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CONTAMINATION ASSESSMENT REPORT ADDENDUM SITE 607NE NAS PENSACOLA FL
3/1/1993
ABB ENVIRONMENTAL SERVICES, INC

CONTAMINATION ASSESSMENT REPORT ADDENDUM

**Site 607NE
Naval Aviation Depot
Naval Air Station
Pensacola, Florida**

UIC: N00204

Contract No. N62467-89-D-0317

Prepared by:

**ABB Environmental Services, Inc.
2590 Executive Center Circle, East
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Authors:

**Roger Durham
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Prepared for:

**Department of the Navy, Southern Division
Naval Facilities Engineering Command
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Luis Vazquez, Code 1843, Engineer-in-Charge

March 1993



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 the Florida Department of Environmental Regulation (FDER) 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 Aviation Depot (NADEP) Pensacola, Pensacola, Florida, at 904-452-2320 or to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Code 1843, at DSN 563-0613 or 803-743-0613.

EXECUTIVE SUMMARY

Site 607NE is the former location of two underground storage tanks (USTs) reportedly used for the storage of waste oil and used aviation fuel. During a tank removal and installation program, the USTs were removed and replaced with a double-walled, steel, 500-gallon UST located at the former UST location.

A contamination assessment was conducted by ABB Environmental Services (ABB-ES), Inc., from January to March 1992 during which five soil borings (SB1 through SB5) were drilled, five monitoring wells (MW1 through MW5) were installed, and soil and groundwater samples were collected. Organic vapor analyzer (OVA) headspace readings indicate that volatile organic compound concentrations in the soil are minimal. Laboratory groundwater sample analyses indicate that groundwater contamination at the site is minimal. Contaminants identified in the groundwater include toluene, total recoverable petroleum hydrocarbons (TRPH), acetone, and chloroform. Concentrations of these contaminants (see Executive Summary Figure) were below State target levels or recommended guidance concentrations. The findings and conclusions of the contamination assessment were presented in a contamination assessment report (CAR). The CAR was submitted to the Navy and the Florida Department of Environmental Regulation (FDER) in June 1992. A *No Further Action Proposal (NFAP)* was recommended.

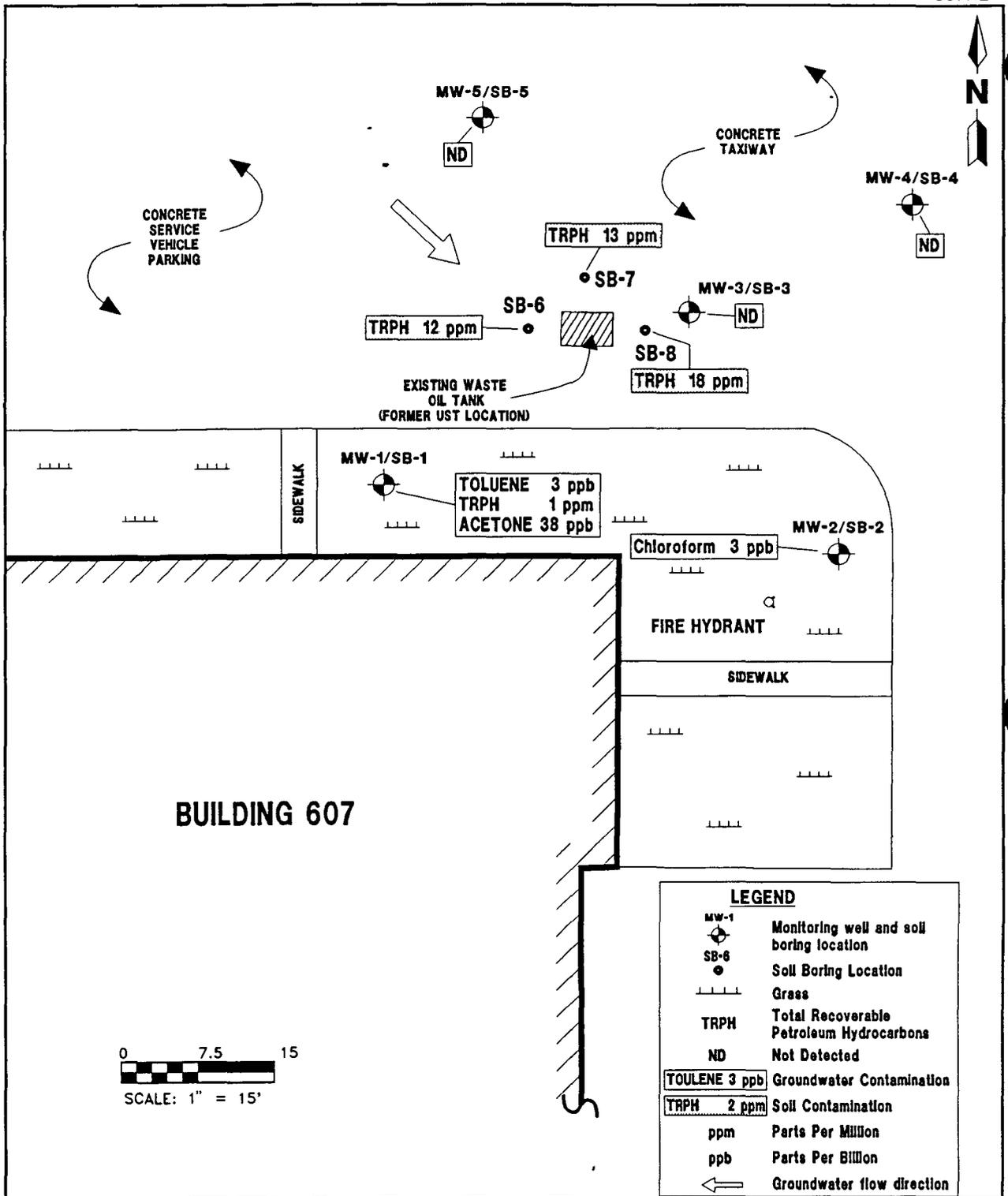
Because petroleum-contaminated soils were reportedly returned to the UST excavation during tank removal activities, FDER requested that a supplemental soil assessment be conducted. To fulfill this request, three additional soil borings, SB6 through SB8, were advanced in the vicinity of the former USTs at the site. Soil samples were collected from each boring and analyzed for TRPH.

Findings

- TRPH were detected in the samples collected from all three borings. TRPH concentrations ranged from 12 parts per million (ppm) to 18 ppm and exceed the State target level of 10 ppm for clean soils.

