. Where the analytical process is demonstrated to vary from established criteria, or client requirements have not been met, data evaluation resulting in corrective action may be required. Corrective action may include re-preparation and/or reanalysis of field samples and QC samples. Where appropriate or necessary to allow proper interpretation of results presented in the final report, details of corrective actions taken during the laboratory processing of samples are presented as a case narrative at the front of the report. Alternatively, routine corrective action, such as reanalysis, may be footnoted on individual sample result pages.

Analytical Result Qualifier Flags

Where applicable , data qualifiers may be appended to analytical results in order to allow for proper interpretation of the result presented. Typically, the presence of data qualifier flag on an analytical result page is accompanied by a footnote explaining the qualifier.

Quanterra
Environmental Services

METHOD BLANK REPORT

General Chemistry

Client Lot #...: B7F160152 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Kjeldahl Nitrogen		Work Order #: CAEE1101		MB Lot-Sample #:	B7F290000-111	
	ND	1	mg/L	MCAWW 351.3	06/28/97	7180111
Total Organic Carbon		Work Order #: CA8DV101		MB Lot-Sample #:	B7F190000-266	
	ND	1	mg/L	MCAWW 415.1	06/18/97	7170266

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: B7F160152 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Kjeldahl Nitrogen		Work Order #: CAEE1102	LCS Lot-Sample#: B7F290000-111		
	98	(84 - 122)	MCAWW 351.3	06/28/97	7180111
Total Organic Carbon		Work Order #: CA8DV102	LCS Lot-Sample#: B7F190000-266		
	105	(92 - 117)	MCAWW 415.1	06/18/97	7170266

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra
Environmental Services

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: B7F160152 **Matrix.....:** WATER
Date Sampled...: 06/11/97 **Date Received..:** 06/16/97

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Kjeldahl Nitrogen		WO#:	CA6FJ105-MS/CA6FJ106-MSD			MS Lot-Sample #:	B7F160152-003
	100	(79 - 114)			MCAWW 351.3	06/28/97	7180111
	100	(79 - 114)	0.56	(0-20)	MCAWW 351.3	06/28/97	7180111
Total Organic Carbon		WO#:	CA6FJ103-MS/CA6FJ104-MSD			MS Lot-Sample #:	B7F160152-003
	130	(78 - 142)			MCAWW 415.1	06/18-06/19/97	7170266
	137	(78 - 142)	1.3	(0-13)	MCAWW 415.1	06/18-06/19/97	7170266

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra Environmental Services

TAMPA LABORATORY
CONDITION UPON RECEIPT FORM

A 6/16/97

Client: ABB **Project Name/Lot #:** Nas Ee Whiting Fld
Date Received: **Received By:** A Lynn
CUR Completed By: A Lynn

Cooler/Shipping information:
TYPE: Quanterra Cooler ✓ Client Cooler ____ Quanterra Shipper ____ Box ____ Other ____/____

Cooler ID/Track #					
Temp (Celsius)	7/5°C				
Cooler ID/Track #					
Temp (Celsius)					

Any "NO" responses or discrepancies should be explained in the "Comments" section below.

CHECKLIST	YES	NO	NA
1. Were custody seals on shipping container(s) intact? Check "NA" if hand delivered. Circle One: CUSTODY SEAL SAVED UNABLE TO SAVE CUSTODY SEAL		✓	
2. Were custody papers properly included with samples?	✓		
3. Were custody papers properly filled out (ink, signed, match labels)? *	✓		
4. Did all bottles arrive in good condition (unbroken)?		✓	
5. Were all bottle labels complete (sample #, date, signed, analysis, preservatives)?	✓		
6. Were correct bottles used for the tests indicated?	✓		
7. Were proper sample preservation techniques indicated?	✓		
8. Were samples received within adequate holding times? If "NO", complete 8.a. or 8.b.	✓		
a. Was sample hold time exceeded (NCM required)?			✓
b. Did the samples arrive with more than half the hold time exceeded (NCM required)?			✓
9. Were all VOA bottles checked for the presence of air bubbles? If air bubbles were found, indicate in comment section.			✓
10. Were samples in direct contact with wet ice? If "NO", circle one: NO ICE / BLUE ICE		✓	
11. Were the samples received with a temperature blank? NOTE TEMPERATURE ABOVE If "NO", circle one: UNABLE TO DETERMINE TEMP / TEMP TAKEN FROM THE COOLER ICE/WATER NEAR SAMPLES		✓	
12. Were sample pHs checked and recorded by S.R. (see back for Page 2 - Sample pH)? *TOC and VOA samples are checked by laboratory analysts.*	✓		
13. Were samples accepted into the laboratory?	✓		

Comments:
*U7900101 - Lost most of sample in the 1LT container + about ½ of the 500ml container. caps loose AC 6-16-97
Sent on FRI for Mon Delivery (> 15°C)
Use Prot. C as per Steve Tatuni.
* Dates / Times Dont match labels - logged in as per COC.

Project Manager initials/date reviewed: MK 6/18/97

101 label = 6/10/97 1535
201 label = 6/11/97 0645
301 label = 6/10/97 1210

Corrective Action: proceed with analyses per R. Stephens; use sampled dates + times on bottle labels per R. Stephens

Corrective Action completed by/date: MK 6/18/97

CHAIN OF CUSTODY RECORD

PROJECT NO.: 8527.38

PROJECT NAME: NAS Whiting Field

SAMPLERS (SIGNATURE): Brian Sellers

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TOC	TKN										REMARKS INDICATE SOIL/WATER/AIR SEDIMENT/SLUDGE
	6/13/97	1020		X	479 00301		X	X										water
	6/13/97	1020		X	479 00101		X	X										water
	6/13/97	1020		X	479 00201		X	X										water

Brian Sellers

6/13/97

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
Brian Sellers	6/13/97 | 1020	William Lynn on 6/16/97 1130		|	
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
	|			|	
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED FOR DISPOSAL BY: (SIGNATURE)	DATE/TIME	REMARKS	
	|		|		

ABB Environmental Services, Inc.

OH-62

ABB Environmental Services, Inc.
Treatability Geotechnical Laboratory
107 Audubon Rd. Suite 25
Wakefield, MA 01880
(617)245-6606

Methane, Ethene & Ethane Headspace

Prepared For: Terry Hansen
Project Name: NAS - Whiting Field
Project Reference: 97-06-009
Client Project Number: 8527.38
Prepared By: MRG
Date Prepared: 7/13/97
Method Reference(s): USEPA 8015 (modified)

SAMPLE ID	DATE SAMPLED	DATE ANALYZED	METHANE MDL = 0.003 (mg/L)	ETHENE MDL = 0.005 (mg/L)	ETHANE MDL = 0.006 (mg/L)
u7g00101	10-Jun-97	13-Jun-97	<0.003	<0.005	<0.006
u7g00201	11-Jun-97	13-Jun-97	0.007	<0.005	<0.006
u7g00301	10-Jun-97	13-Jun-97	0.004	<0.005	<0.006

ABB Environmental Services, Inc.
Treatability Geotechnical Laboratory
107 Audubon Rd. Suite 25
Wakefield, MA 01880
(617)245-6606

Bacterial Enumeration Report

Prepared For: Terry Hansen
Project Name: NAS - Whiting Field
Project Reference: 97-06-009
Client Project Number: 8527.38
Prepared By: MRG
Date Prepared: 7/13/97
Method Reference(s): Standard Method 9215c (Modified)
Carbon Source for Specific Plating:

	Sample ID	Date Sampled	Original Plating Date	Final Reading Date	Sample Media	Total Bacteria (CFU/g)	Specific Bacteria (CFU/g)	Specific Bacteria (%)
1	u7g00101	10-Jun-97	13-Jun-97	28-Jun-97	Aqueous	2.67E+05	4.67E+04	18%
2	u7g00201	11-Jun-97	13-Jun-97	28-Jun-97	Aqueous	9.33E+04	1.00E+04	11%
3	u7g00301	10-Jun-97	13-Jun-97	28-Jun-97	Aqueous	1.00E+06	7.33E+04	7%

ABB Environmental Services, Inc.
Treatability Geotechnical Laboratory
107 Audubon Rd. Suite 25
Wakefield, MA 01880
(617)245-6606

Total Petroleum Hydrocarbons by GC-FID

Prepared For: Terry Hansen
Project Name: NAS - Whiting Field
Project Reference: 97-06-009
Client Project Number: 8527.38
Prepared By: MRG
Date Prepared: 7/13/97
Method Reference(s): Modified USEPA 8100

Sample ID	Date Sampled	Date Analyzed	Dilution/ Concentration Factor	Detection Limit (mg/L)	TPH Concentration (mg/L)
u7g00101	10-Jun-97	13-Jun-97	0.004	0.012	4.25
u7g00201	11-Jun-97	13-Jun-97	0.004	0.012	21.3
u7g00301	10-Jun-97	13-Jun-97	0.004	0.012	1.02

ABB Environmental Services, Inc.
Treatability Geotechnical Laboratory
107 Audubon Rd. Suite 25
Wakefield, MA 01880
(617)245-6606

Nutrient Concentration Report

Prepared For:	Terry Hansen
Project Name:	NAS - Whiting Field
Project Reference:	97-06-009
ABB Project Number:	8527.38
Prepared By:	MRG
Date Prepared:	7/13/97

Method Reference(s):				USEPA350.2 (Mod.)	Colorimetric	Colorimetric	Colorimetric	Colorimetric	Colorimetric
Sample ID	Date Sampled	Date Analyzed	Sample Media	Ammonium NH4 MDL = 1 mg/L (mg/L)	Nitrate NO3 MDL = 0.25 mg/L (mg/L)	Nitrite NO2 MDL = 0.1 mg/L (mg/L)	Total Phosphate T-PO4 MDL = 1 mg/L (mg/L)	Sulfate SO4 MDL = 5 mg/L (mg/L)	D Iron Fe MDL = 0.5 mg/L (mg/L)
u7g00101	10-Jun-97	17-Jun-97	Aqueous	< 1	< 0.25	< 0.1	< 1	< 5	2
u7g00201	11-Jun-97	17-Jun-97	Aqueous	2.5	< 0.25	< 0.1	< 1	< 5	20
u7g00301	10-Jun-97	17-Jun-97	Aqueous	< 1	< 0.25	< 0.1	< 1	< 5	0.5

QAL QUALITY ANALYTICAL LABORATORIES, INC.

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

Project #: CTO 110

Purchase Order #: —

Project Name: NAS Whiting Field

Company Name: ABB Environmental Services

Project Manager or Contact & Phone #: Terry Harren - TLH

Report Copy to: Blake Sverdsen - TLH

Requested Completion Date: Standard

Site ID: UST Site 7 1433/39

Sample Disposal: Dispose ☐ Return ☐

☐ **LGN** One Innovation Drive, Suite C, Alachua, FL 32615-9586, (904) 462-3050 FAX (904) 462-1670

☐ **LRD** 5090 Caterpillar Road, Redding, CA 96003-1412, (916) 244-5227 FAX (916) 244-4109

☐ **LMG** 2567 Fairlane Drive, Montgomery, AL 36116-1622, (334) 271-2440 FAX (334) 271-3428

☐ **LKW** Canviro Analytical Laboratories, Inc., 50 Bathurst, Unit 12, Waterloo, Ontario, Canada N2V 2C5, (519) 747-2575 FAX (519) 747-3806

THIS AREA FOR LAB USE ONLY

Lab #	Page	of
Client Service	Price Source A P Q S	
Acct Code	Test Group	
Project Code	Ack. Gen.	
LIMS Ver	Login	Mult.
COC Review		

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	QC ID (3 CHAR)	# OF CONTAINERS	40ml vials Dissolved Methane	125ml Amber Specific Petroleum dry weight	125ml Amber Total Pb, Cr, Ba	500ml H_2SO_4 TOC	1 liter H_2SO_4 TKN	1 liter Amber SICO / Fingerprint	1 liter, Soluble Iron, SO_4, NO_3, / NH_3, Total Phos	SAMPLE REMARKS	LAB 1 ID	LAB 2 ID
6/10/97	1210		X	X		U7G003 01		8	2	1	1	1	1	1	1			
6/10/97	1535		X	X		U7G001 01		6	2	1	1	1	1	1	1			
6/11/97	0945		X	X		U7G002 01		6	2	1	1	1	1	1	1			

1 Bottle Broken (FY) open cap (FY)

Broken cap (FY)

Sampled By (Print name & sign): [signature] (Please sign and print name) Date/Time 6/11/97 0940

Received By (Please sign and print name) Date/Time

Received By (Please sign and print name) Date/Time

Received By (Please sign and print name) Date/Time

Relinquished By (Please sign and print name) send out Date/Time

Relinquished By (Please sign and print name) Date/Time

Relinquished By (Please sign and print name) Date/Time

Shipped Via UPS Fed-Ex Other _____ **Shipping #**

HAZWRAP/NESSA: Y N

EDATA: Y N

QC LEVEL 1 2 3 OTHER _____

pH | Ice

Custody Seal | Temp

Batch Remarks: 97-06-009

* all samples had headspace are good for dissolved IRON (FY)

