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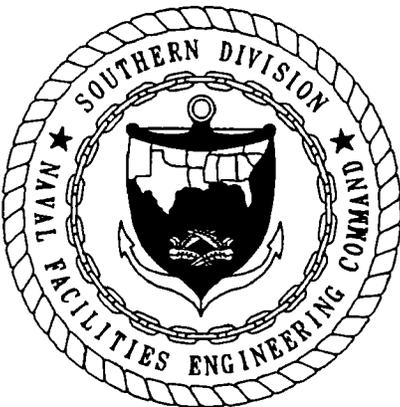
CONTAMINATION ASSESSMENT REPORT ADDENDUM SITE 3450W NAVAL AVIATION
DEPOT NAS PENSACOLA FL
3/1/1993
ABB ENVIRONMENTAL SERVICES INC.



**CONTAMINATION ASSESSMENT
REPORT ADDENDUM**

**SITE 3450W
NAVAL AVIATION DEPOT
NAVAL AIR STATION
PENSACOLA, FLORIDA**

MARCH 1993



**SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29419-9010**

**CONTAMINATION ASSESSMENT REPORT
ADDENDUM**

**Site 3450W
Naval Aviation Depot
Naval Air Station
Pensacola, Florida**

UIC: N00204

Contract No. N62467-89-D-0317

Prepared by:

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Luis Vazquez, Code 1843, Engineer-in-Charge

March 1993



FOREWORD

Subtitle I of the Hazardous and Solid Waste Amendments 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 of 1976, which was 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), Naval Air Station, 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 3450W is the former location of five underground storage tanks (USTs) reportedly used for the storage of waste oil and PD-680. The USTs were removed during the Navy's tank removal and replacement program, which was conducted in 1989 and 1990. Two of the USTs were replaced and are currently present at the site.

A contamination assessment (CA) investigation was conducted by ABB Environmental Services Inc. (ABB-ES) at Site 3450W from February to April 1992. Five monitoring wells were installed at the site (see Executive Summary Figure). Groundwater samples were collected on February 24, 1992, and analyzed for used oil constituents. A contamination assessment report (CAR) was submitted in August 1992. Because analytical data indicated that petroleum contaminants at the site were minimal, a *No Further Action Proposal (NFAP)* was submitted. Although minimal petroleum contamination was found, this proposal was rejected by the Florida Department of Environmental Regulation (FDER) because of the presence of 1,1-dichloroethane (1,1-DCA) in samples collected from all monitoring wells.

An additional field investigation was performed during January 1993. To fulfill FDER requirements, a deep monitoring well was installed and sampled to assess the vertical extent of 1,1-DCA contamination. Additionally, the five previously installed shallow wells were sampled and analyzed for volatile organics by U.S. Environmental Protection Agency (USEPA) Method 601 to confirm the persistence of 1,1-DCA in the groundwater.

Findings

- Laboratory analyses of groundwater samples indicate a continued persistence of 1,1-DCA in groundwater at Site 3450W. 1,1-DCA was detected in samples collected from all site monitoring wells, at concentrations ranging from 12 parts per billion (ppb) in PEN-3450W-MW1 and PEN-3450W-MW5, to 76 ppb in PEN-3450W-MW3 (see Executive Summary Figure). The concentrations of 1,1-DCA, however, are below the State recommended guideline concentration of 2,400 ppb (FDER, February 1989).
- Trichloroethene (TCE) was detected in samples collected from four site wells. The highest concentrations, 4 ppb, were detected in samples from monitoring wells PEN-3450W-MW2 and PEN-3450W-MW6D. This concentration slightly exceeds the State recommended guidance concentration of 3 ppb for TCE.
- Tetrachloroethene (PCE) was detected in the groundwater sample collected from the deep well (PEN-3450W-MW6D), at a concentration of 4 ppb, which is slightly above the State recommended guidance concentration of 3 ppb for PCE.
- 1,1-Dichloroethene (1,1-DCE) was detected in the groundwater samples collected from all monitoring wells. 1,1-DCE was not detected during the previous sampling event. A concentration of 11 ppb was detected in the

sample from the deep well (PEN-3450W-MW6D), which was the only sample containing a concentration above the State recommended guidance concentrations of 7 ppb.