Conclusions

- Although TRPH concentrations exceed the State target level of 10 ppm for clean soils, the reported concentrations are well below the State cleanup level of 50 ppm and do not require remediation.
- Because the area near the UST is paved, contact of contaminated soils with potential receptors does not appear likely.
- It does not appear that soil contamination is significantly affecting the groundwater at the site. Concentrations of groundwater contaminants did not exceed State target levels (Chapter 17-770, Florida Administrative Code [FAC]) or recommended guidance concentrations (FDER, February 1989).
- No groundwater contaminants were detected in the sample collected from monitoring well MW3, located 10 feet downgradient of the former USTs.



EXECUTIVE SUMMARY FIGURE



CONTAMINATION ASSESSMENT
REPORT ADDENDUM
SITE 607NE

NADEP PENSACOLA
PENSACOLA, FLORIDA

Recommendations

Based on the findings and interpretations of the previous contamination assessment and the additional soil assessment, a *NFAP* is resubmitted for Site 607NE.

ACKNOWLEDGMENTS

In preparing this report, The Underground Storage Tank Section of the Comprehensive Long-Term Environmental Action, Navy (CLEAN) Group at ABB Environmental Services (ABB-ES), Inc., commends the support, assistance, and cooperation provided by the personnel of the Naval Aviation Depot (NADEP) Pensacola, Florida, and Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM). In particular, ABB-ES acknowledges the effort provided by the following people during the investigation and preparation of this report.

Name	Title	Position	Location
Luis Vazquez	Environmental Engineer	Engineer-in-Charge	SOUTHNAVFACENGCOM
Danny Freeman	Environmental Coordinator	Environmental Coordinator	NADEP Pensacola

TABLE OF CONTENTS

Contamination Assessment Report Addendum
Site 607NE, Naval Aviation Depot
Pensacola, Florida

<u>Section</u>	<u>Title</u>	<u>Page No.</u>
1.0	INTRODUCTION	1-1
2.0	SITE BACKGROUND	2-1
2.1	SITE DESCRIPTION	2-1
2.2	SITE HISTORY	2-1
2.3	SCOPE	2-4
3.0	SUPPLEMENTAL SOIL ASSESSMENT RESULTS	3-1
4.0	SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	4-1
4.1	SUMMARY	4-1
4.2	CONCLUSIONS	4-1
4.3	RECOMMENDATIONS	4-1
5.0	PROFESSIONAL REVIEW CERTIFICATION	5-1
6.0	REFERENCES	6-1

APPENDICES

- Appendix A: FDER Correspondence
- Appendix B: Soil Laboratory Analyses

LIST OF FIGURES

Contamination Assessment Report Addendum
Site 607NE, Naval Aviation Depot
- Pensacola, Florida

<u>Figure</u>	<u>Title</u>	<u>Page No.</u>
1-1	Facility Location Map	1-2
2-1	Site Location Map	2-2
2-2	Site Plan	2-3
2-3	Groundwater Contamination Distribution Map, February 6, 1992 . .	2-5
3-1	TRPH Soil Contamination Distribution Map	3-2

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page No.</u>
3-1	Summary of Soil Sample Analyses, January 12, 1993	3-1

GLOSSARY

The following list contains many of the acronyms, initialisms, abbreviations, and units of measure used in this report.

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
CAR	Contamination Assessment Report
CLEAN	Comprehensive Long-Term Environmental Action, Navy
CompQAP	Comprehensive Quality Assurance Plan
CTO	Contract Task Order Number
FAC	Florida Administrative Code
FDER	Florida Department of Environmental Regulation
HSWA	Hazardous and Solid Waste Amendments
NADEP	Naval Aviation Depot
NAS	Naval Air Station
NFAP	No Further Action Proposal
NS	not sampled
OVA	organic vapor analyzer
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
SWDA	Solid Waste Disposal Act
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOA	volatile organic aromatics
VOC	volatile organic compounds

1.0 INTRODUCTION

The Naval Aviation Depot (NADEP) Pensacola, Florida, is a tenant command located on Naval Air Station (NAS) facilities within the Pensacola Naval Base Complex. The Pensacola Naval Base Complex is located on the western edge of Pensacola Bay on State Route 295 (Navy Boulevard; Figure 1-1). NADEP Pensacola occupies approximately 130 acres at NAS Pensacola. The mission of NADEP Pensacola is to: maintain and operate facilities for, and perform a complete range of depot-level rework operations on designated weapons systems, accessories, and equipment; manufacture parts and assemblies, as required; provide engineering services in hardware design; furnish technical services on aircraft maintenance and logistic problems; and perform other levels of aircraft maintenance.

During a tank removal program implemented by the U.S. Department of the Navy in 1989 and 1990, petroleum underground storage tanks (USTs) at various NADEP site locations were removed. In many cases, these tanks were replaced with new USTs. Tank contents were reportedly restricted to petroleum products ranging from waste oil, diesel fuel, and unleaded gasoline to PD-680 (a petroleum distillate solvent similar to mineral spirits). The reported volumes of the tanks varied from 500 to 3,000 gallons. Soil samples were collected from each tank excavation and analyzed for total recoverable petroleum hydrocarbons (TRPH). Based on TRPH concentrations, 18 sites were found to be non-compliant with Florida Department of Environmental Regulation (FDER) target levels, as defined in Chapter 17-770, Florida Administrative Code (FAC).

ABB Environmental Services, Inc. (ABB-ES), was contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to perform a contamination assessment and submit a contamination assessment report (CAR) for each of the 18 petroleum contaminated sites at NADEP. The contamination assessment at one of the 18 sites, Site 607NE, was conducted from January 1992 through March 1992.

A CAR for Site 607NE was submitted to FDER in June 1992. At the request of FDER, a supplemental field investigation was performed, which was conducted on January 12, 1993. This report is an addendum to the original CAR, and presents the findings and conclusions of the supplemental field investigation.