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - Client

REV 5/95 LAB FORM 340

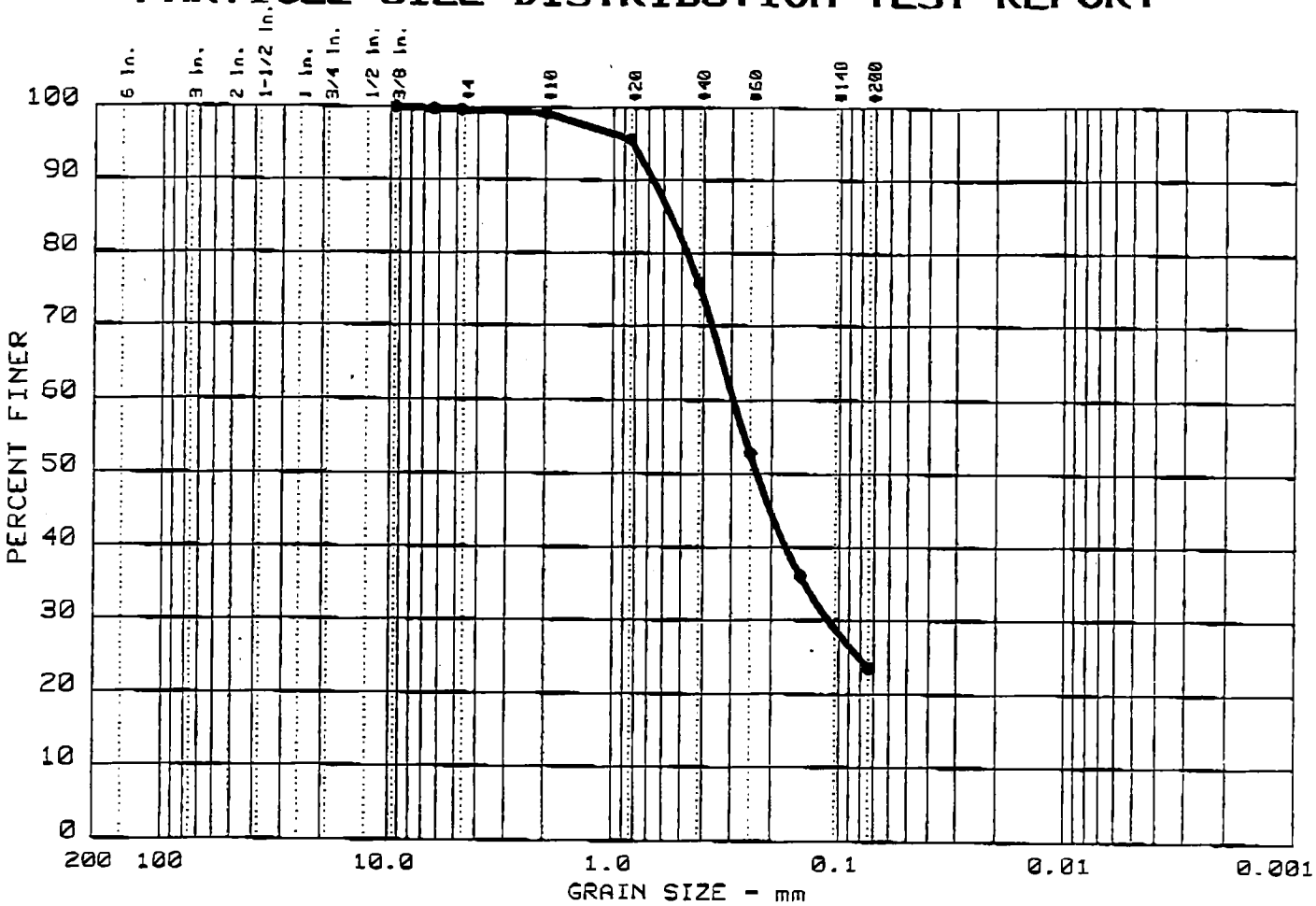
Quanterra Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B7E050101

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
07B05101 05/01/97 11:30 001				
Total Kjeldahl Nitrogen	56	28	mg/kg	MCAWW 351.3
Total Organic Carbon	200	110	mg/kg	SMCA WALKLEY-BLAC
Percent Moisture	9.7	0.10	%	MCAWW 160.3 MOD
07B04901 05/01/97 11:30 002				
Total Kjeldahl Nitrogen	51	29	mg/kg	MCAWW 351.3
Percent Moisture	12.5	0.10	%	MCAWW 160.3 MOD

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.4	76.1	23.5		SM		

SIEVE inches size	PERCENT FINER ●		
0.375	100.0		
0.25	99.7		
GRAIN SIZE			
D_{60}	0.29		
D_{30}	0.11		
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ●		
4	99.6		
10	99.2		
20	95.6		
40	75.8		
60	52.8		
100	36.1		
200	23.5		

Sample information:
● 07B05401
Silty sand.

Remarks:
SIEVE ANALYSIS

WC%=15.9

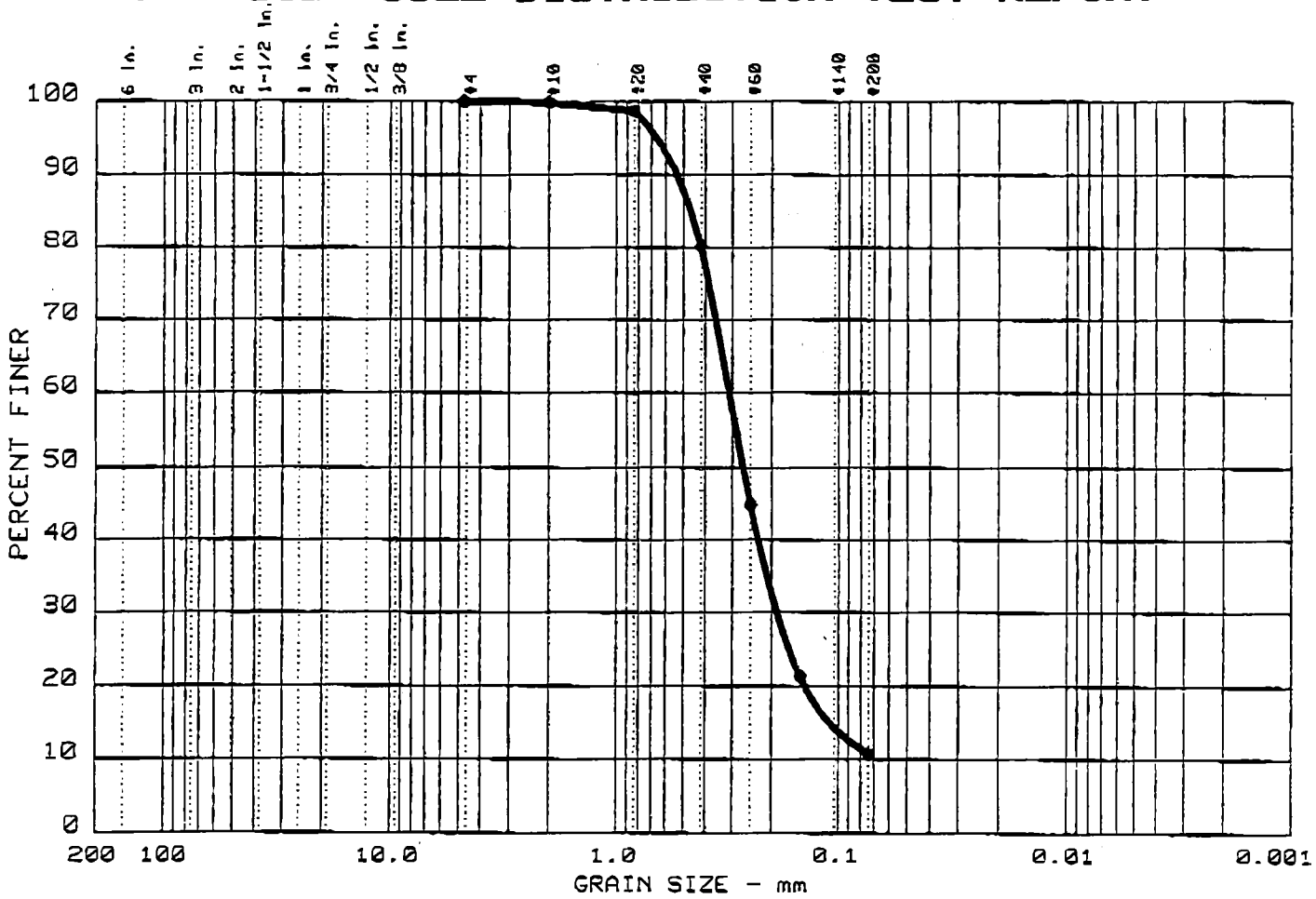
ABB Environmental Services, Inc.

Project No.: 08527.31
Project: NAS Whiting Field

Date: 05/22/97 Data Sheet No. 21

QC

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL*	PI
●	0.0	0.0	89.3	10.7		SP-SM		

SIEVE inches size	PERCENT FINER ●		
GRAIN SIZE			
D_{60}	0.31		
D_{30}	0.19		
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ●		
4	100.0		
10	99.9		
20	98.7		
40	80.2		
60	44.9		
100	21.4		
200	10.7		

Sample information:
● 07B05402
Poorly graded sand with silt.

Remarks:
SIEVE ANALYSIS

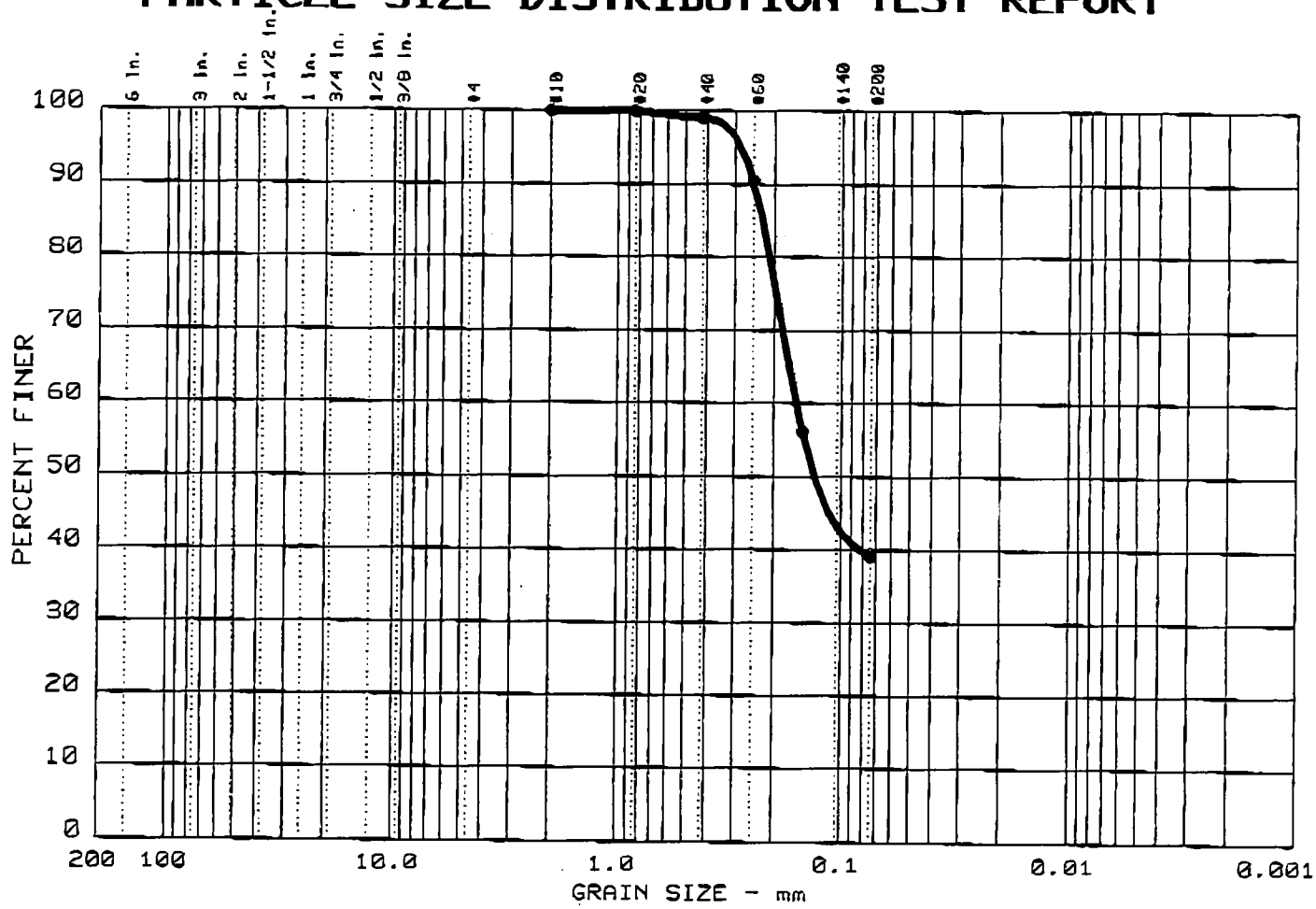
WC%=12.9

ABB Environmental Services, Inc.

Project No.: 08527.31
Project: NAS Whiting Field

Date: 05/22/97 Data Sheet No. 21

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.0	60.9	39.1		SM		

SIEVE inches size	PERCENT FINER ●		
	GRAIN SIZE		
D_{60}	0.16		
D_{30}			
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ●		
10	100.0		
20	99.9		
40	99.0		
60	90.5		
100	56.1		
200	39.1		

Sample information:
● 07B2701
Silty sand

Remarks:
SIEVE

WC%=14.8

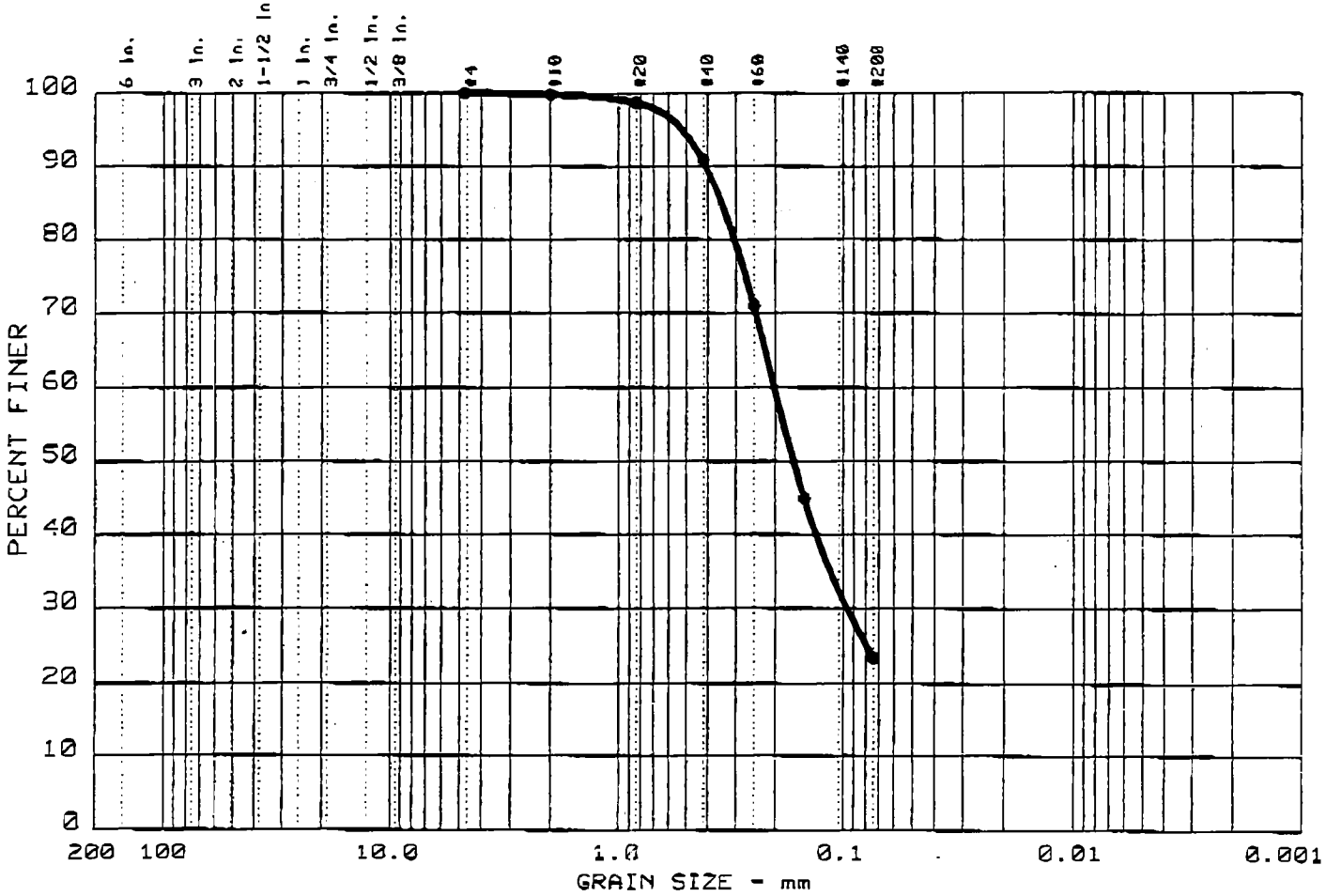
ABB Environmental Services, Inc.