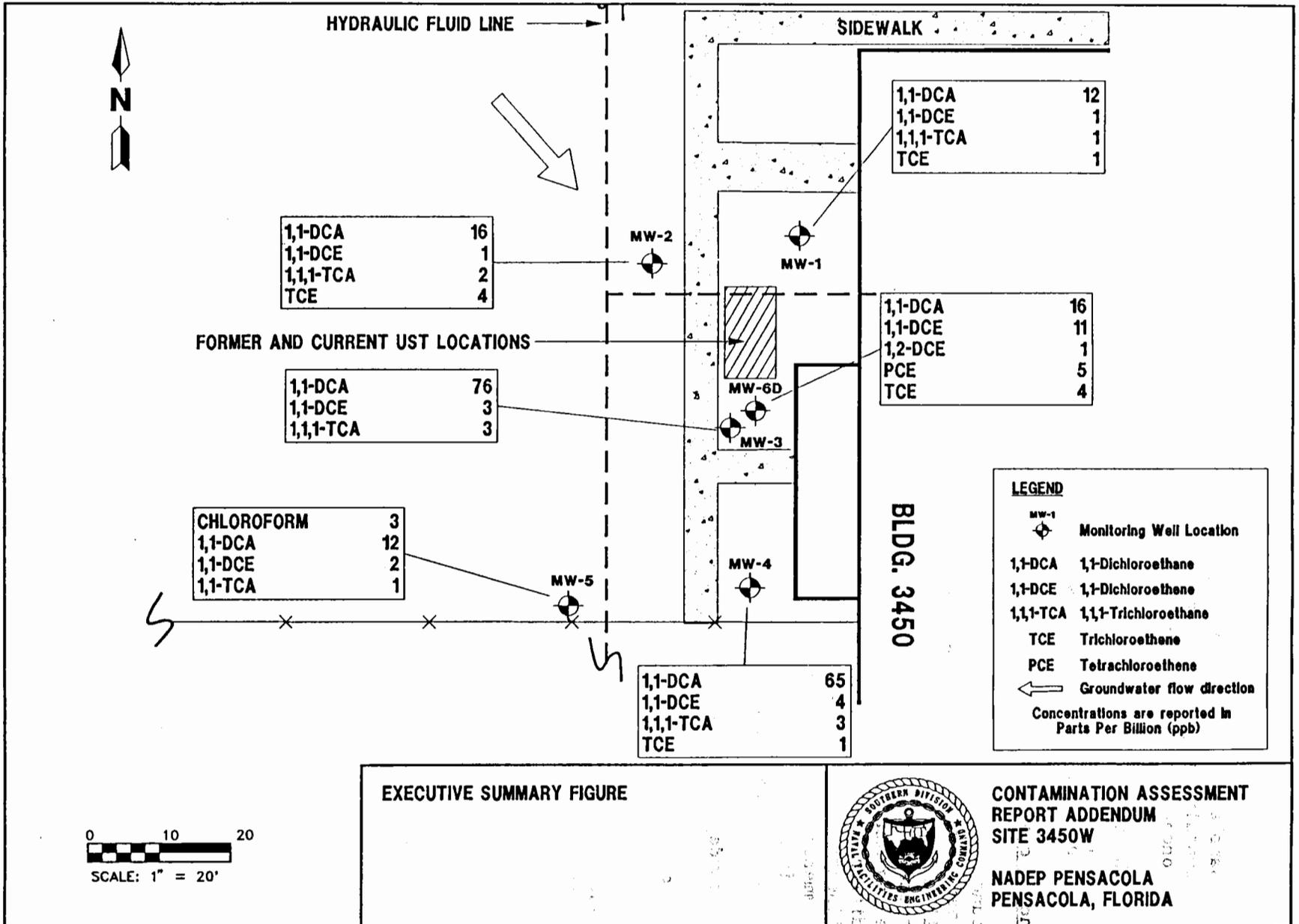
- Chloroform, 1,1,1-trichloroethane (1,1,1-TCA), and 1,2-Dichloroethene (1,2-DCE) were detected in samples from several monitoring wells. Their concentrations were below State recommended guidance concentrations.

Conclusions

Groundwater petroleum contamination appears to be minimal. 1,1-DCA appears to be persistent in the groundwater at the site; however, 1,1-DCA concentrations are well below State recommended guidance concentrations. Because 1,1-DCA was detected in the sample collected from the deep monitoring well (PEN-3450W-MW6D), the vertical extent of 1,1-DCA contamination has not been delineated. In addition, the vertical extent of other chlorinated solvents has not been delineated. Concentrations of 1,1-DCE, TCE, and PCE were slightly above State recommended guidance concentrations. The source for these groundwater contaminants is currently unknown. Because petroleum groundwater contamination is minimal, the source does not appear to be the USTs at Site 3450W.

Recommendations

Based on the findings and conclusions discussed above, a *NFAP* is recommended for the petroleum USTs at Site 3450W. Additional investigation of the 1,1-DCA, TCE, PCE, and 1,1-DCE contamination should be performed in conjunction with the investigation at Site 30, which is being conducted under the guidelines of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).



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 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

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GLOSSARY

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

ABB-ES	ABB Environmental Services, Inc.
bls	below land surface
1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
1,2-DCE	1,2-dichloroethene
CA	contamination assessment
CAP	contamination assessment plan
CAR	contamination assessment report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
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
NADEP	Naval Aviation Depot
NAS	Naval Air Station
NFAP	No Further Action Proposal
MW	monitoring well
OVA	organic vapor analyzer
PCE	tetrachloroethene
POA	plan of action
ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride
SB	soil boring
SDWA	Solid Waste Disposal Act
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
1,1,1-TCA	1,1,1-trichloroethane
TCE	trichloroethene
TRPH	total recoverable petroleum hydrocarbons

GLOSSARY (Continued)

USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOA	volatile organic aromatics
VOC	volatile organic compounds