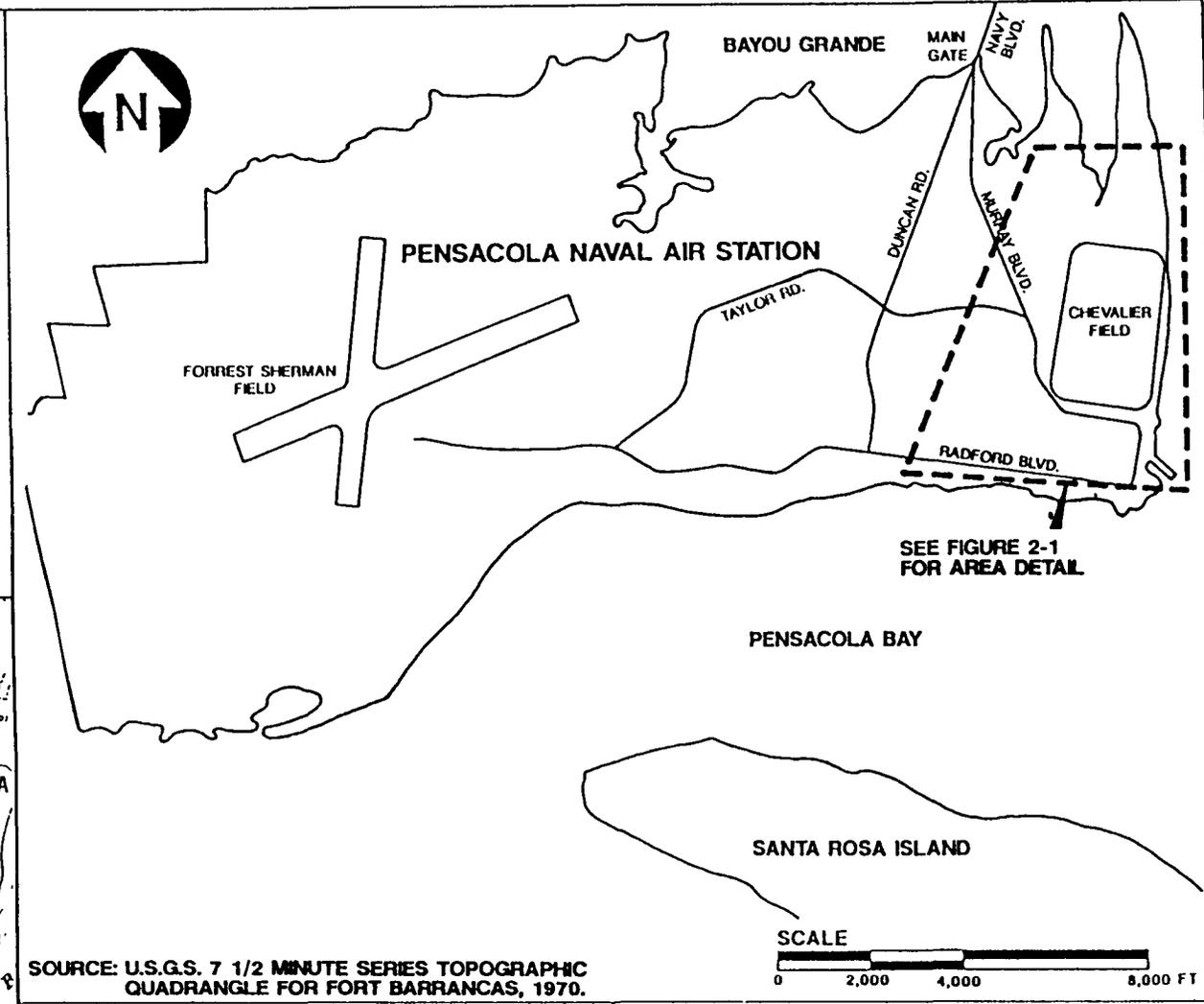
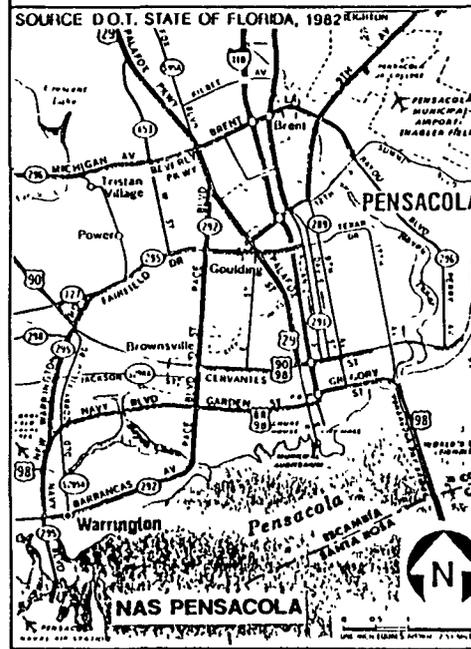
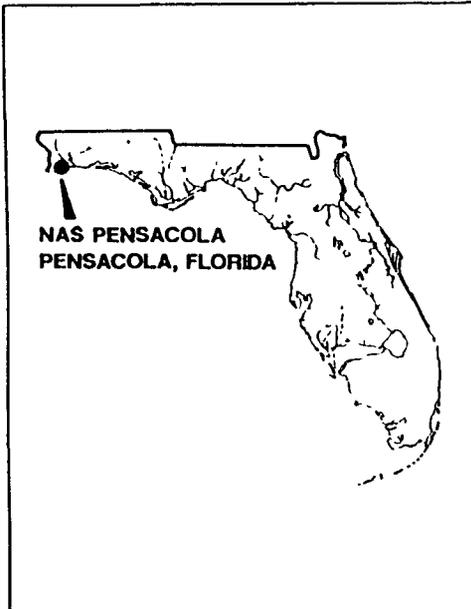


FIGURE 1-1
FACILITY LOCATION MAP



CONTAMINATION ASSESSMENT
REPORT ADDENDUM
SITE 607NE
NADEP PENSACOLA
PENSACOLA, FLORIDA

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION. Building 607, which is on the south perimeter of Chevalier Field, is used as a helicopter flight test facility for NADEP, NAS Pensacola, Florida (Figure 2-1). Primary site activities include final preparation of helicopters before test flights.

Site 607NE is located on the northeast side of Building 607 (Figure 2-2). It is the former location of two USTs reportedly used for the storage of waste oil and used aviation fuel. The area in the immediate UST vicinity is covered by 6-inch thick concrete. Some grassy areas are present along the perimeter of Building 607.

2.2 SITE HISTORY. During the Navy tank removal and installation program, the USTs were removed and replaced with a double-walled, steel, 500-gallon UST located near the former UST locations. The existing tank is also reportedly used for the storage of waste oil and used aviation fuel.