Project No.: 08527.31
Project: NAS

Date: 04/21/97

Data Sheet No. 21

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.0	76.6	23.4		SM		

SIEVE inches size	PERCENT FINER ●		
	GRAIN SIZE		
D_{60}	0.20		
D_{30}	0.10		
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ●		
4	100.0		
10	99.8		
20	98.7		
40	90.9		
60	71.0		
100	44.9		
200	23.4		

Sample information:
● 07B05101
Silty sand.

Remarks:
SIEVE ANALYSIS

WC%=10.2

ABB Environmental Services, Inc.

Project No.: 08523.00
Project: NAS Whiting Field

Date: 05/02/97 Data Sheet No. 21

ABB Environmental Services, Inc.
Treatability Geotechnical Laboratory
Wakefield, MA

Total Petroleum Hydrocarbons by GC-FID

Prepared For: Blake Svendsen
Project Name: NAS - Whiting Field
Project Reference: 97-04-004, 97-04-21, 97-05-006
Client Project Number: 8527.38
ABB Project Number: 8527.38
Prepared By: MRG
Date Prepared: 30-May-97
Method Reference: Modified EPA 8100

Sample ID	Date Sampled	Date Analyzed	Dilution/ Concentration Factor	TPH Concentration (mg/kg)
07B2701	10-Apr-97	11-Apr-97	20:1	0.66
07B04901	29-Apr-97	1-May-97	20:1	ND
07B05101	29-Apr-97	1-May-97	20:1	5.26
07B05401	6-May-97	13-May-97	10:1	678
07B05402	6-May-97	13-May-97	1:20	1.47

ABB Environmental Services, Inc.
Treatability Geotechnical Laboratory
Wakefield, MA

Fraction Organic Carbon by High Temperature Combustion

Prepared For: Blake Svendsen
Project Name: NAS - Whiting Field
Project Reference: 97-04-004, 97-04-21, 97-05-006
Client Project Number: 8527.38
Prepared By: MRG
Date Prepared: 27-Mar-98
Method Reference: 415.1 (mod)

Sample ID	Date Sampled	Date Analyzed	Pre-ignition Mass of Soil	Post-ignition Mass of Soil	Fraction Organic Carbon	Estimated Total Organic Carbon
07B2701	10-Apr-97	22-Apr-97	16.402	16.122	1.7%	0.9%
07B05101	29-Apr-97	29-Apr-97	14.833	14.575	1.7%	0.9%
07B04901	29-Apr-97	29-Apr-97	11.802	11.332	4.0%	2.0%
07B05401	6-May-97	13-May-97	16.055	15.211	5.3%	2.6%
07B05402	6-May-97	13-May-97	14.690	14.602	0.6%	0.3%

ABB Environmental Services
Treatability Geotechnical Laboratory
Wakefield, MA

Bacterial Enumeration Report

Prepared For: Blake Svendsen
Project Name: NAS - Whiting Field
Project Reference: 97-04-004, 97-04-21, 97-05-006
Client Project Number: 8527.38
ABB Project Number: 8527.38
Prepared By: MRG
Date Prepared: 27-Mar-98
Method Reference: Standard Method 9215c (Modified)
Carbon Source for Specific Plating: Diesel fuel

ND=Not Determined

	Sample ID	Date Sampled	Original Plating Date	Final Reading Date	Sample Media	Total Bacteria CFU/g	Specific Bacteria CFU/g	% Specific Bacteria
1	07B2701	10-Apr-97	11-Apr-97	24-Apr-97	Soil	0.00E+00	0.00E+00	ND
2	07B04901	29-Apr-97	1-May-97	16-May-97	Soil	1.50E+05	6.67E+04	44%
3	07B05101	29-Apr-97	1-May-97	16-May-97	Soil	8.67E+05	7.00E+05	81%
4	07B05401	29-Apr-97	1-May-97	16-May-97	Soil	<3.30E+2	<3.30E+1	N/D
5	07B05402	29-Apr-97	1-May-97	16-May-97	Soil	1.00E+03	3.30E+02	33%

ABB Environmental Services, Inc.
Treatabillity Geotechnical Laboratory
Wakefield, MA

Nutrient Concentration Report

Prepared For: Blake Svendsen
Project Name: NAS - Whiting Field
Project Reference: 97-04-004, 97-04-21, 97-05-006
Client Project Number: 8527.38
ABB Project Number: 8527.38
Prepared By: MRG
Date Prepared: 30-May-97
Method Reference(s): USEPA 350.1, 353.1, 375.1, 376.1, 200.7, 150.1, 310.1

Sample ID	Date Sampled	Date Analyzed	Sample Media	Ammonium NH4 (mg/L)	Nitrate NO3 (mg/L)	Nitrite NO2 (mg/L)	Total Phosphate T-PO4 (mg/L)	Sulfate SO4 (mg/L)	Sulfide S- (mg/L)	Total Iron Fe (mg/L)	D Iron Fe (mg/L)	pH
07B2701	10-Apr-97	11-Apr-97	Soil	<5	<1.3	N/A	<5	N/A	N/A	N/A	N/A	7.0
07B04901	29-Apr-97	29-Apr-97	Soil	<1	<0.25	<0.1	<1	N/A	N/A	N/A	N/A	7.3
07B05101	29-Apr-97	29-Apr-97	Soil	<1	<0.25	<0.1	<1	N/A	N/A	N/A	N/A	7.6
07B05401	6-May-97	15-May-97	Soil	<5	<1.25	<0.5	<5	<25	N/A	N/A	N/A	6.2
07B05402	6-May-97	15-May-97	Soil	<5	<1.25	<0.5	<5	<25	N/A	N/A	N/A	6.7

N/A = Not analyzed

TITLE: NAS Whiting Field		LOG of WELL: WHF-1438-06S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 2532.15
CONTRACTOR: ABB Environmental Services		DATE STARTED: 09/25/97	COMPLTD: 09/25/97
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 101-116'	PROTECTION LEVEL: D
TOC ELEV.: 175.01 FT.	MONITOR INST.: FID	TOT DPTH: 116FT.	DPTH TO ∇ 107.1 FT.
LOGGED BY: J. Williams	WELL DEVELOPMENT DATE: 10/14/97		SITE: 7

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
61			7/10	0	60-61: SANDY CLAY, low plastic, some small to large GRAVEL, well graded, light red and light gray, mottled. (CL) 61-62: SAND, light gray to white and light red, some small to large GRAVEL fine to medium SAND, and lenses of clayey SAND, well graded (SW).		CL SW		
62									
63									
64									
65									
66									
67									
68									
69									
70									
71			6/10	0	Fine SAND, poorly graded, with trace of dark minerals, light gray to white.		SP		
72									
73									
74									
75									
76									
77									
78									
79									
80									
81			3,7,10,12	0	Fine to medium SAND, poorly graded, light red to dark red.				
82									
83									
84									
85									
86									
87									
88									
89									
90									
91			5,5,10,18	0	As above				
92									
93									
94									
95									
96									
97									
98									
99									
100									
101			5,10,14,19	0	As above				
102									
103									
104									
105									
106									
107									
108									
109									
110									
111			9,7,16,4	0	As above				
112									
113									
114									
115									
116									
117									
118									
119									
120									

TITLE: Naval Air Station Whiting Field	**LOG of WELL:** WHF-5-8S		**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532-15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 3/21/93	**COMPLTD:** 3/23/93
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 110-125	**PROTECTION LEVEL:** D
TOC ELEV.: 177.44 FT.	**MONITOR INST.:** FID/OVA	**TOT DPTH:** 128FT.	**DPTH TO ▽** 110.91 FT.
LOGGED BY: Richard Nelson	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5–6			20/24	0	SAND - light brown, fine to medium, poorly graded, moist, trace silt.		SP	2,3,8,7	
10–11			24/24	0	SAND - reddish brown and light brown, fine to medium, poorly graded, slightly moist, trace silt.		SP	4,6,12,12	
15–16			24/24	NA	CLAY - gray and pinkish red, stiff, plastic, dry.		CH	6,7,10,17	
20–21			14/24	0	Same as above (Top 6"), wet. SAND - white, fine, poorly graded, with thin orange lamina, dry.		CH/SP	4,7,9,12	
25–26			6/24	0	SAND - gray, yellow and tan, fine, poorly graded, wet.		SP	7,6,6,10	
30–31			12/24	0	SAND - white, fine, 1/2' yellow band at 31', dry.		SP	7,11,10,11	
35–36			18/24	0	CLAY (Top 4")- gray, stiff, plastic, trace sand. SAND - white, fine, poorly graded, dry.		CH/SP	9,8,7,9	
40–41			16/24	0	Same as above.		SP	10,9,10,9	
45				0			SP	8,8,8,9	

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		LOG of WELL: WHF-5-8S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 02532-15
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/21/93	COMPLTD: 3/23/93
METHOD: Hollow Stem Auger	CASE SIZE: 2"	SCREEN INT.: 110-125	PROTECTION LEVEL: D
TOC ELEV.: 177.44 FT.	MONITOR INST.: FID/OVA	TOT DPTH: 128FT.	DPTH TO ▽ 110.91 FT.
LOGGED BY: Richard Nelson	WELL DEVELOPMENT DATE:		SITE: 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 1				
46			12/24		SAND - white, fine, poorly graded.		SP		
47									
48									
49									
50				0	Same as above, with pink, yellow and reddish orange banding.		SP	10,14,14,18	
51			12/24						
52									
53									
54									
55				0	SAND - pink and white banded, fine to medium, poorly graded, dry.		SP	10,15,14,19	
56			14/24						
57									
58									
59									
60				0			SP	7,6,12,15	
61			20/24						
62									
63									
64									
65				0	SAND - white, fine, poorly graded, dry.		SP	7,10,14,20	
66			16/24						
67									
68									
69									
70				0	Same as above.		SP	12,14,12,15	
71			18/24						
72									
73									
74									
75				0	Same as above.		SP	17,28,40,52	
76			20/24						
77									
78									
79									
80				0	Same as above, with reddish brown and yellow banding.		SP	18,28,32,34	
81			18/24						
82									
83									
84									
85				0	SAND - white, fine, poorly graded, dry.		SP	17,18,24,27	
86			20/24						
87									
88									
89									
90				0			SP	22,19,22,37	

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: Naval Air Station Whiting Field		**LOG of WELL:** WHF-5-8S	**BORING NO.**
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 02532-15
CONTRACTOR: Groundwater Protection Inc.		**DATE STARTED:** 3/21/93	**COMPLTD:** 3/23/93
METHOD: Hollow Stem Auger	**CASE SIZE:** 2"	**SCREEN INT.:** 110-125	**PROTECTION LEVEL:** D
TOC ELEV.: 177.44 FT.	**MONITOR INST.:** FID/OVA	**TOT DPTH:** 128FT.	**DPTH TO ∇** 110.91 FT.
LOGGED BY: Richard Nelson	**WELL DEVELOPMENT DATE:**		**SITE:** 5

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
91			18/24		Same as above.		SP		
92									
93									
94									
95				0	SAND - yellow brown, fine to medium, poorly graded, dry.		SP	18,22,26,34	
96			20/24						
97									
98									
99									
100				0	SAND - pink, yellow and white, medium, poorly graded, trace coarse sand, moist.		SP	14,15,12,14	
101			12/24						
102									
103									
104									
105				0	SAND - banded light pink, white, yellow and light purple, dry.		SP	10,12,17,17	
106			18/24						
107									
108									
109									
110				1	Same as above, pink and white, moist.		SP	10,8,10,20	
111			20/24						∇
112									
113									
114									
115				1	SAND - white, fine ,wet, top 12 " over 12" yellow, medium grained, poorly graded, wet.		SP	3,5,14,18	
116			24/24						
117									
118									
119									
120				0	Same as above, tan.		SP	14,16,16,14	
121			24/24						
122									
123									
124									
125				0	Same as above.		SP	6,15,18,17	
126			24/24						
127									
128									
129									
130									
131									
132									
133									
134									
135									

 ABB ENVIRONMENTAL SERVICES, INC.