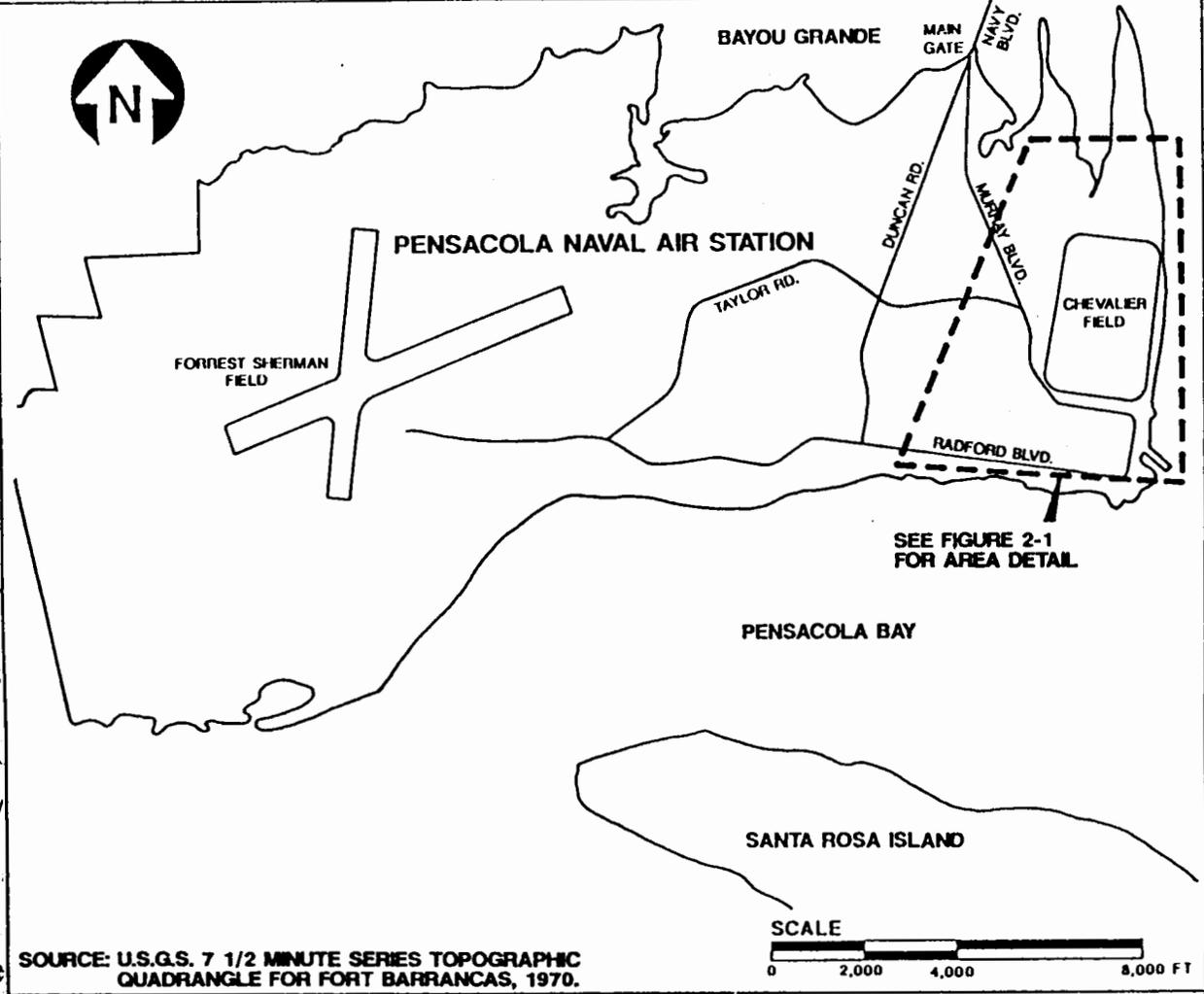
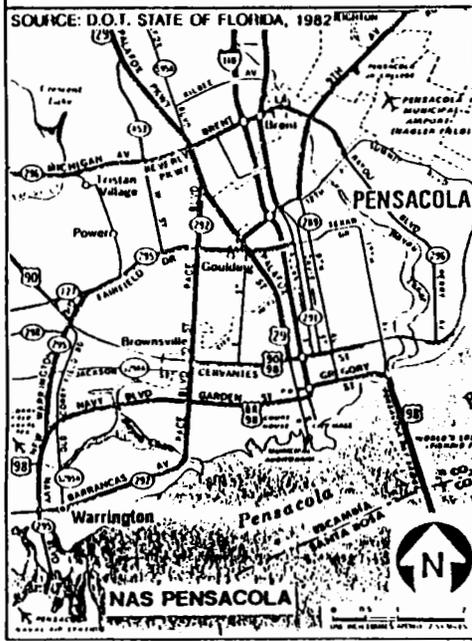
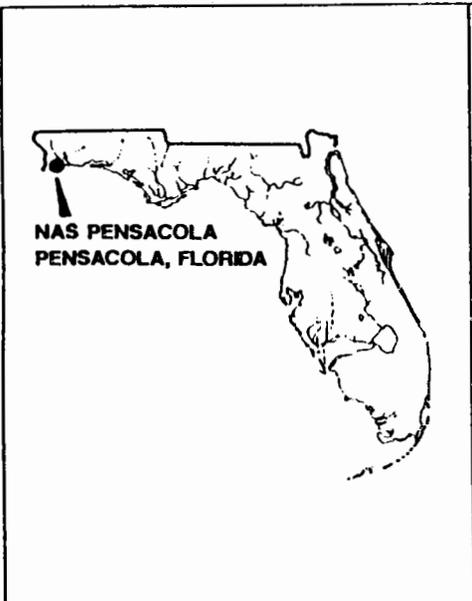
1.0 INTRODUCTION

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 (CA) and submit a contamination assessment report (CAR) for each of the 18 petroleum contaminated sites at NADEP. The CA at one of the 18 sites, Site 3450W, was conducted from February 1992 through April 1992. The scope of services is described in contract task order (CTO) No. 008, the plan of action (POA), and the contamination assessment plan (CAP).

A CAR for Site 3450W was submitted to FDER in August 1992. At the request of FDER, a supplemental field investigation was performed, which was conducted on January 15 and 16, 1993. This report is an addendum to the original CAR, and presented the findings and conclusions of the supplemental field investigation.



SOURCE: U.S.G.S. 7 1/2 MINUTE SERIES TOPOGRAPHIC QUADRANGLE FOR FORT BARRANCAS, 1970.