During tank removal activities, a composite soil sample was collected from the former UST excavation and analyzed for TRPH. The reported TRPH concentration of 190 parts per million (ppm) exceeded the FDER regulatory standard of 50 ppm for petroleum contaminated soils (FDER, May 1992) and, therefore, warranted further site investigation pursuant to Chapter 17-770, FAC.

Previous Site Investigation. A contamination assessment was performed by ABB-ES from January 1992 through March 1992. During this assessment, five soil borings, SB1 through SB5, were advanced at the site. Monitoring wells MW1 through MW5 were installed in soil borings SB1 through SB5, respectively. Soil boring and monitoring well locations are shown in Figure 2-2.

Soil samples were collected from each soil boring and analyzed for volatile organic compounds (VOC) by organic vapor analyzer (OVA) headspace analyses, and for the metals arsenic, cadmium, chromium, and lead. Groundwater samples were collected from each monitoring well and analyzed for constituents of the used oil group, as defined in Chapter 17-770, FAC. The results of this assessment were presented in a CAR, which was submitted to FDER in June 1992. The results of the CAR are summarized below,

- The sediments encountered during drilling operations are predominantly comprised of very fine- to fine-grained quartz sands.
- Groundwater beneath the site was encountered at depths of 4 to 6 feet below land surface (bls) and is classified as G-II.
- The direction of groundwater flow is to the east.
- VOC were not detected in any soil samples by OVA headspace analysis.
- Lead and arsenic were the only soil metal contaminants identified at the site. Both were detected in concentrations well below State target levels.