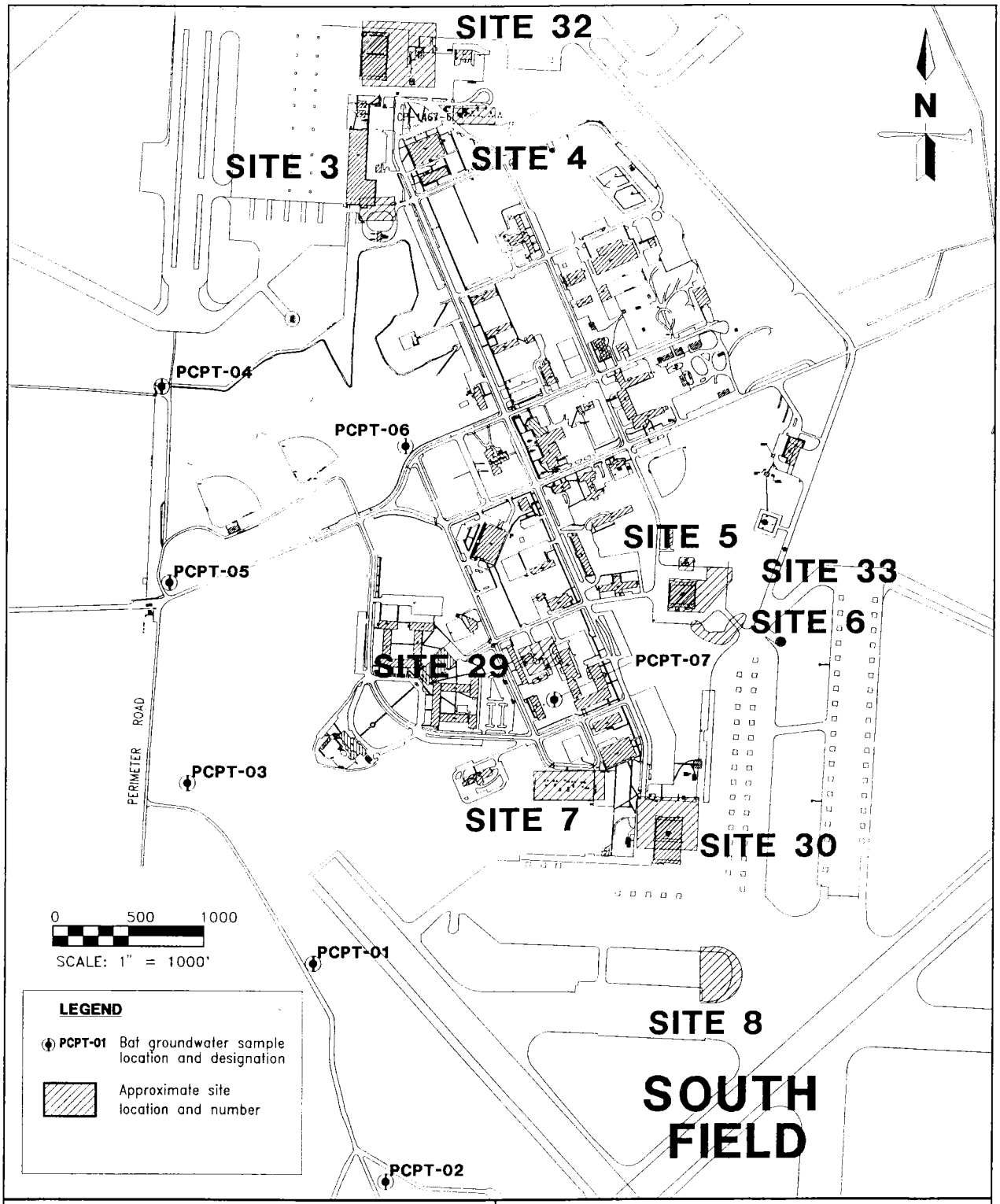


FIGURE 1
RI PHASE IIA BAT GROUNDWATER SAMPLING LOCATIONS

PHASE IIA REMEDIAL INVESTIGATION DATA RELEASE

NAS WHITING FIELD
MILTON, FLORIDA

H:\WHITING\7560-16\TEC-MEM4\BASEWELL\KGP\03\13\95

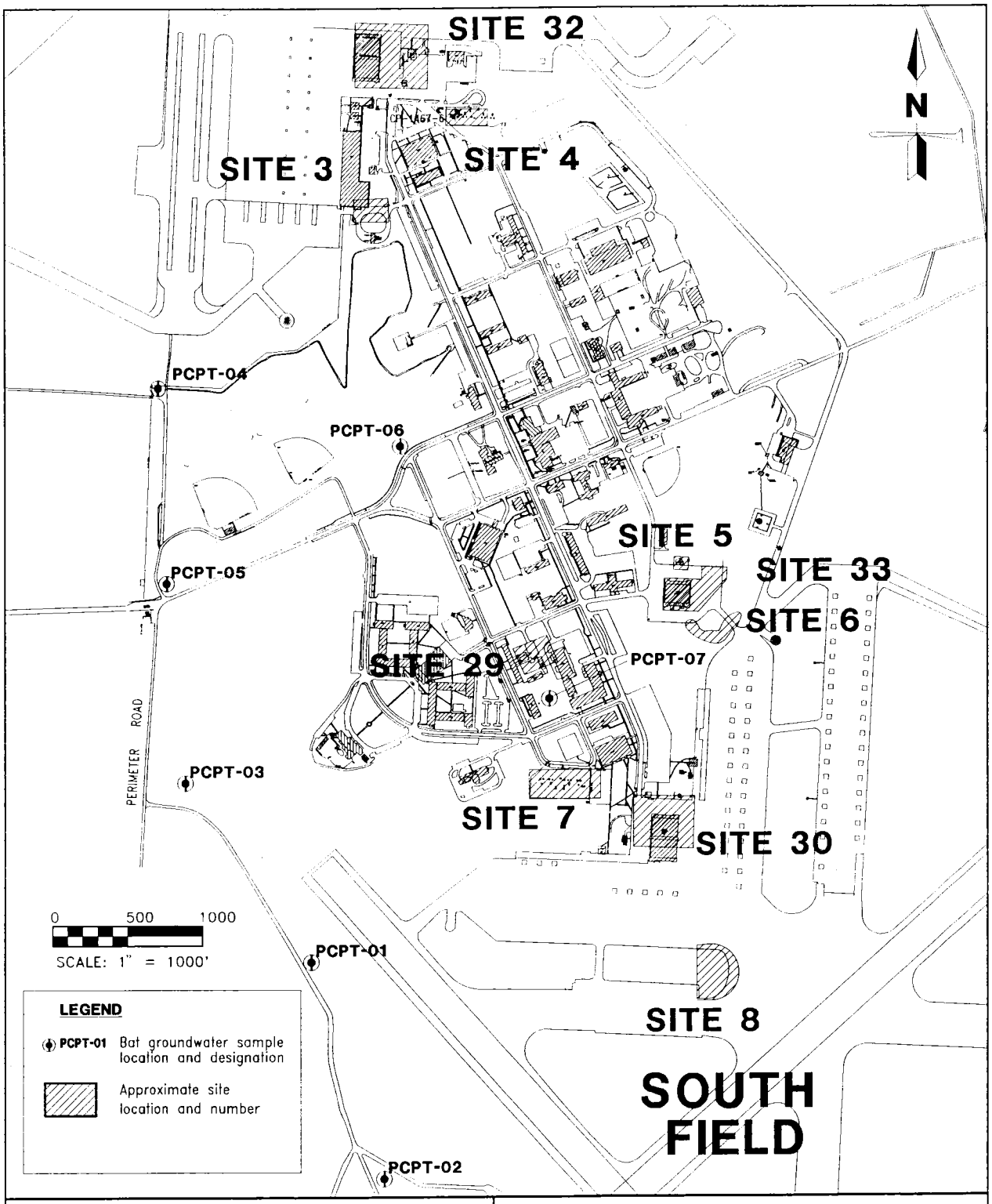


FIGURE 1
RI PHASE IIA BAT GROUNDWATER SAMPLING LOCATIONS

PHASE IIA REMEDIAL INVESTIGATION DATA RELEASE

NAS WHITING FIELD
MILTON, FLORIDA

H:\WHITING\7560-16\TEC-MEM4\BASEWELL\KGP\03\13\95

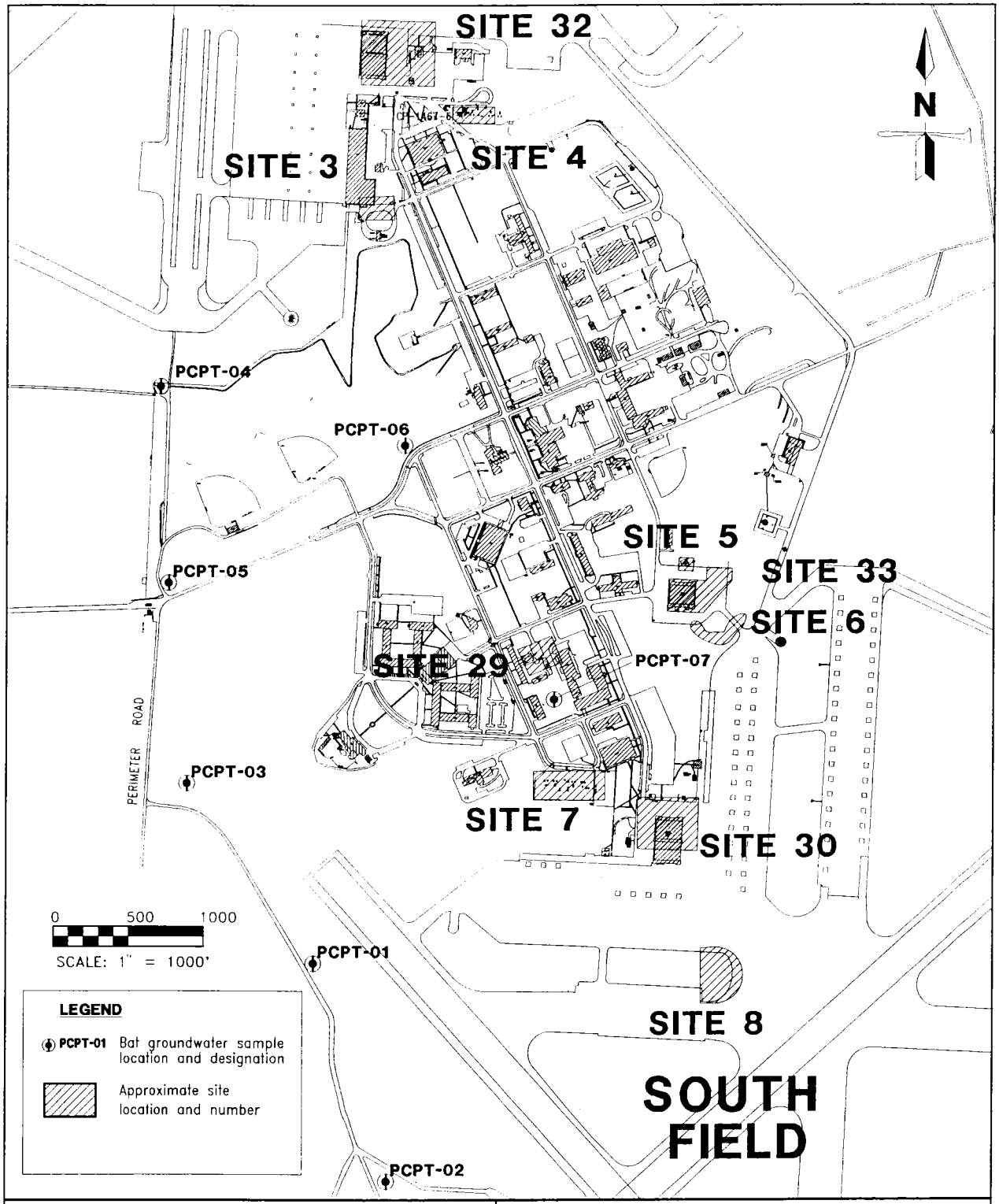


FIGURE 1
RI PHASE IIA BAT GROUNDWATER SAMPLING LOCATIONS

H:\WHITING\7560-16\TEC-MEM4\BASEWELL\KGP\03\13\95

SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND

PHASE IIA REMEDIAL INVESTIGATION DATA RELEASE

NAS WHITING FIELD
MILTON, FLORIDA