FIGURE 1-1
FACILITY LOCATION MAP

SOUTHERN DISTRICT
U.S. COAST AND GEODETIC SURVEY

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PENSACOLA, FLORIDA

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION. Building 3450 is located several hundred feet west of the northwest part of Chevalier field on Farrar Road (Figure 2-1). It is a dynamic components facility where various helicopter parts are repaired.

Site 3450W, located along the western side of Building 3450 (Figure 2-2), is the former location of five USTs reportedly used for the storage of waste oil and PD-680, a petroleum distillate similar to mineral spirits. Presently, there are two USTs at the site. Site 3450W is grassed in the immediate UST vicinity. The area immediately west of the site is an asphalt-covered parking lot.

2.2 SITE HISTORY. The five USTs were installed at Site 3450W in 1980. The USTs were removed from the site during the Navy tank removal and replacement program, conducted in 1989 and 1990. The USTs were replaced with two new USTs, which are also used for the storage of waste oil and PD-680. During the tank removal program, a composite soil sample was collected from each former UST excavation and analyzed for TRPH. The reported TRPH concentrations of 80 to 330 parts per million (ppm) exceeded the State target level of 50 ppm for petroleum-contaminated soils (FDER, May 1992).

Previous Site Investigation. A CA investigation was conducted by ABB-ES at Site 3450W from February to April 1992. During this assessment, five monitoring wells (PEN-3450W-MW1 through PEN-3450W-MW5) were installed. Monitoring well locations are shown in Figure 2-2.

Groundwater samples were collected from the five monitoring wells on February 24, 1992. Samples were submitted to Wadsworth/ALERT Laboratories, Tampa, Florida, and analyzed for used oil constituents as defined in Chapter 17-770, FAC. A contamination assessment report (CAR) was submitted to FDER in August 1992. The results of the CAR are summarized below.

- The groundwater flow direction at the site is toward the southeast.
- Methylene chloride, 1,1-dichloroethane (1,1-DCA), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), and bis(2-ethylhexyl)phthalate were identified in groundwater samples collected from site monitoring wells. Methylene chloride was detected in the equipment blank, indicating that its presence in groundwater samples is the result of laboratory contamination. Concentrations of 1,1-DCA, 1,1,1-TCA, TCE, and bis(ethylhexyl)phthalate did not exceed State recommended guidance concentrations (FDER, February 1989).

A *No Further Action Proposal (NFAP)* was submitted in the CAR. Because a source for the 1,1-DCA and other chlorinated solvents contamination was not identified, FDER requested that an additional field investigation be conducted at the site (as outlined in the FDER Interoffice Memorandum from Jorge Caspary to Eric Nuzie, dated September 30, 1992). A copy of this correspondence is attached in Appendix A. The purpose of the supplemental investigation was to confirm the persistence of 1,1-DCA groundwater contamination and to assess the vertical extent of this contamination.