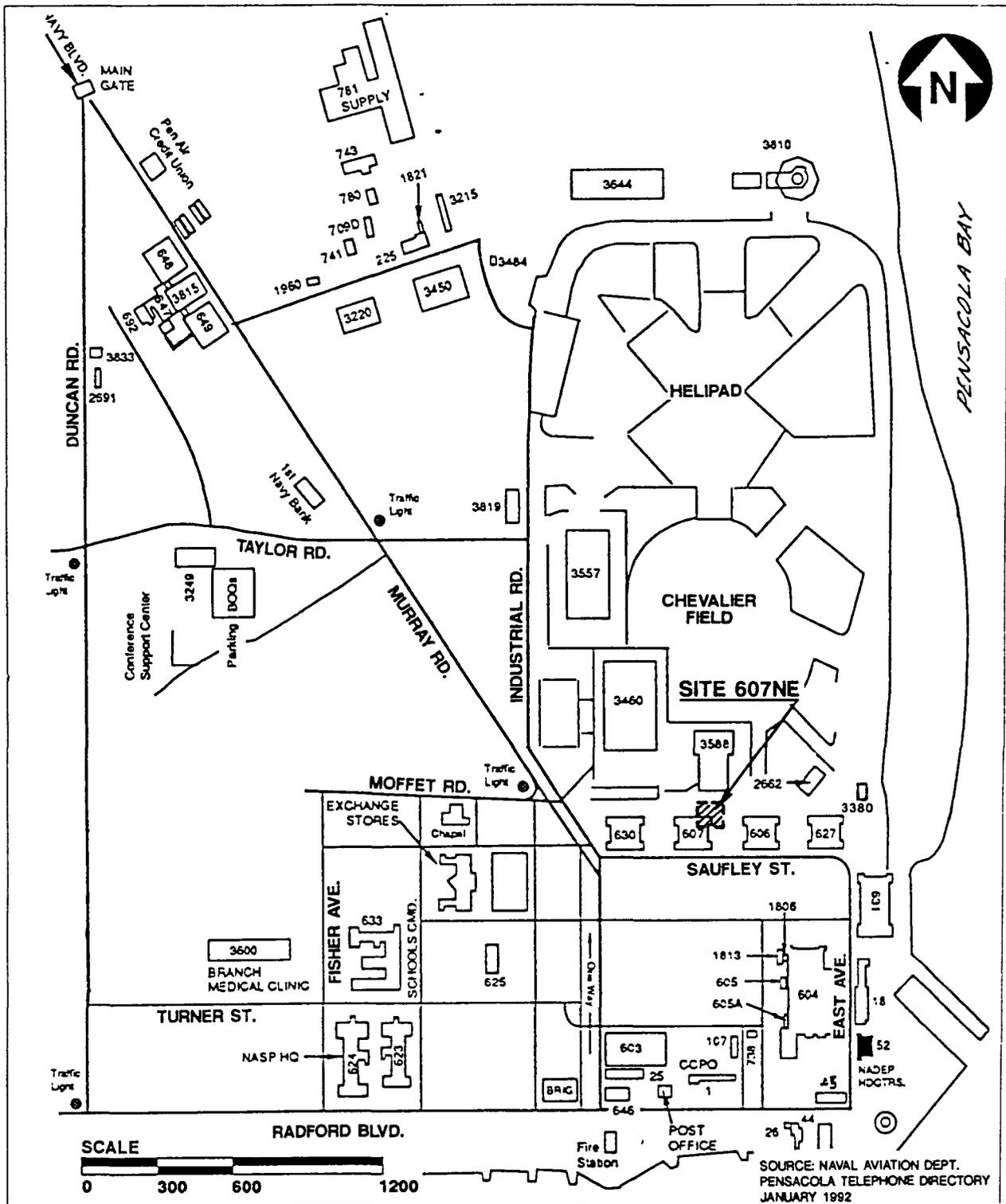


FIGURE 2-1
SITE LOCATION MAP



CONTAMINATION ASSESSMENT
REPORT ADDENDUM
SITE 607NE
NADEP PENSACOLA
PENSACOLA, FLORIDA

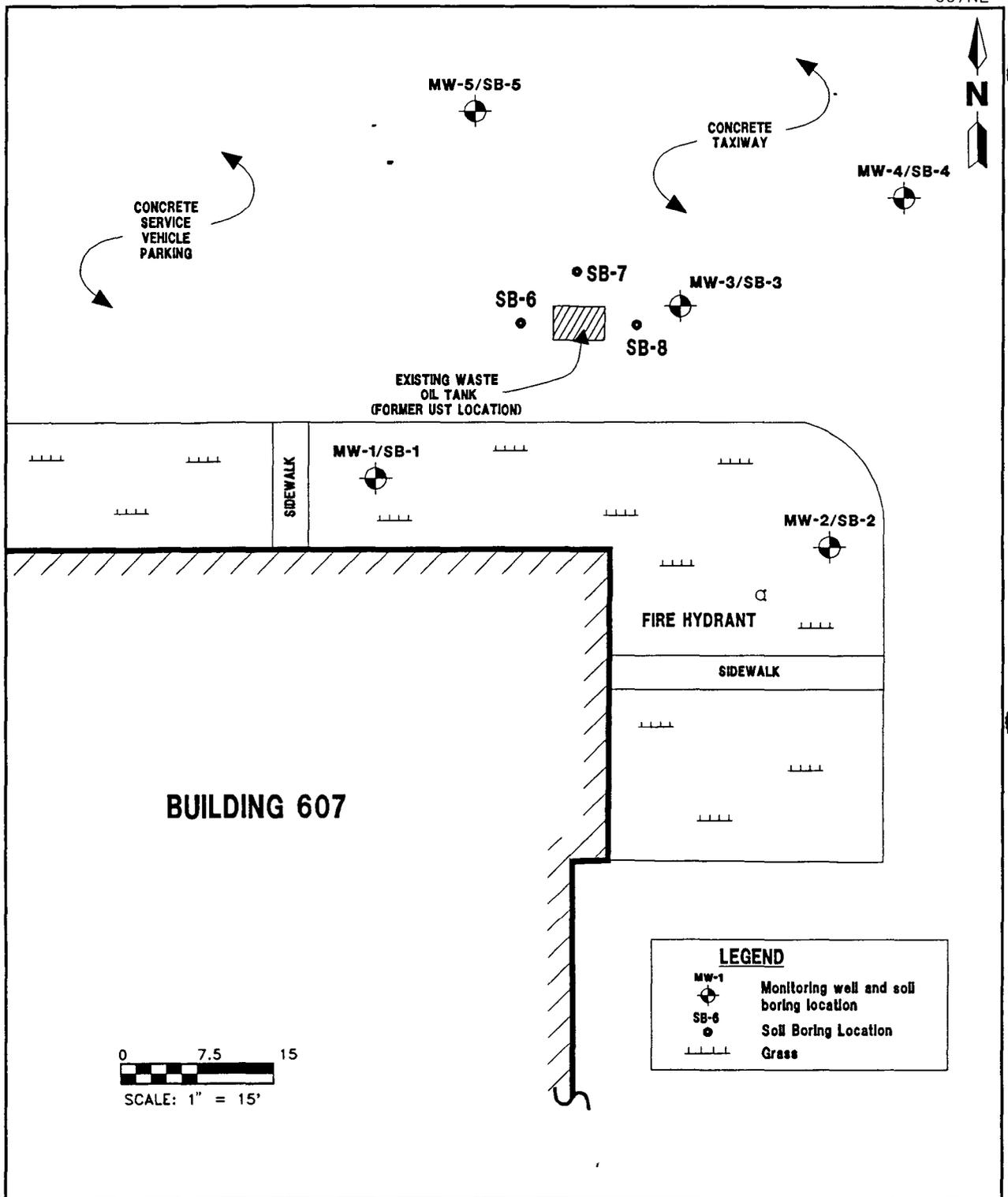


FIGURE 2-2
SITE PLAN WITH MONITORING
WELL AND SOIL BORING LOCATIONS



CONTAMINATION ASSESSMENT
REPORT ADDENDUM
SITE 607NE

NADEP PENSACOLA
PENSACOLA, FLORIDA

- Groundwater contaminants identified at the site include TRPH, toluene, chloroform, and methylene chloride (see Figure 2-3). Methylene chloride was the only contaminant identified in concentrations above State target levels or recommended guidance concentrations (FDER, February 1989) and, due to its presence in the laboratory blanks, can be attributed to laboratory contamination. .
- No potable water sources were identified within a 0.25-mile radius of the site.

A *No Further Action Proposal (NFAP)* was submitted in the CAR. Upon completion of review, FDER requested the following documentation regarding initial remedial action that was performed during tank removal and replacement activities (See Appendix A, FDER Correspondence):

- field observations and measurements (i.e., OVA headspace readings and limits of excavation),
- volume of soil removed,
- soil shipping manifests, and
- soil sample analyses.

Because much of this information was not available and because it was subsequently discovered that petroleum-contaminated soils had been returned to the UST excavation, FDER requested that a supplemental soil assessment be conducted. This CAR addendum incorporates the findings and conclusions of the supplemental soil assessment with the findings and conclusions of the original CAR.

2.3 SCOPE. The scope of services developed to perform the supplemental soil assessment included:

- advancement of three soil borings (SB-6 through SB-8) into the water table near the former UST location,
- collection of soil samples every two feet vertically in each soil boring for OVA headspace analysis of VOC, and
- collection of one soil sample from each boring, at a depth just above the water table, for laboratory analysis for TRPH.