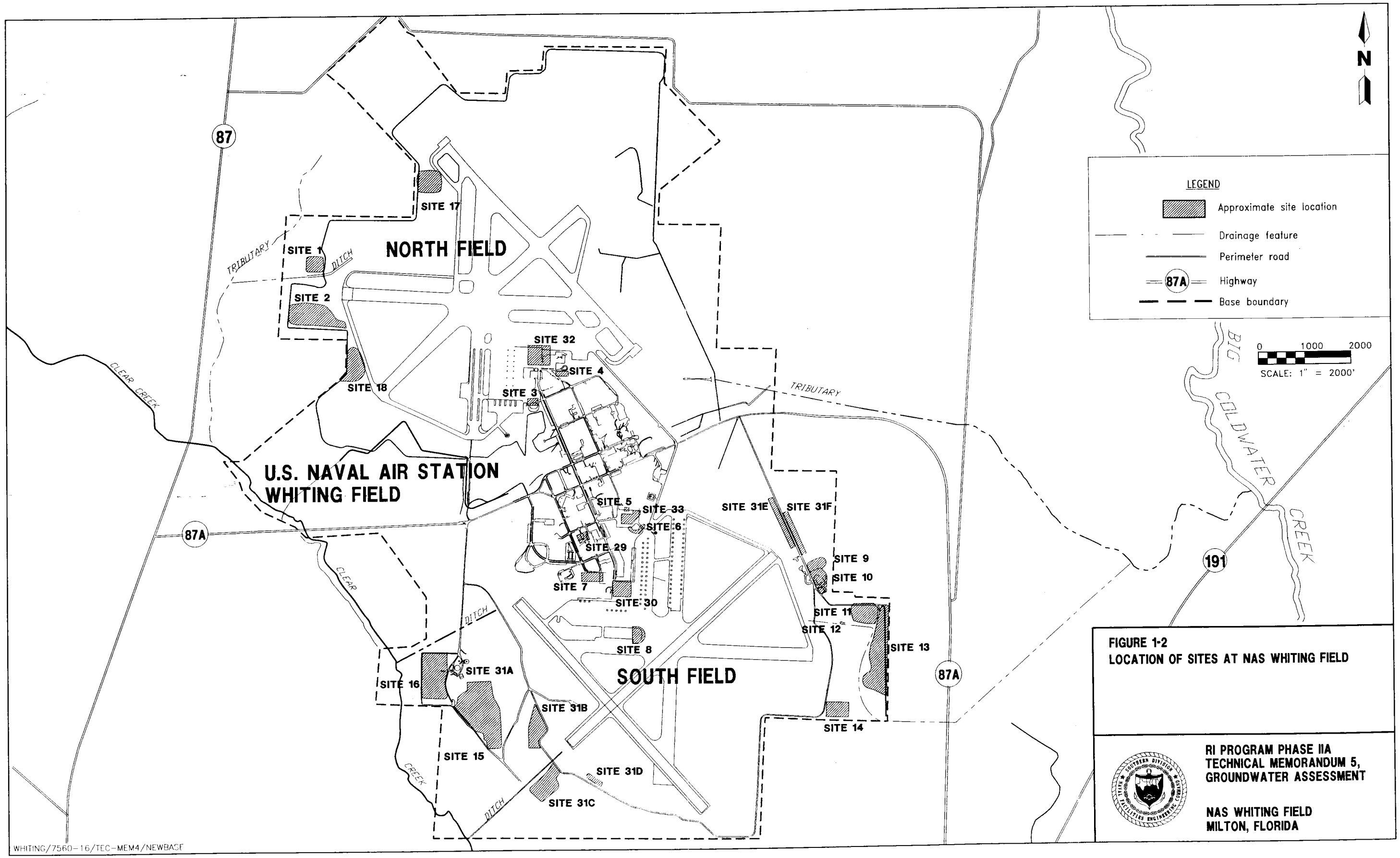


FIGURE 1-2
LOCATION OF SITES AT NAS WHITING FIELD

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

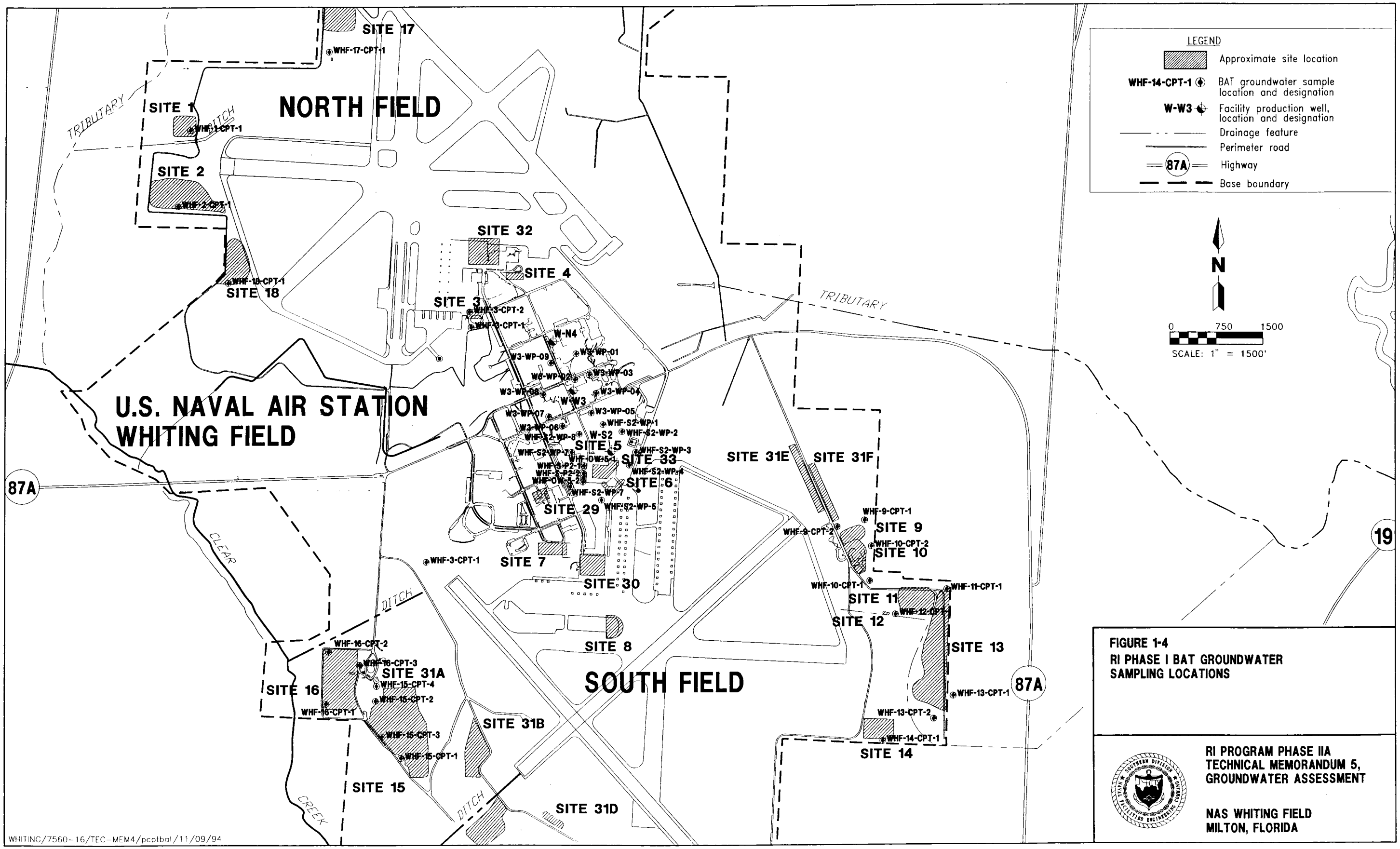


FIGURE 1-4
RI PHASE I BAT GROUNDWATER SAMPLING LOCATIONS

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/pcptbat/11/09/94

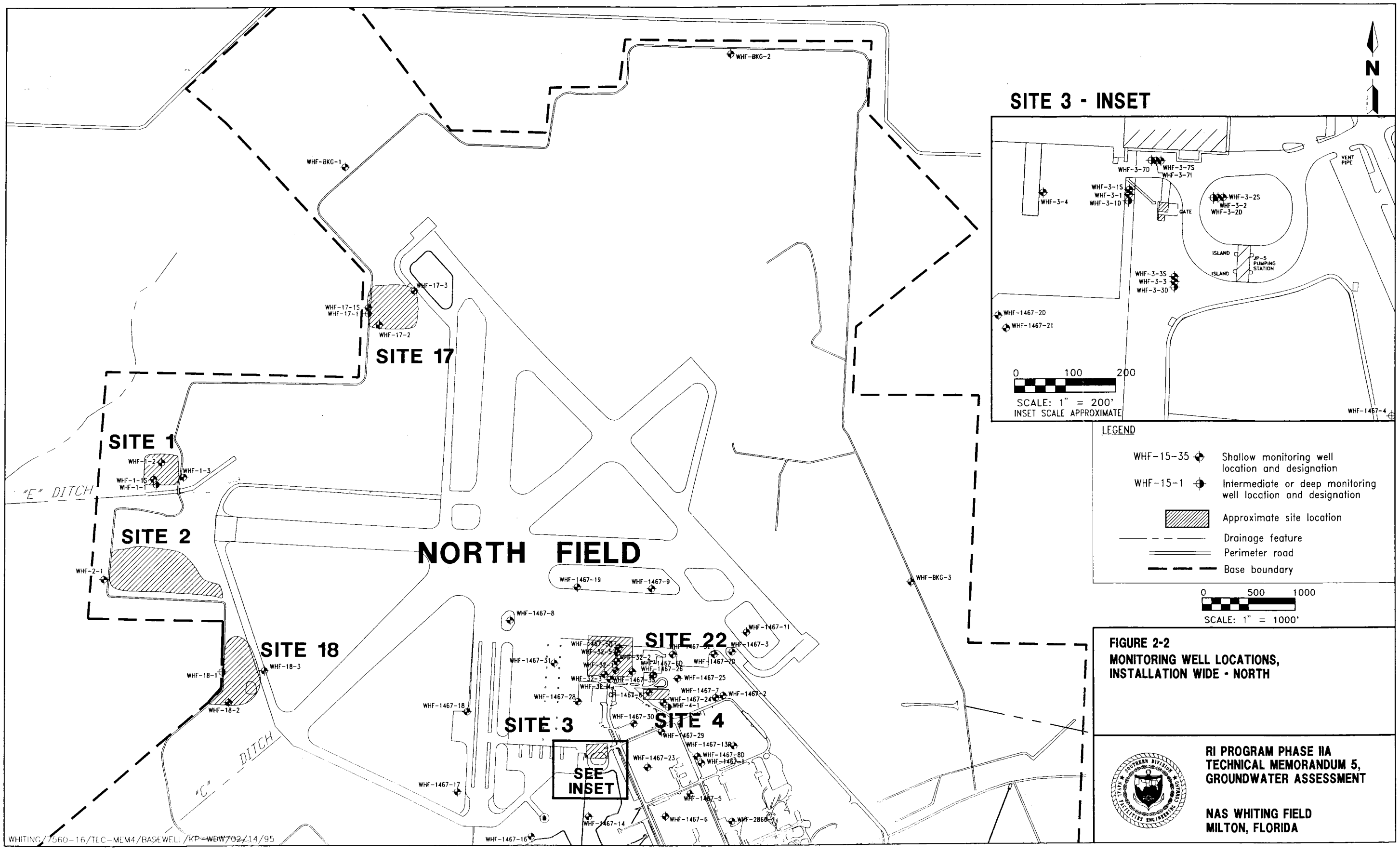


FIGURE 2-2
MONITORING WELL LOCATIONS, INSTALLATION WIDE - NORTH

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5, GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

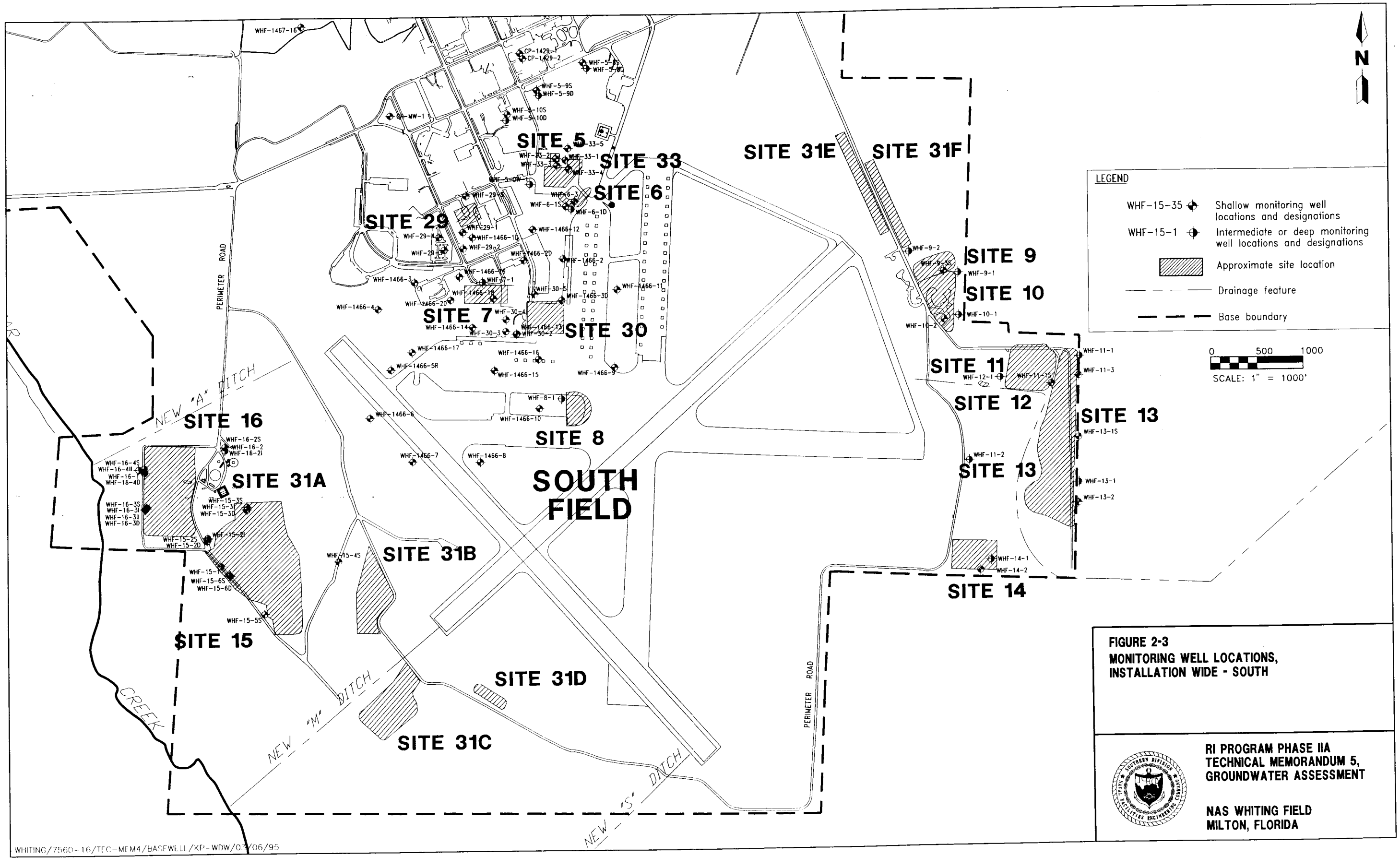


FIGURE 2-3
MONITORING WELL LOCATIONS, INSTALLATION WIDE - SOUTH

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5, GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/BASEWELL/KP-WDW/0[illegible]/06/95