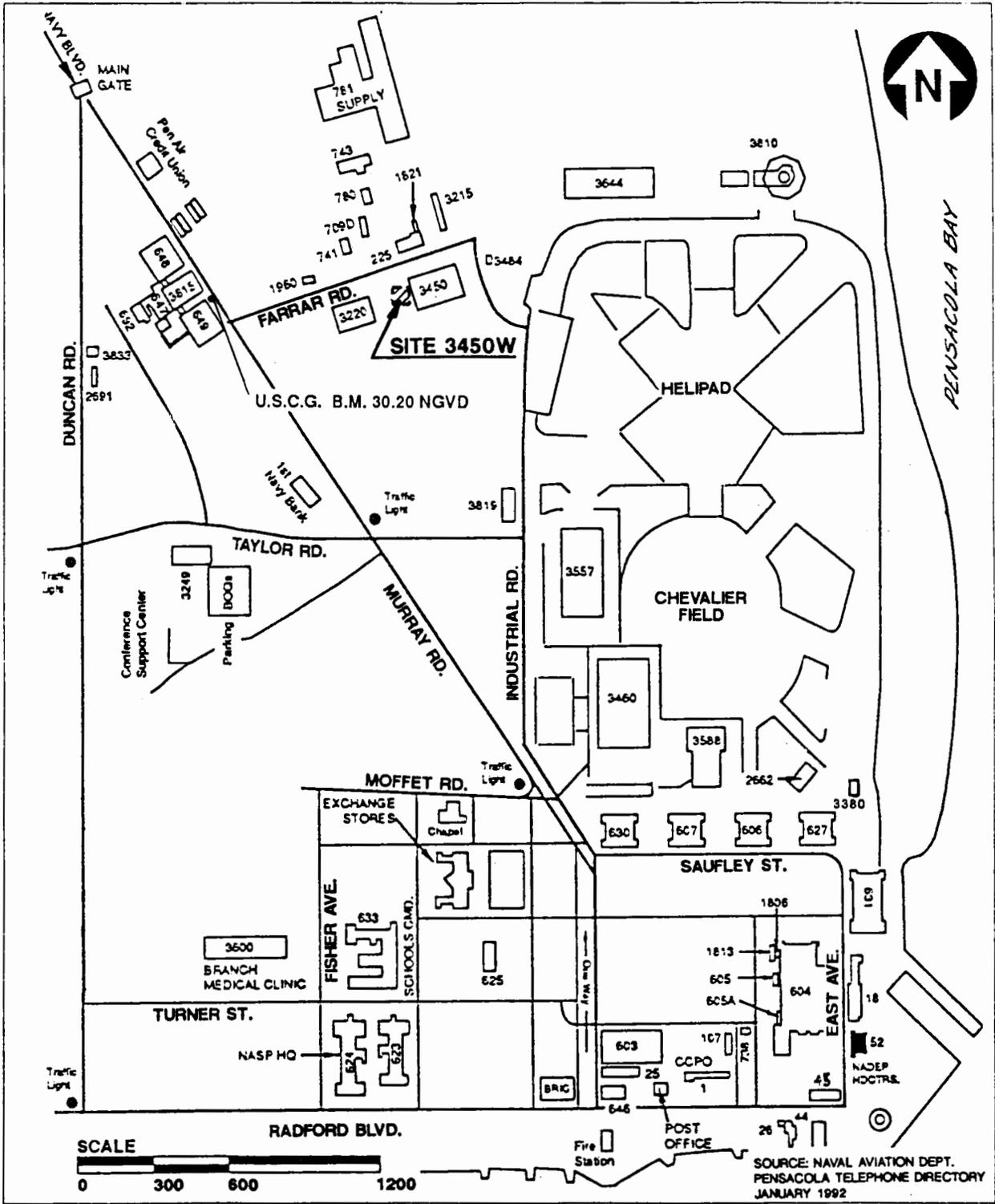


FIGURE 2-1
SITE LOCATION MAP



**CONTAMINATION ASSESSMENT
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SITE 3450W
NADEP PENSACOLA
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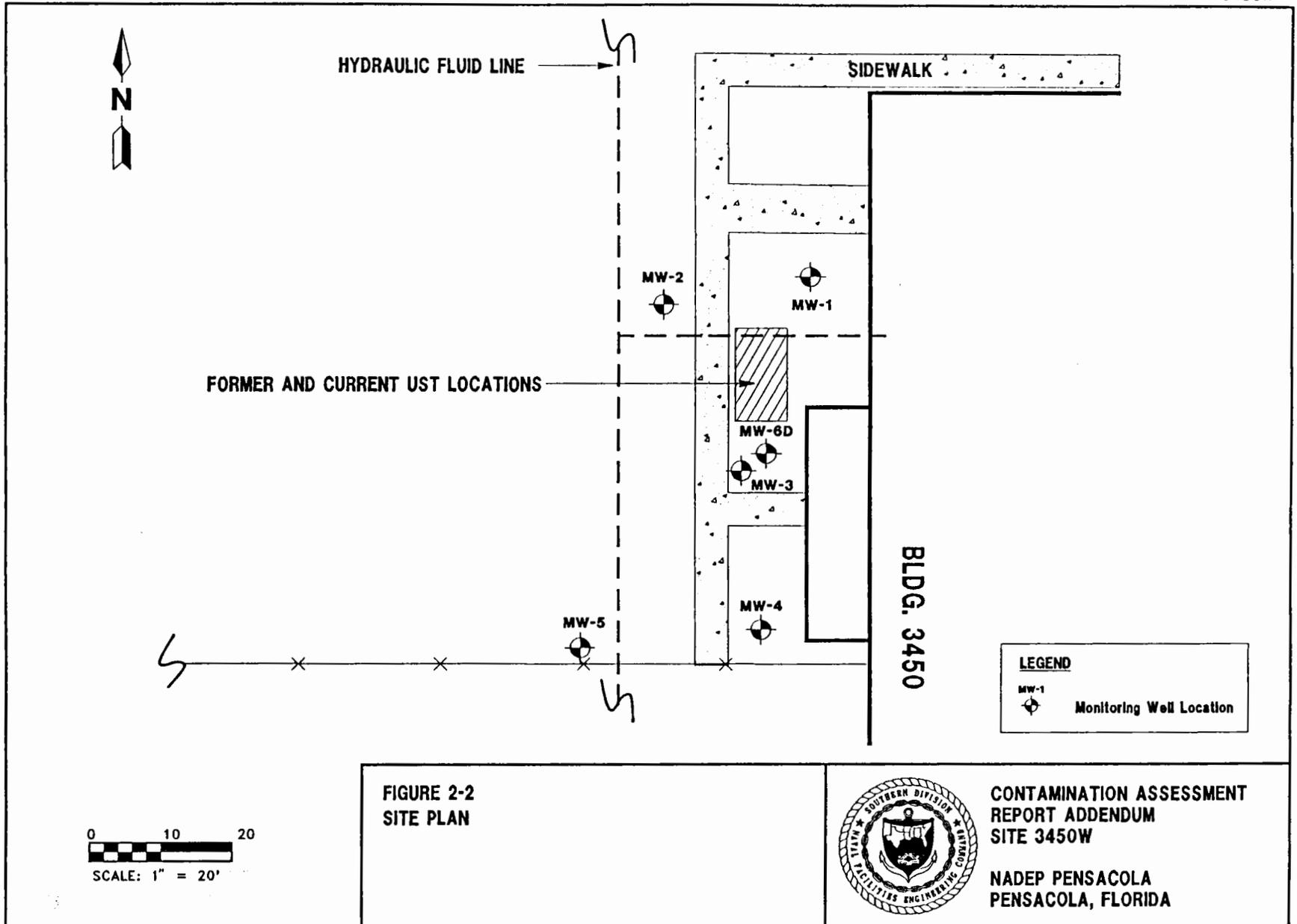


FIGURE 2-2
SITE PLAN



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This CAR addendum incorporates the findings and conclusions of the supplemental groundwater assessment with the findings and conclusions of the original CAR.