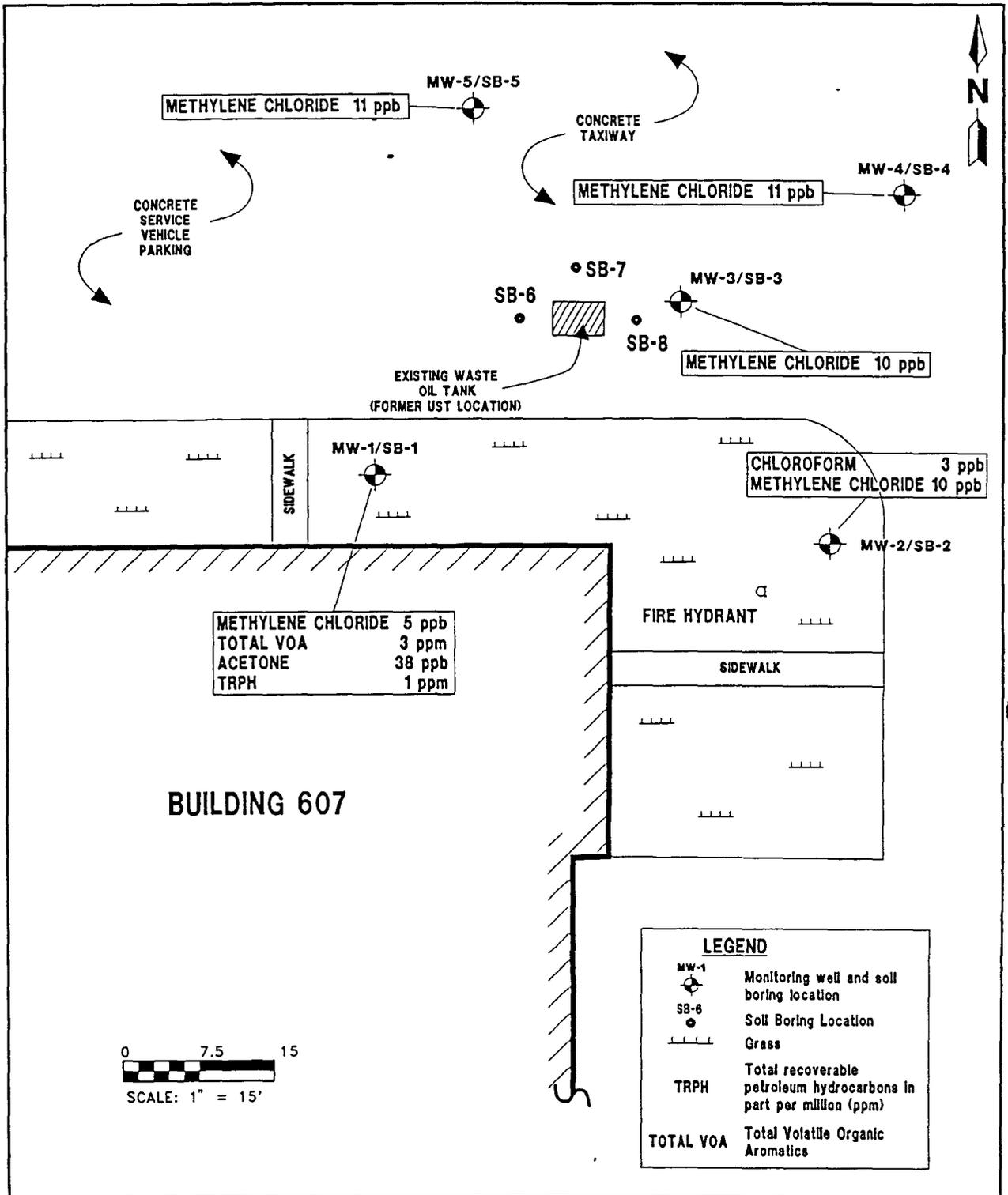


FIGURE 2-3
GROUNDWATER CONTAMINATION
DISTRIBUTION MAP,
FEBRUARY 6, 1992



CONTAMINATION ASSESSMENT
REPORT ADDENDUM
SITE 607NE

NADEP PENSACOLA
PENSACOLA, FLORIDA

3.0 SUPPLEMENTAL SOIL ASSESSMENT RESULTS

The supplemental soil assessment was conducted on January 12, 1993. Three additional soil borings were advanced by hand auguring techniques in the vicinity of the former USTs, to the depth of the water table (approximately 4 feet bls). Discrete soil samples were collected every 2 feet vertically and analyzed for VOC using OVA headspace analysis techniques. Soil samples collected at a depth of 4 feet bls were shipped to Wadsworth/ALERT Laboratories in Tampa, Florida, and analyzed for TRPH.

Results of OVA headspace and TRPH laboratory analyses are summarized in Table 3-1. VOC were not detected in any of the OVA headspace readings. TRPH concentrations in the samples collected from soil borings SB6 through SB8 were 12 ppm, 13 ppm, and 18 ppm, respectively. These concentrations exceed the State target level of 10 ppm for clean soils, but are below the State mandatory cleanup level of 50 ppm (FDER, May 1992).

**Table 3-1
Summary of Soil Sample Analyses,
January 12, 1993**

Contamination Assessment Report Addendum
Site 607NE, Naval Aviation Depot
Pensacola, Florida

Boring Designation	Depth (feet)	VOC Concentration ¹	TRPH Concentration	Comments
SB6	2	0	NS	No odor, no discoloration
	4	0	12	No odor, no discoloration
SB7	2	0	NS	No odor, no discoloration
	4	0	13	No odor, no discoloration
SB8	2	0	NS	No odor, no discoloration
	4	0	18	No odor, no discoloration

¹Corrected for methane.

Notes: Concentrations reported in parts per million.
VOC = volatile organic compounds.
TRPH = total recoverable hydrocarbons.
NS = not sampled.

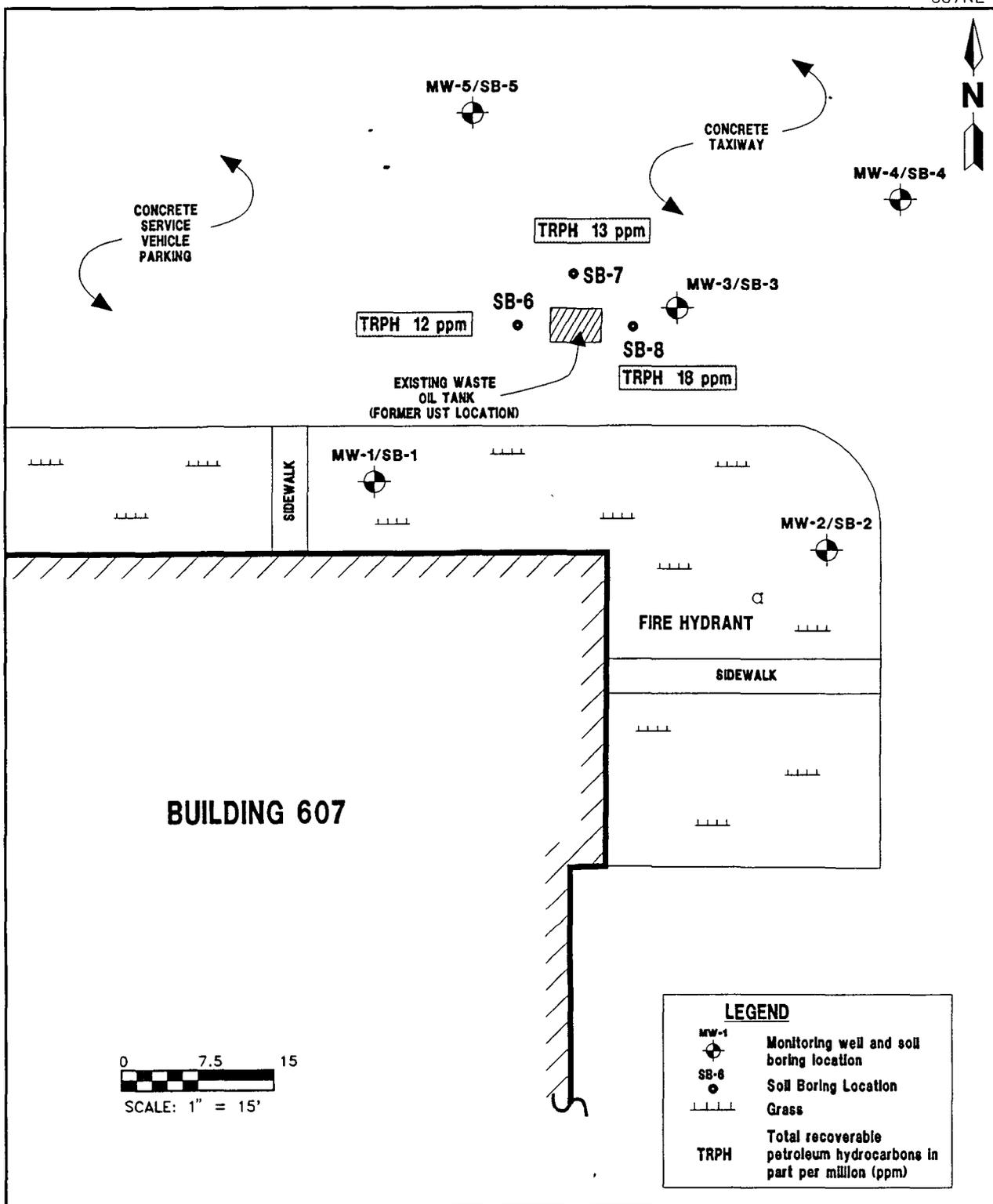
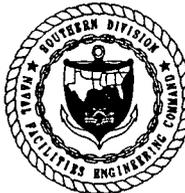