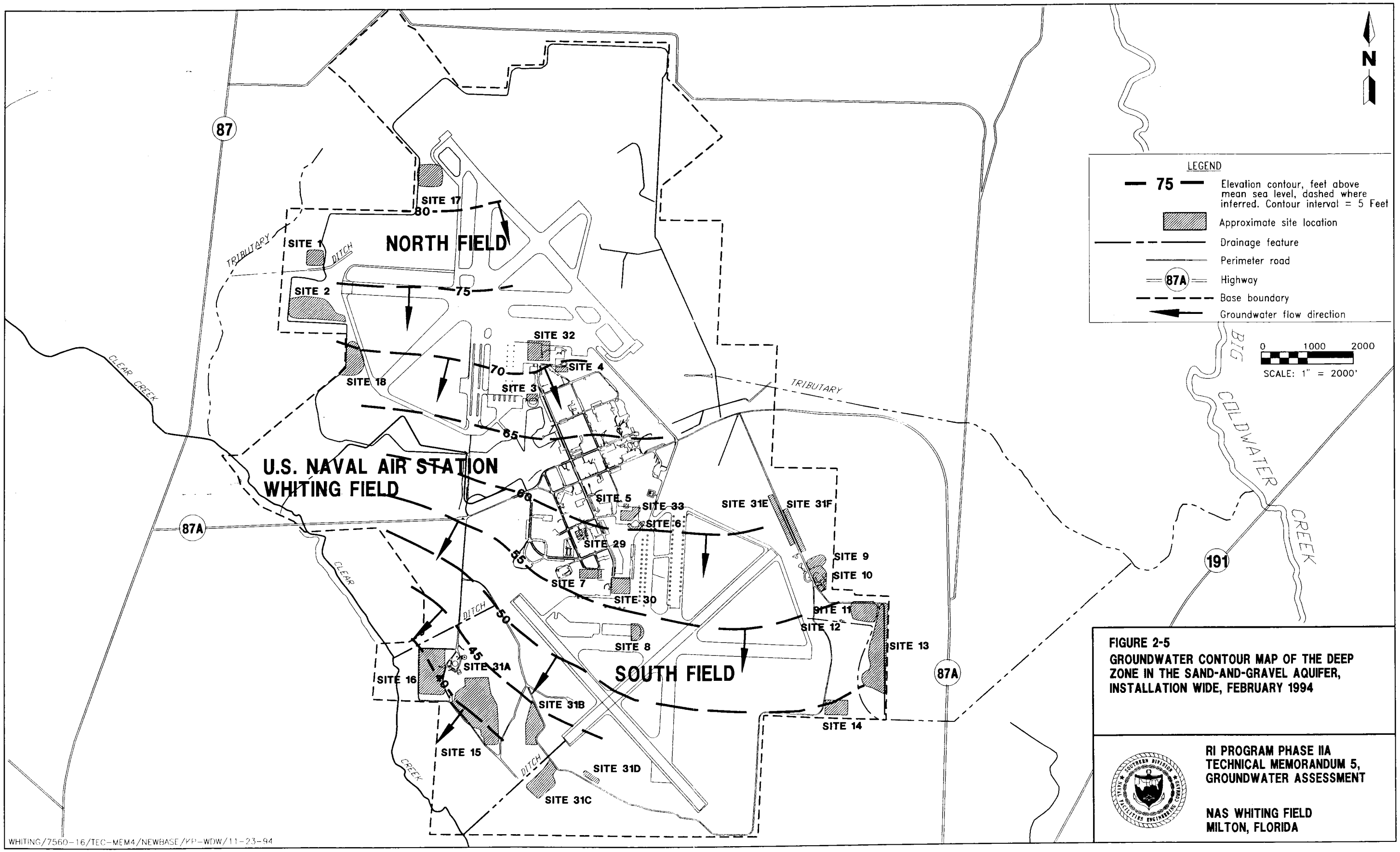


FIGURE 2-5
GROUNDWATER CONTOUR MAP OF THE DEEP ZONE IN THE SAND-AND-GRAVEL AQUIFER, INSTALLATION WIDE, FEBRUARY 1994

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/NEWBASE/KP-WDW/11-23-94

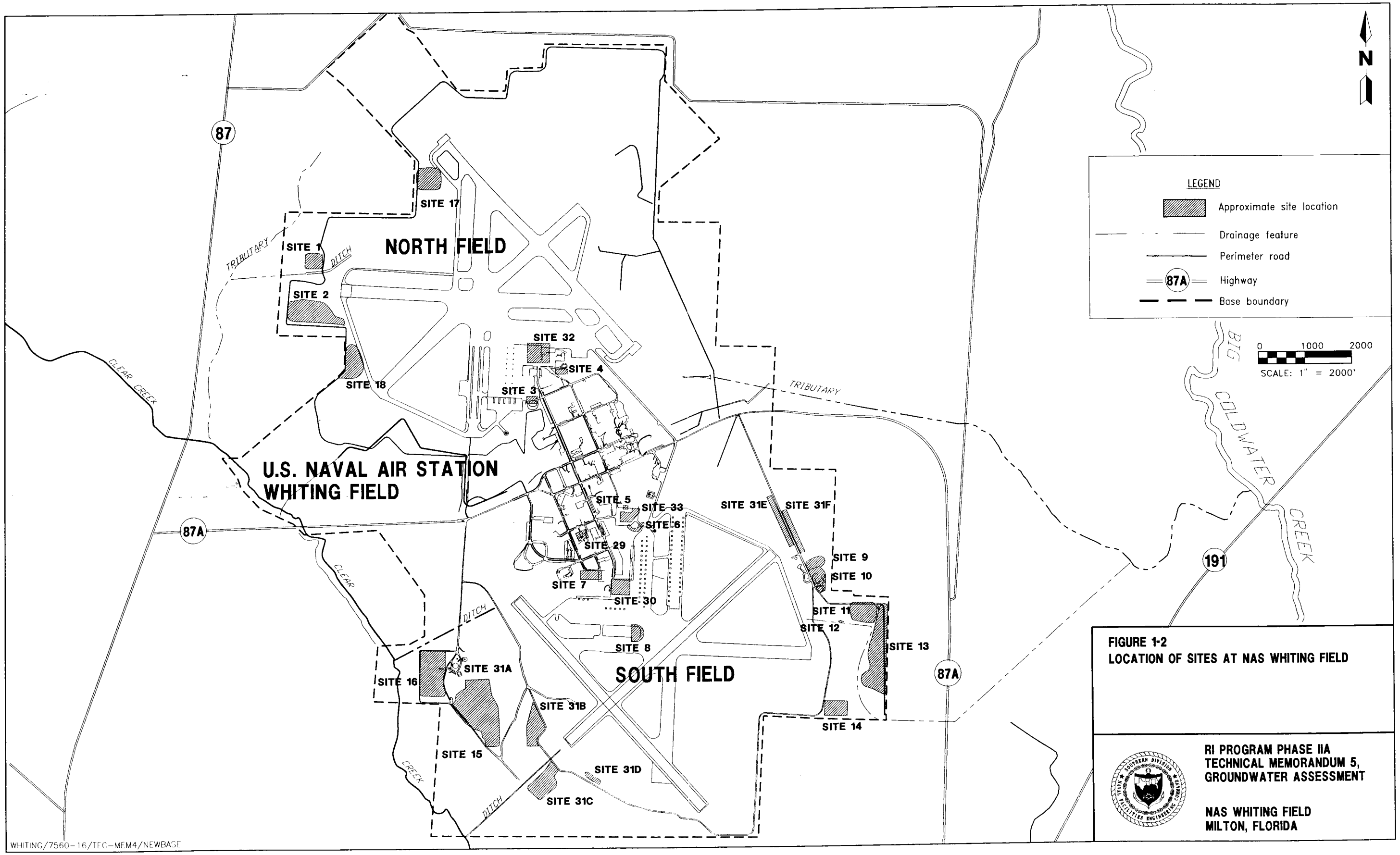


FIGURE 1-2
LOCATION OF SITES AT NAS WHITING FIELD

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

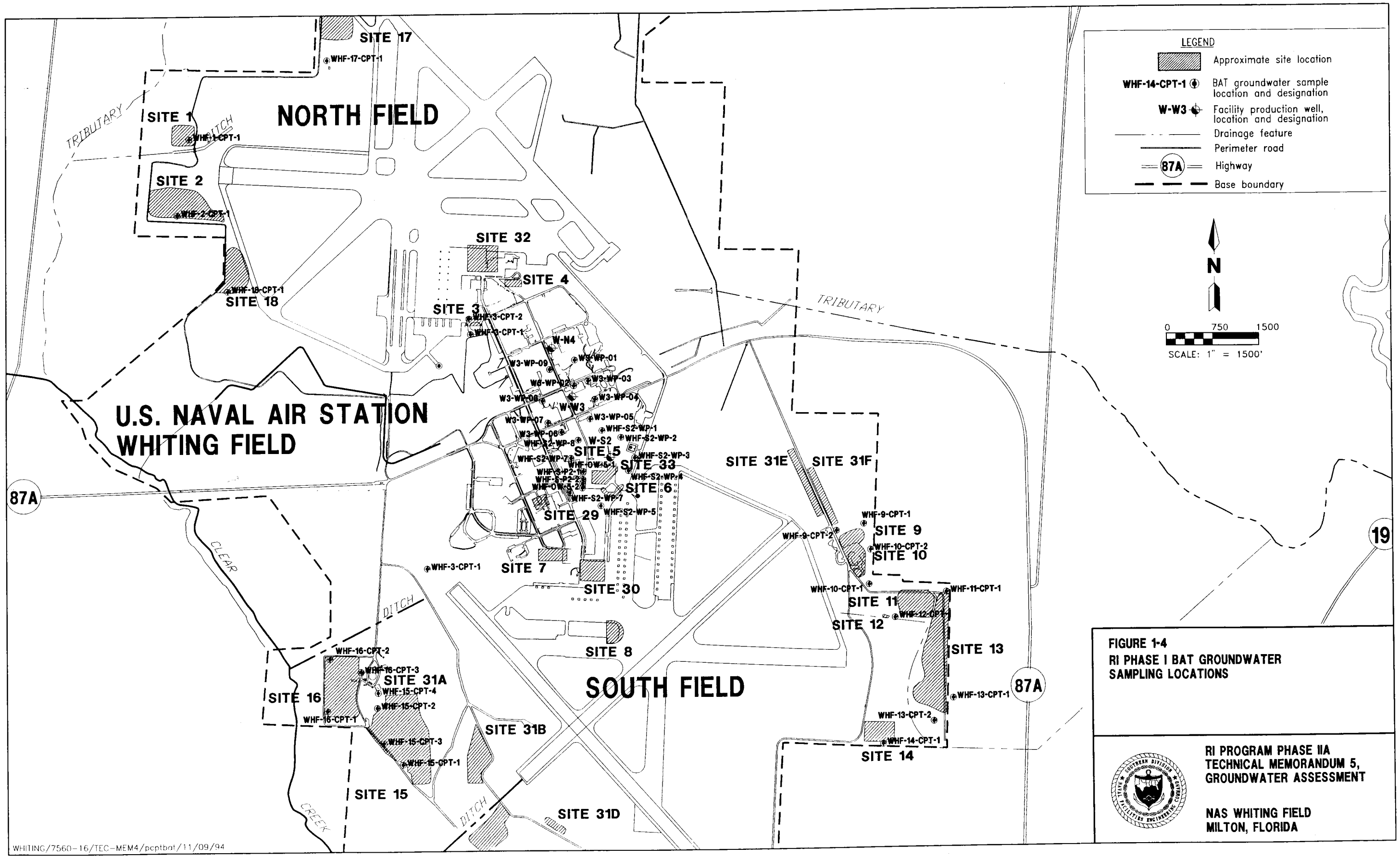


FIGURE 1-4
RI PHASE I BAT GROUNDWATER SAMPLING LOCATIONS

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/pcptbat/11/09/94

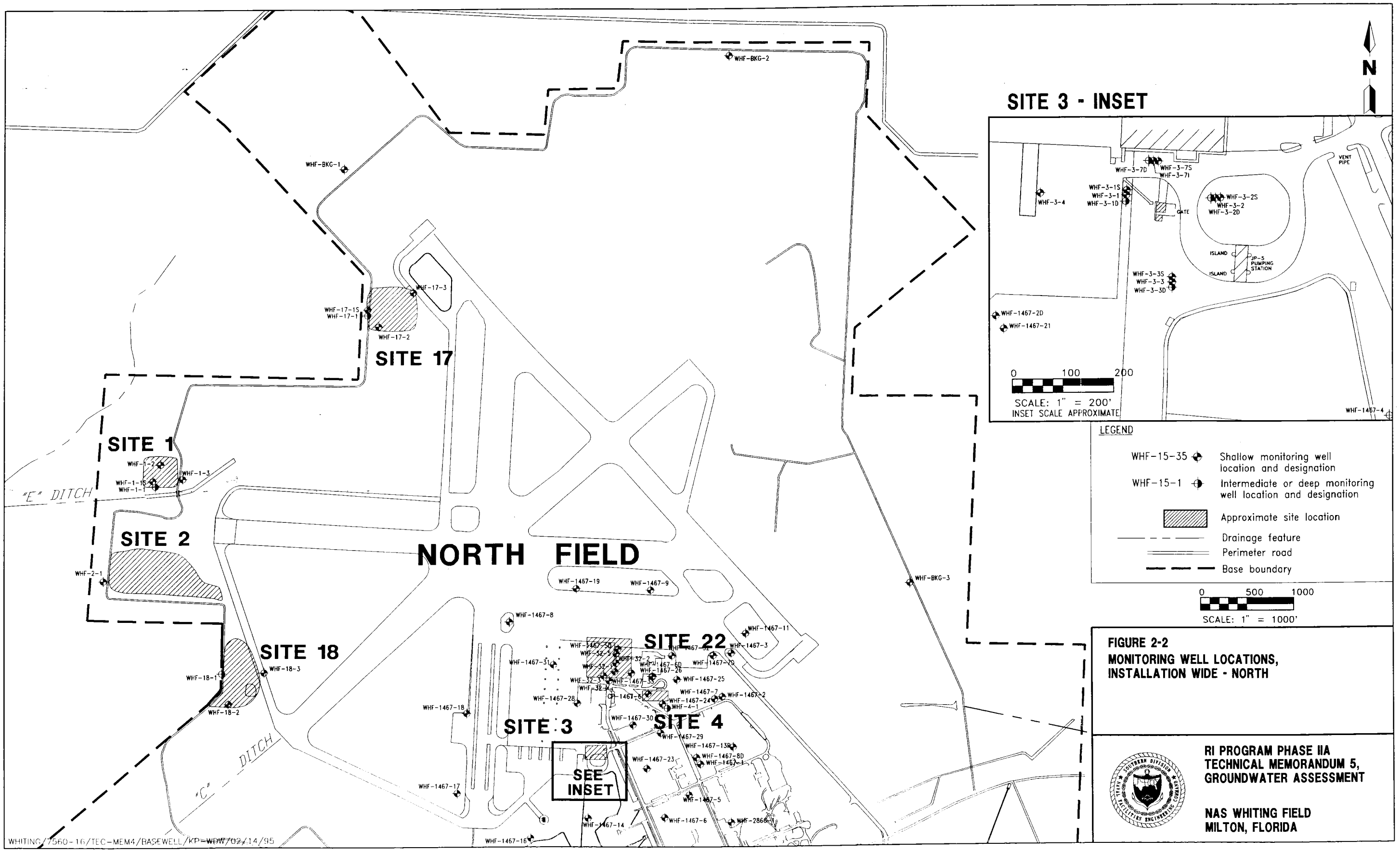


FIGURE 2-2
MONITORING WELL LOCATIONS, INSTALLATION WIDE - NORTH

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5, GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