2.3 SCOPE. The scope of services developed to perform the additional field work included:

- installation of one deep monitoring well (PEN-3450W-MW6D) to a depth of 42 feet below land surface (bls),
- collection of groundwater samples from all site monitoring wells for analysis of volatile organic compounds by U.S. Environmental Protection Agency (USEPA) Method 601, and
- reduction and analysis of all data gathered during the field investigation to prepare this CAR addendum.

3.0 SUPPLEMENTAL GROUNDWATER ASSESSMENT RESULTS

3.1 METHODOLOGIES AND EQUIPMENT.

3.1.1 Monitoring Well Installation PEN-3450W-MW6D was installed to a depth of 42 feet bls. The well is constructed of 2-inch inner diameter, schedule 40, polyvinyl chloride (PVC) casing with flush-threaded joints and 5 feet of 0.010-inch machine-slotted screen. The screened interval is from 37 to 42 feet bls. PVC well casing extends from the top of the screen to land surface. A 20/30 grade silica sand filter pack was placed in the annular space to approximately 2 to 3 feet above the top of the screen. A 2-foot thick bentonite seal was then placed on top of the filter pack. The remaining annular space was grouted to the surface with a neat cement grout.

3.1.2 Groundwater Sampling Groundwater samples were collected in accordance with ABB-ES' FDER-approved Comprehensive Quality Assurance Plan (CompQAP). The monitoring wells were purged with a Teflon™ bailer. Purging continued until five well volumes had been removed from each well. Groundwater samples were collected using an extruded Teflon™ bailer. The samples were placed into appropriate containers, properly preserved, placed on ice, and shipped to Wadsworth/ALERT Laboratories in Tampa, Florida.

3.2 GROUNDWATER SAMPLING RESULTS. Water level measurements were recorded from each shallow monitoring well on January 15, 1993. A water level elevation contour map was constructed (Figure 3-1) and indicates that groundwater is flowing to the southeast, which is consistent with the previous investigation (ABB-ES, 1992).

Groundwater samples were collected from each shallow monitoring well on January 15, 1993. The deep well was sampled on January 16, 1993. The samples were analyzed for volatile organics by USEPA Method 601. A duplicate sample, laboratory blanks, equipment blank, and a trip blank were also analyzed with the monitoring well samples. Laboratory groundwater analytical results are presented in Appendix B and are summarized in Table 3-1 and Figure 3-2.

1,1-DCA and 1,1-dichloroethene (1,1-DCE) were detected in samples collected from each monitoring well. 1,1-DCA concentrations ranged from 12 parts per billion (ppb), detected in samples from PEN-3450W-MW1 and PEN-3450W-MW5, to 76 ppb detected in PEN-3450W-MW3. These concentrations are below the State recommended guidance concentration of 2,400 ppb (FDER, February 1989). 1,1-DCE concentrations exceeded the State recommended guidance concentration of 7 ppb in only the sample collected from well PEN-3450W-MW6D. A concentration of 11 ppb was detected in the sample from this well.

1,1-Trichloroethane (1,1,TCA) was detected in the samples collected from every well except PEN-3450W-MW6D. The concentrations varied from 1 ppb to 3 ppb, which are well below the State recommended guidance concentration of 200 ppb for 1,1-TCA.

Chloroform was detected in only the sample collected from well PEN-3450W-MW5, at a concentration of 3 ppb, which is well below the State recommended guidance concentration of 100 ppb for chloroform.

1,2-Dichloroethene (1,2-DCE) was detected in only the sample collected from well PEN-3450W-MW6D. The concentration of 1 ppb is below the State recommended guidance concentration of 4.2 ppb for 1,2-DCE.

TCE was detected in samples collected from four wells. The concentrations in samples collected from wells PEN-3450W-MW2 and PEN-3450W-MW6D were 4 ppb, which slightly exceed the State recommended guidance concentration of 3 ppb.

Tetrachloroethene (PCE) was detected in only the sample collected from PEN-3450W-MW6D. The PCE concentration of 5 ppb slightly exceeds the State recommended guidance concentration of 3 ppb.

No contaminants were detected in the method blanks associated with the sampling event.