FIGURE 3-1
TRPH SOIL CONTAMINATION
DISTRIBUTION MAP,
JANUARY 12, 1993



CONTAMINATION ASSESSMENT
REPORT ADDENDUM
SITE 607NE

NADEP PENSACOLA
PENSACOLA, FLORIDA

4.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

4.1 SUMMARY. Based on the results of the supplemental field investigation and the previous investigative results, the following is a summary of conditions observed at the site.

- VOCs were not detected by OVA headspace analysis with an OVA in any soil samples collected at the site. Soil total metals concentrations were well below State target levels.
- TRPH concentrations in samples collected at 4 feet bls from soil borings SB6 through SB8 ranged from 12 to 18 ppm. These concentrations exceed the State target level for clean soil of 10 ppm, but are below the cleanup target level of 50 ppm.
- The previous investigation revealed that groundwater contamination at the site is minimal. Contaminants were restricted to samples from two monitoring wells, PEN-607NE-MW1 and PEN-607NE-MW2, and the concentrations detected were below State target levels or recommended guidance concentrations.

4.2 CONCLUSIONS. The previous contamination assessment and additional soil investigation at Site 607NE indicate that the level of soil petroleum contamination identified at Site 607NE is not excessive. It does not appear that the soil contamination is significantly affecting the groundwater at the site. Methylene chloride was the only groundwater contaminant identified in the sample collected from monitoring well PEN-607NE-MW3, which is located approximately 10 feet downgradient of the former USTs. Because methylene chloride was detected in the associated method blanks, its presence can be attributed to laboratory contamination. Much of the site area is paved, which inhibits exposure to contaminated soils.

4.3 RECOMMENDATIONS. Based on the findings and interpretations of the previous contamination assessment and the additional soil assessment, a *NFAP* is submitted for Site 607NE.

5.0 PROFESSIONAL REVIEW CERTIFICATION

The contamination assessment contained in this report was prepared using sound hydrogeologic 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 Contamination Assessment Report Addendum was developed for the waste oil tank located at Site 607NE at the Naval Aviation Depot, Naval Air Station in Pensacola, Florida, and should not be construed to apply to any other site.

Roger Durham
Professional Geologist
P.G. No. 001127

Date

6.0 REFERENCES

ABB Environmental Services, Inc., 1992, Contamination Assessment Report, Site 607NE, Naval Aviation Depot, Naval Air Station, Pensacola, Florida: Prepared for Souther Division, Naval Facilities Engineering Command, Charleston, South Carolina.

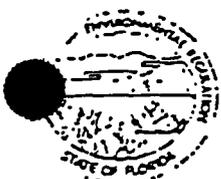
Florida Department of Environmental Regulation, February 1989, Groundwater guidance concentrations: compiled by R. Merchant, Division of Water Facilities.

Florida Department of Environmental Regulation, May 1992, Guideline for assessment and remediation of petroleum contaminated soils, revised: Division of Waste Management.

Florida Department of Transportation, 1982, Florida official transportation map: 1 sheet.

U.S. Geological Survey, 1970, Fort Barrancas Quadrangle: 7.5-minute topographic series.

APPENDIX A
FDER Correspondence



State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

Interoffice Memorandum

TO: Eric S. Nuzie, Federal Facilities Coordinator
Bureau of Waste Cleanup

THROUGH: Dr. James J. Crane, PGIII/Administrator
Technical Review Section *JJC*

FROM: Jorge R. Caspary, P.G. Base Coordinator
Technical Review Section *J.R.C.*

DATE: September 14, 1992

SUBJECT: Review of Contamination Assessment Reports for Sites
3221NW, 607NE, 3557S Naval Aviation Depot. Naval Air
Station Pensacola.

The above referenced documents have been reviewed and the following comments should be applied to all three sites.

Documentation (field observations and measurements, volumes, shipping manifest, Sampling/analysis results, etc.) regarding the soil Initial Remedial Action (IRA) that was performed during tank replacement and/or removal should be provided. This documentation should include a map showing the approximate limits of the excavation(s) and the locations of the soil samples, along with a table with the OVA readings used to determine the extent of contaminated soil. Depending on the available documentation, supplemental soil assessment in accordance with Rule 17-770.200(2), F.A.C., and the Department's May 1992 "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils" may be required.

If such information is not available, then supplemental soil assessment in accordance with Rule 17-770.200(2), F.A.C., and the Department's May 1992 "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils" should be performed at five feet intervals from the perimeter of the former tank areas until the previous soil borings are reached in order to establish the horizontal and vertical extent of soil contamination in the unsaturated zone. Discrete soil samples should be obtained at every two feet until the water table is reached. The OVA values should be summarized in a table, and the approximate extent of soil contamination [if any] should be represented in graphic form.

Eric S. Nuzie
September 14, 1992
Page Two

The consultant has obtained soil OVA readings every five feet below land surface. Compositing soil samples and obtaining OVA readings every five feet are not acceptable methodologies.