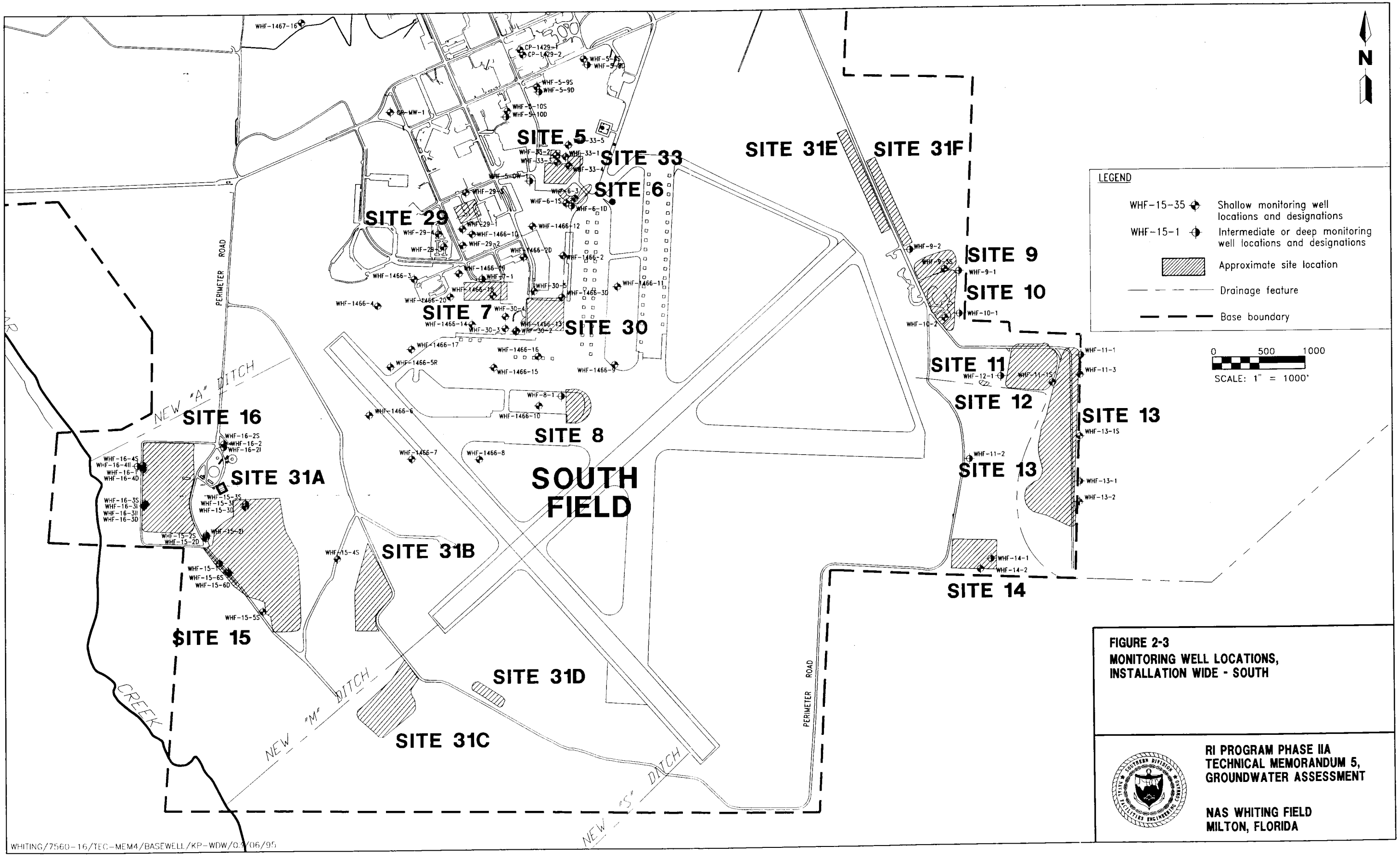


FIGURE 2-3
MONITORING WELL LOCATIONS, INSTALLATION WIDE - SOUTH

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5, GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/BASEWELL/KP-WDW/0.4/06/95