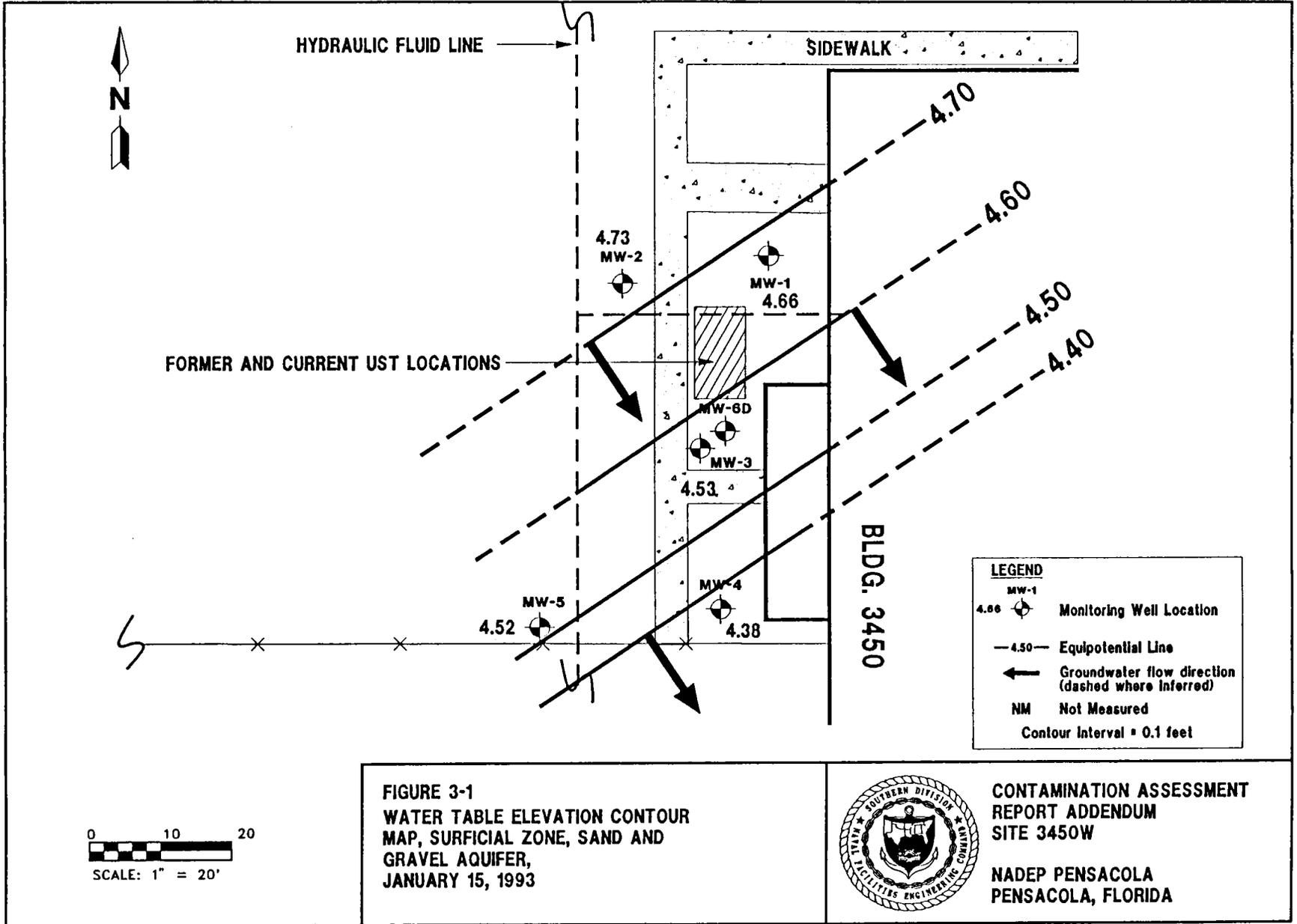
**Table 3-1
Groundwater Sample Laboratory Analyses Results,
January 15 and 16, 1993**

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Site 3450W, Naval Aviation Depot
Pensacola, Florida

Compound	State Regulatory/Guidance Concentrations ¹	MW1	MW2	MW3	MW4	MW4 Duplicate	MW5	MW6D
Chloroform	100	ND	ND	ND	ND	ND	3	ND
1,1,1,-Trichloroethane	200	1	2	3	3	3	1	ND
1,1-Dichloroethane	2,400	12	16	76	49	65	12	16
1,1-Dichloroethene	7	1	1	3	3	4	2	11
1,2-Dichloroethene	4.2	ND	ND	ND	ND	ND	ND	1
Trichloroethene	3	1	4	ND	1	1	ND	4
Tetrachloroethene	3	ND	ND	ND	ND	ND	ND	5

¹ Guidance concentration recommended by Florida Department of Environmental Regulation (FDER), February 1989.

Notes: All concentrations reported in parts per billion.
Duplicate sample was collected from monitoring well MW4.
ND = not detected.



FORMER AND CURRENT UST LOCATIONS

HYDRAULIC FLUID LINE

SIDEWALK

BLDG. 3450

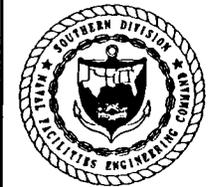
LEGEND

- MW-1
4.66 Monitoring Well Location
- 4.50— Equipotential Line
- Groundwater flow direction (dashed where inferred)
- NM Not Measured
- Contour Interval = 0.1 feet

0 10 20

 SCALE: 1" = 20'