The results of the supplemental assessment should be provided to the Technical Review Section within sixty (60) days of receipt of this request. If additional time is needed, a time extension request should be submitted, in accordance with Rule 17-770.800(6), F.A.C. Should there be any questions concerning ~~this review, please contact me at (904) 488-0190.~~

All supplemental contamination assessment related documents presented to this Section for review and approval should be signed and sealed by a registered professional in accordance with Rule 17-770.500, F.A.C. The certification should be made by a registered professional who is able to demonstrate competence in the subject area(s) addressed within the sealed document.

APPENDIX B
Soil Laboratory Analyses



WADSWORTH/ALERT Laboratories
Division of Enseco Incorporated

5910 Breckenridge Parkway, Suite H
Tampa FL 33610

813-621-0784
FAX 813-623-6021

ANALYTICAL REPORT

NADEP PENSACOLA

14 JANUARY, 1993

Presented to:

PETER REDFERN

ABB ENVIRONMENTAL SERVICES, INC.

ENSECO-WADSWORTH/ALERT LABORATORIES

Dan Henson
Project Manager

Randall C. Grubbs
Laboratory Director - Florida

January 18, 1993



ENSECO-WADSWORTH/ALERT
Laboratories

INVOLVEMENT

This report summarizes the analytical results of the NADEP Pensacola site submitted by ABB Environmental Services, Inc. to Enseco-Wadsworth/ALERT Laboratories who provided independent, analytical services for this project under the direction of Peter Redfern. The samples were accepted into Wadsworth's Florida facility on 14 January, 1993, in accordance with documented sample acceptance procedures. The associated analytical methods and sample results are outlined sequentially in this report.

Analytical results included in this report have been reviewed for compliance with the Laboratory QA/QC Plan as summarized in the Quality Control Section at the rear of the report. Sample custody documentation describing the number of samples and sample matrices is also included. Any qualifications and/or non-compliant items have been noted below.



ENSECO-WADSWORTH/ALERT
Laboratories

ANALYTICAL METHODS

Wadsworth/ALERT Laboratories utilizes only USEPA approved analytical methods and instrumentation. The analytical methods utilized for the analysis of these samples are listed below.

PARAMETER

METHOD

MISCELLANEOUS

Tot. Rec. Petroleum Hydrocarbons

** EPA Method 9073

NOTE:

** Indicates usage of this method to obtain results for this report.

(D)

EPA Methods

Indicates draft version of this method was used
Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982

Std. Methods

Drinking Waters USEPA, 600/4-88/039, December, 1988.
Standard Methods for the Examination of Water and Waste-water, APHA, 16th edition, 1985.

USEPA Methods

From 40CFR Part 136, published in Federal Register on October 26, 1984.

SW846 Methods

Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.

ASTM Methods

American Society for Testing and Materials.

NIOSH Method

NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health, 2nd Edition, April 1977.



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB # : 3A1401-1
MATRIX : SOIL

DATE RECEIVED: 1/14/93

SAMPLE ID : 607NE-SB6 (4')

NADEP PENSACOLA

CERTIFICATION #: E84059
HRS84297

ANALYTICAL REPORT

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
% Dry Weight		81	
Tot Recoverable Pet Hydrocarbons	1/15/93	12	5 mg/kg

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB # : 3A1401-3
MATRIX : SOIL

DATE RECEIVED: 1/14/93

SAMPLE ID : 607NE-SB7 (4')

NADEP PENSACOLA

CERTIFICATION #: E84059
HRS84297

ANALYTICAL REPORT

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
% Dry Weight		79	
Tot Recoverable Pet Hydrocarbons	1/15/93	13	5 mg/kg

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB # : 3A1401-2
MATRIX : SOIL

DATE RECEIVED: 1/14/93

SAMPLE ID : 607NE-SB8 (4')

NADEP PENSACOLA

CERTIFICATION #: E84059
HRS84297

ANALYTICAL REPORT

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
% Dry Weight		86	
Tot Recoverable Pet Hydrocarbons	1/15/93	18	5 mg/kg

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT
Laboratories

QUALITY CONTROL SECTION

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



ENSECO-WADSWORTH/ALERT
Laboratories

QUALITY ASSURANCE / QUALITY CONTROL
PROGRAM SUMMARY

Wadsworth/ALERT Laboratories 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.

<u>Volatiles</u>	<u>Semi-volatiles</u>	<u>Metals</u>
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 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.



ENSECO-WADSWORTH/ALERT
Laboratories

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	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.



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 3A1401-BK
MATRIX : SOIL

DATE RECEIVED: 1/14/93

SAMPLE ID : LABORATORY BLANK

NADEP PENSACOLA

CERTIFICATION #: E84059
HRS84297

ANALYTICAL REPORT

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	1/15/93	ND	5 mg/kg

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT
Laboratories

LAB ID : LCS

MATRIX : SOIL

LABORATORY CONTROL SAMPLE RESULTS
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
TRPH (IR)	01/15/93	01/15/93	83	30 50-140	LCS



**WADSWORTH/ALERT
LABORATORIES**
Sampling, testing, mobile labs

5910 Breckenridge Pkwy
Suite H
Tampa, FL 33610

Chain of Custody Record

(813) 621-0784
Fax (813) 623-6021

Record _____ of _____

06223

Client		Project Name / Location			No Of CON- TAINERS	Parameter										Remarks
Sampler(s)		Project #:				VOC -	PAH -	METALS - Pb	TRPH -	EDB -						
Item #	Date	Time	MATRIX	Sample Location												
1			soil					2.5								
2			soil					2								
3	11/23	1410	soil	117th St SW	1										see attachment	
4	11/23	1120	soil	7th St SW	1										↓	
5	11/23	1145	soil	07th St SW (4)	1											
6	11/23	15	soil	35575 SW 257 (5)	1											
7	11/23	145	soil	35575 SW 450 (2)	1											
8	11/23	0911	soil	2513 SW 259 (3)	1											
9	11/23	135	soil	25575 SW 257 (3)	1											
10																
11																

Total Containers **7**

Number of Coolers in Shipment

Bailers

Report To:	Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
Report To: <i>Ron Dukem</i> Additional Comments:	1	1-2	<i>Earl Q Ebert</i> ^{COAC}	<i>Fred Fay</i>	12/14/92	1:30PM
	2			<i>Fred Fay</i>	11/14/92	11:30
	3					
	4					
	5					
	6					