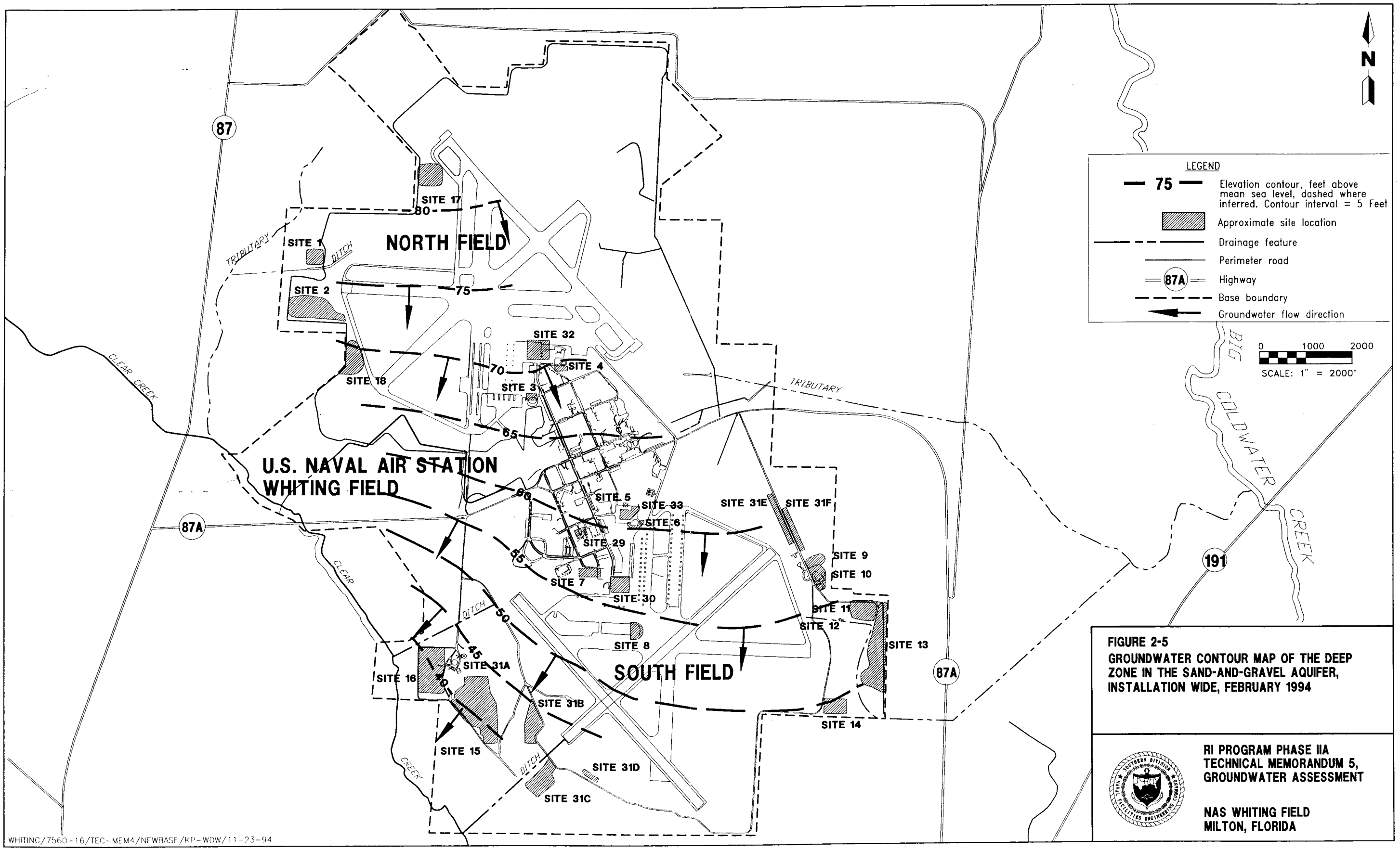


FIGURE 2-5
GROUNDWATER CONTOUR MAP OF THE DEEP ZONE IN THE SAND-AND-GRAVEL AQUIFER, INSTALLATION WIDE, FEBRUARY 1994

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/NEWBASE/KP-WDW/11-23-94

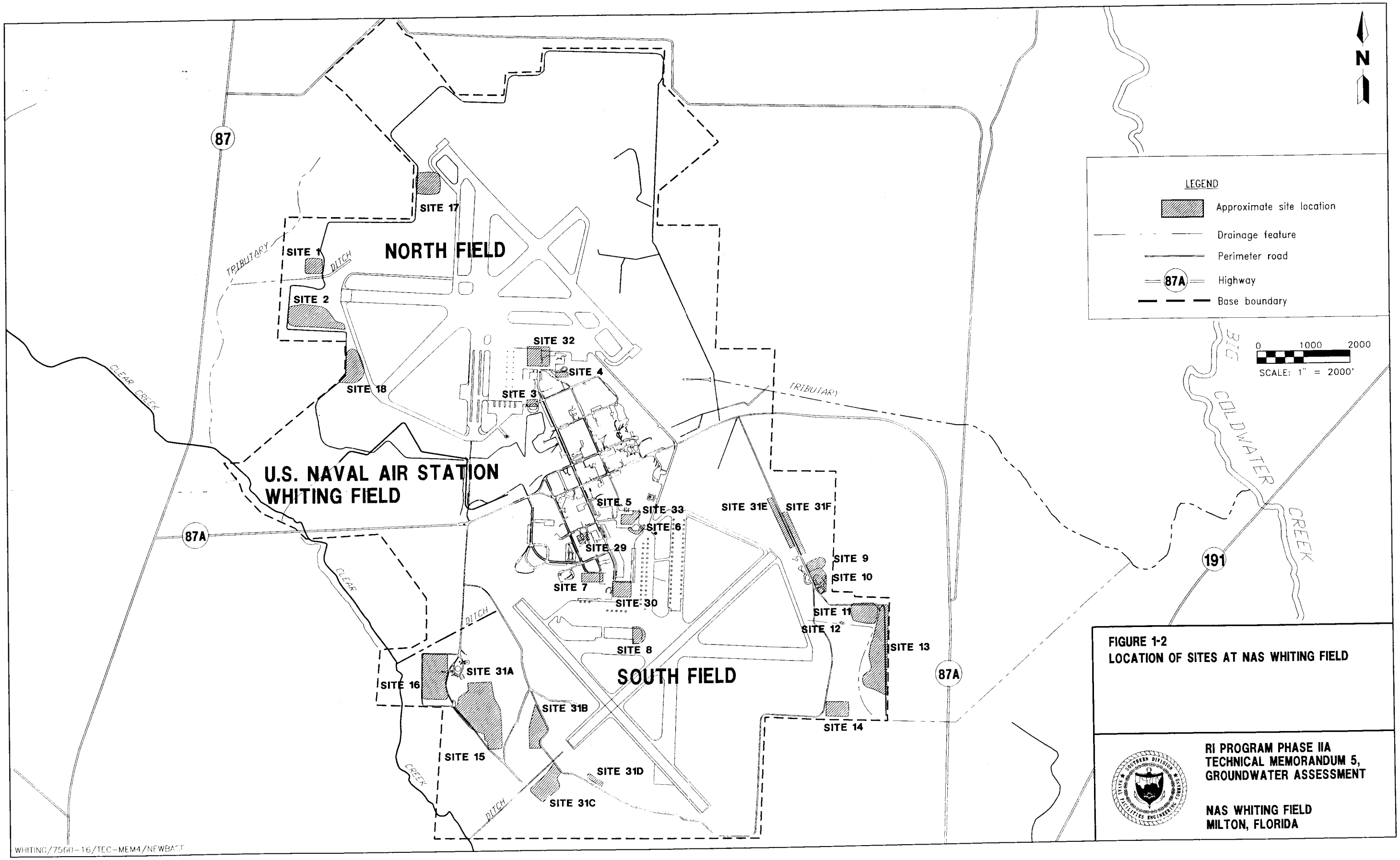


FIGURE 1-2
LOCATION OF SITES AT NAS WHITING FIELD

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/NFWBASE

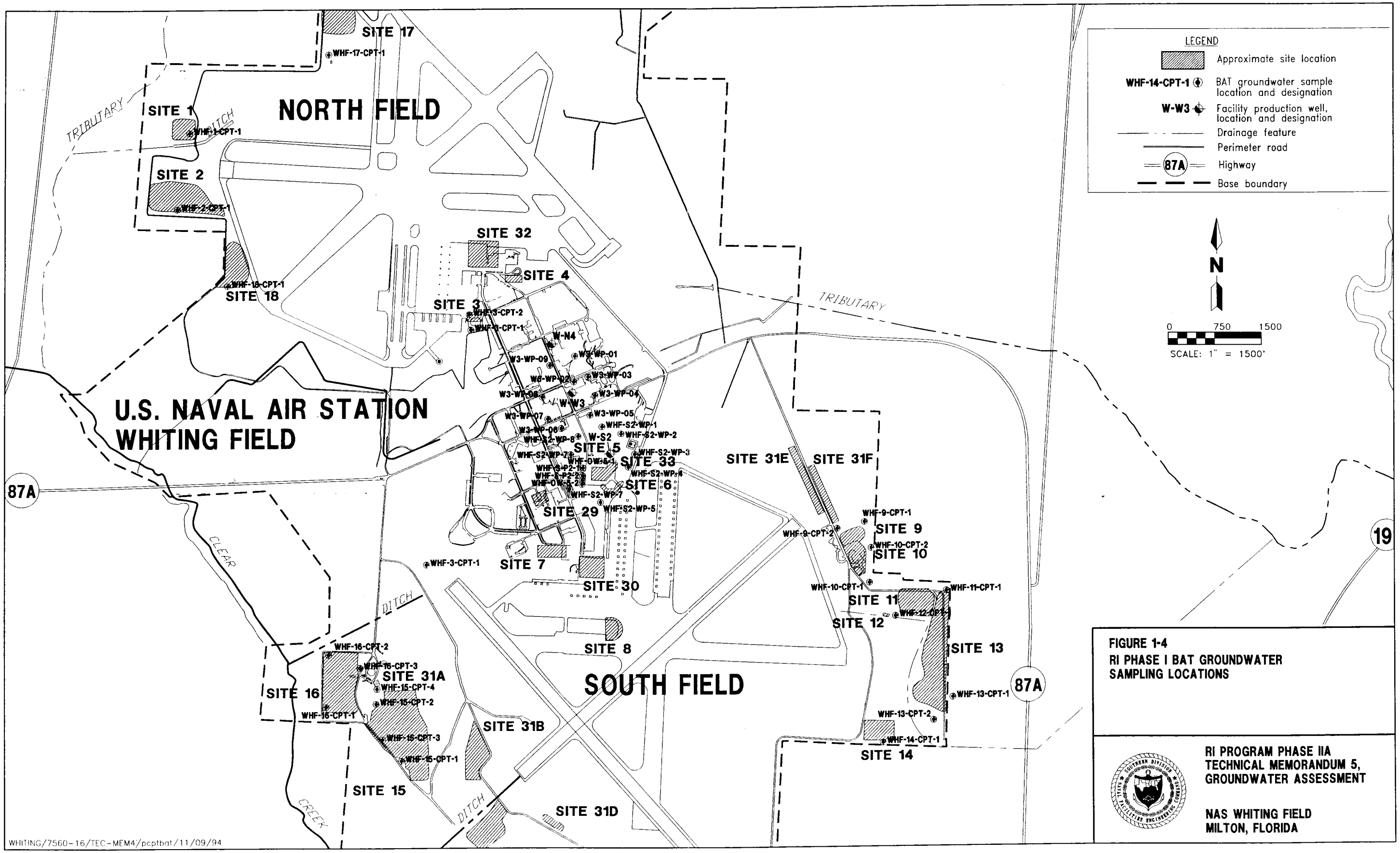
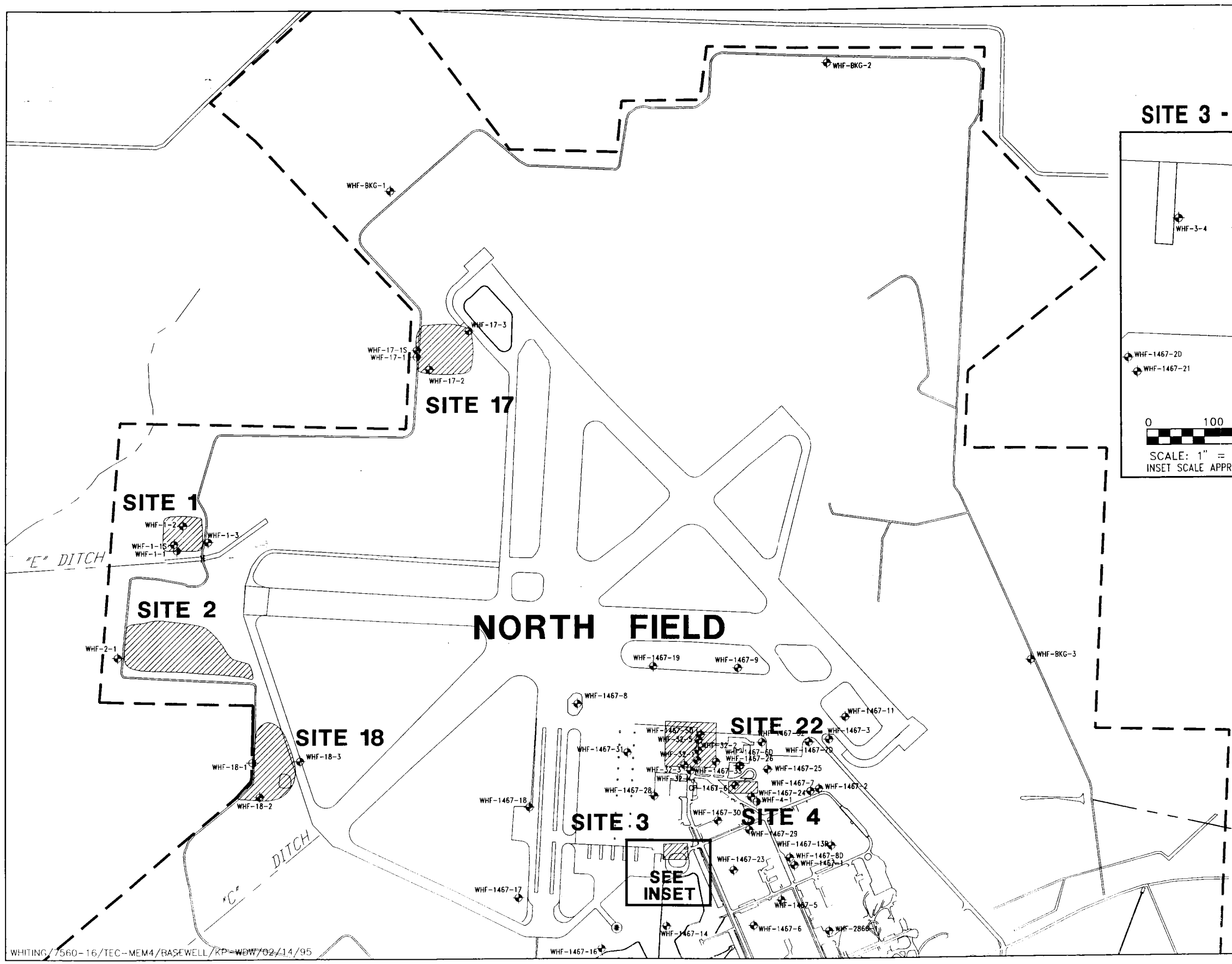


FIGURE 1-4
RI PHASE I BAT GROUNDWATER SAMPLING LOCATIONS

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/pcptbat/11/09/94


NORTH FIELD
SITE 1
SITE 2
SITE 3
SITE 4
SITE 17
SITE 18
SITE 22
SEE INSET
"E" DITCH
"C" DITCH
WHF-BKG-1
WHF-BKG-2
WHF-BKG-3
WHF-17-1S
WHF-17-1
WHF-17-2
WHF-17-3
WHF-1-1S
WHF-1-1
WHF-1-2
WHF-1-3
WHF-2-1
WHF-18-1
WHF-18-2
WHF-18-3
WHF-1467-19
WHF-1467-9
WHF-1467-8
WHF-1467-11
WHF-1467-3
WHF-1467-31
WHF-1467-18
WHF-1467-17
WHF-1467-16
WHF-1467-14
WHF-1467-6
WHF-1467-5
WHF-1467-23
WHF-1467-28
WHF-1467-25
WHF-1467-2
WHF-1467-30
WHF-1467-29
WHF-1467-13R
WHF-1467-8D
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WHF-1467-7
WHF-1467-24
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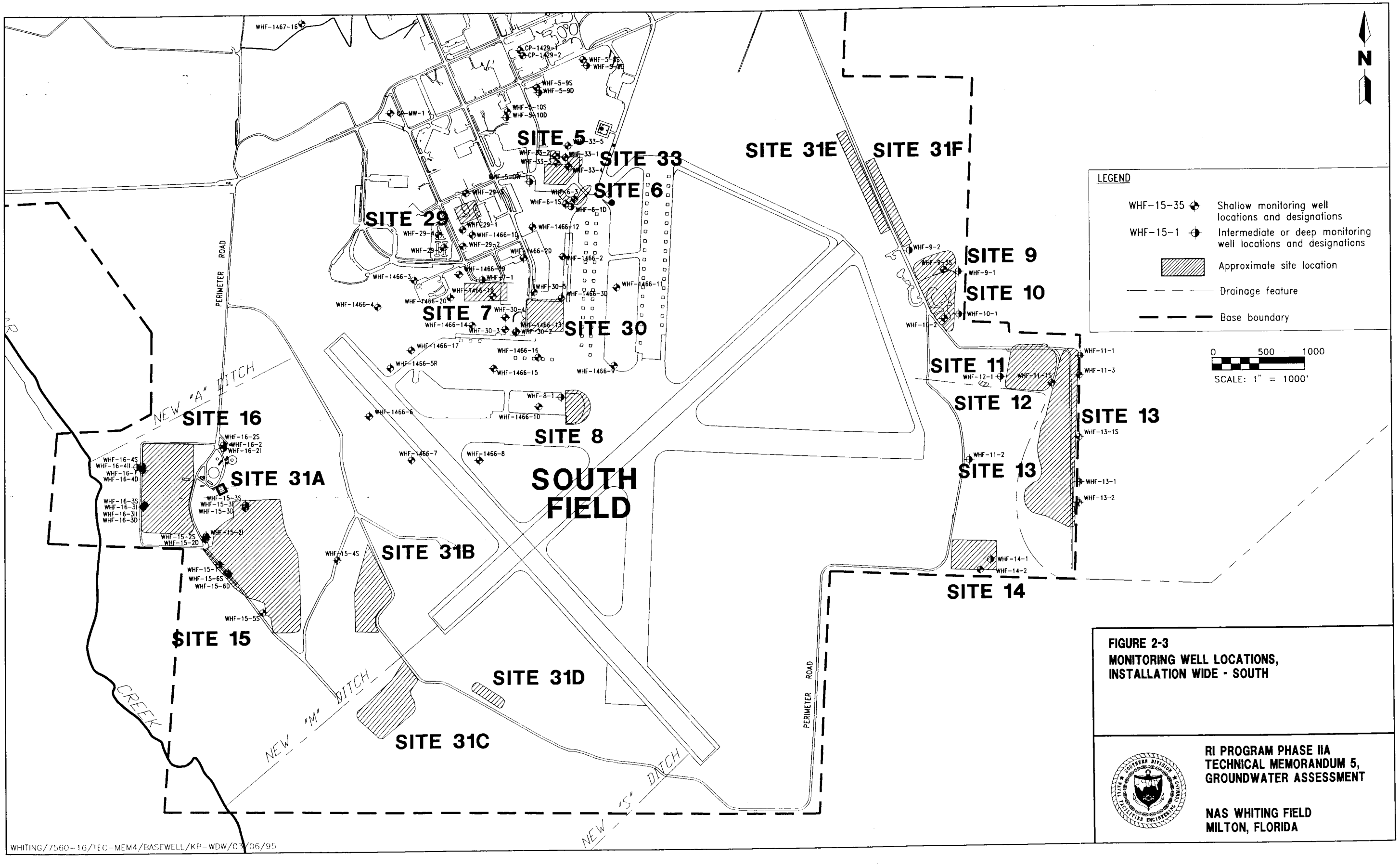

FIGURE 2-3
MONITORING WELL LOCATIONS, INSTALLATION WIDE - SOUTH

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5, GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/BASEWELL/KP-WDW/03/06/95

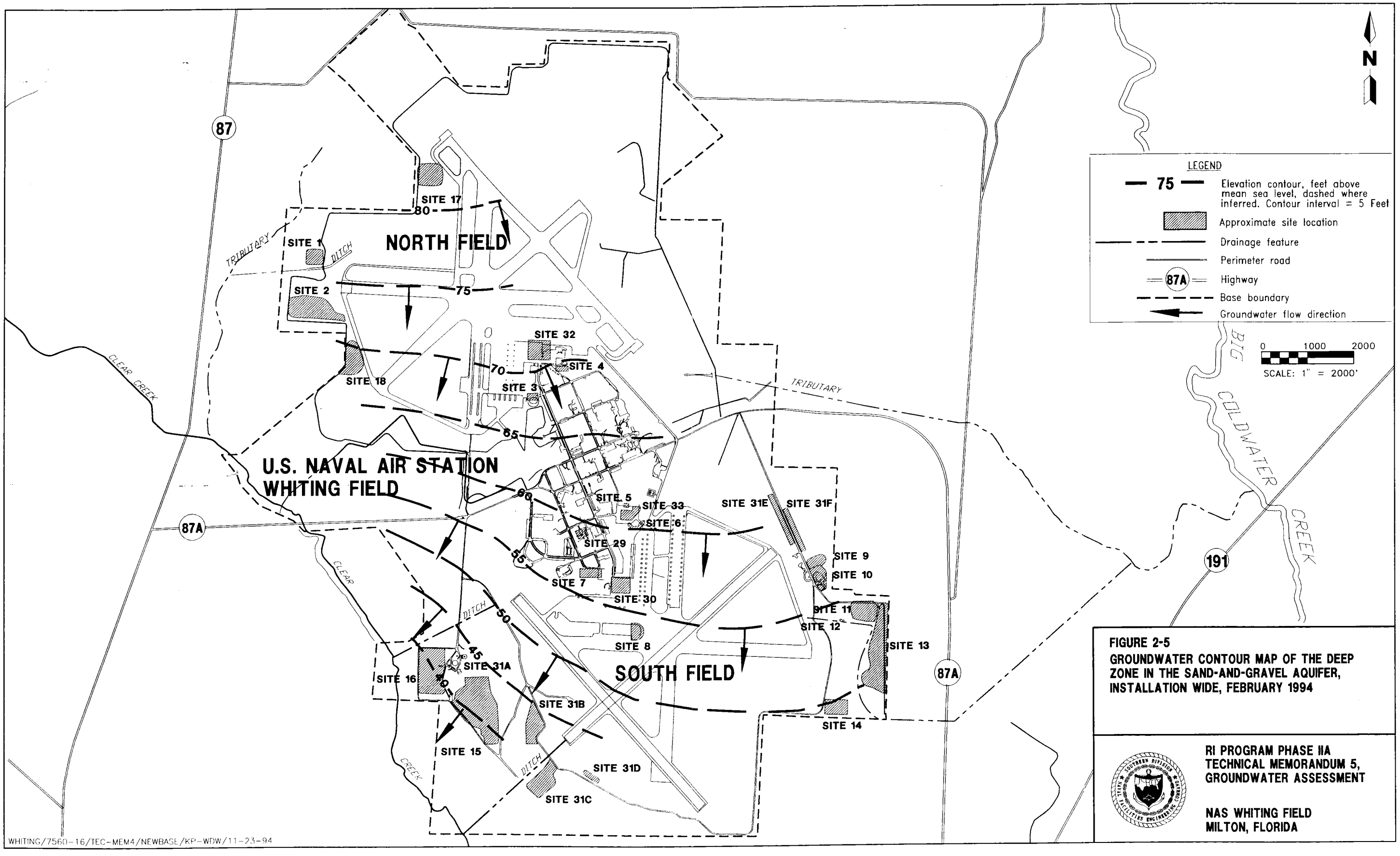

FIGURE 2-5
GROUNDWATER CONTOUR MAP OF THE DEEP ZONE IN THE SAND-AND-GRAVEL AQUIFER, INSTALLATION WIDE, FEBRUARY 1994

RI PROGRAM PHASE IIA
TECHNICAL MEMORANDUM 5,
GROUNDWATER ASSESSMENT

NAS WHITING FIELD
MILTON, FLORIDA

WHITING/7560-16/TEC-MEM4/NEWBASE/KP-WDW/11-23-94