FIGURE 3-1
WATER TABLE ELEVATION CONTOUR
MAP, SURFICIAL ZONE, SAND AND
GRAVEL AQUIFER,
JANUARY 15, 1993



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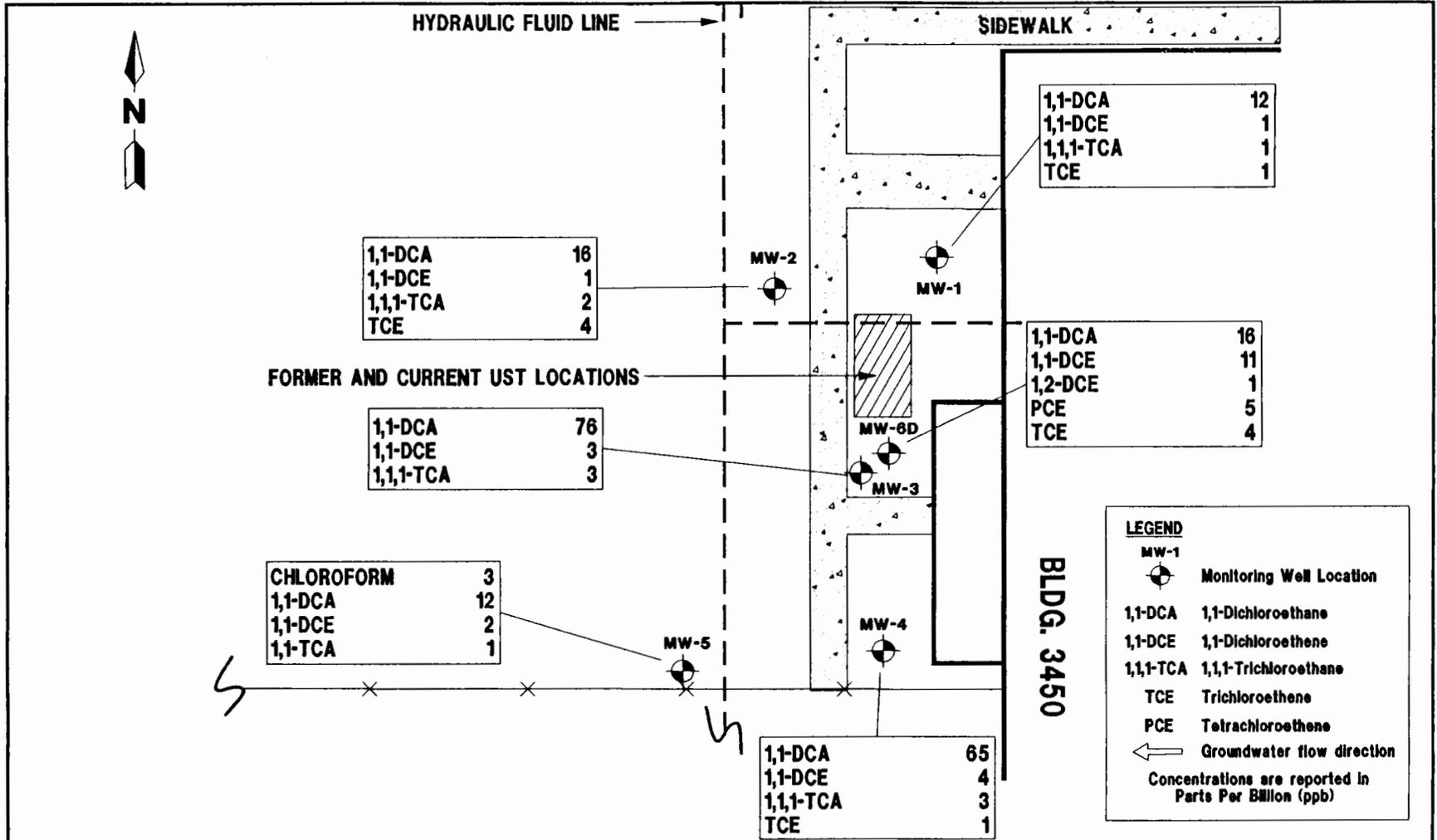


FIGURE 3-2
GROUNDWATER CONTAMINATION
DISTRIBUTION MAP,
JANUARY 15, 1993



CONTAMINATION ASSESSMENT
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NADEP PENSACOLA
PENSACOLA, FLORIDA

4.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

4.1 SUMMARY. The following is a summary of the conditions observed at the site.

- Laboratory analyses of groundwater samples collected in January 1993 indicate that 1,1-DCA groundwater contamination is persistent at the site. 1,1-DCA concentrations were detected in samples from all site monitoring wells, ranging from 12 ppb to 76 ppb. The concentrations of 1,1-DCA are well below the State recommended guideline concentration of 2,400 ppb.
- 1,1-DCA was also detected in the deep well, PEN-3450W-MW6D.
- 1,1-DCE was detected in the groundwater samples collected from all monitoring wells during the 1993 sampling event. It was not detected in the 1992 groundwater samples. The only sample that contained a concentration above the State recommended guidance concentration was collected from PEN-3450W-MW6D.
- The highest concentrations of TCE, 4 ppb, were found in samples from monitoring wells PEN-3450W-MW2 and PEN-3450W-MW6D. These slightly exceed the State recommended guidance concentration of 3 ppb for TCE.
- PCE was detected in only the sample from PEN-3450W-MW6D at a concentration of 5 ppb. This exceeds the State recommended guidance concentration of 3 ppb for PCE.

4.2 CONCLUSIONS. Groundwater petroleum contamination appears to be minimal. 1,1-DCA appears to be persistent in the groundwater at the site; however, 1,1-DCA concentrations are well below State recommended guidance concentrations. Because 1,1-DCA was detected in the sample collected from the deep monitoring well (PEN-3450W-MW6D), the vertical extent of 1,1-DCA contamination has not been delineated. In addition, the vertical extent of other chlorinated solvents has not been delineated. Concentrations of 1,1-DCE, TCE, and PCE were slightly above State recommended guidance concentrations. The source for these groundwater contaminants is currently unknown. Because petroleum groundwater contamination is minimal, the source does not appear to be the USTs at Site 3450W. None of the groundwater contaminants appear to be petroleum-derived, and it does not appear likely that the USTs at Site 3450W are the source of contamination.

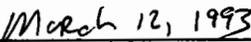
4.3 RECOMMENDATIONS. Based on the findings and conclusions discussed above, a NFAP is recommended for the petroleum USTs at Site 3450W. Additional investigation of the 1,1-DCA, TCE, PCE, and 1,1-DCE contamination should be performed in conjunction with the investigation at Site 30, which is being conducted under the guidelines of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

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 USTs located at Site 3450W at the Naval Aviation Depot, Naval Air Station, 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 3450W, Naval Aviation Depot, Naval Air Station, Pensacola, Florida: Prepared for Southern 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, 14 p.
- Florida Department of Environmental Regulation, May 1992, Guidelines for Assessment and Remediation of Petroleum Contaminated Soils, revised: Division of Waste Management, 39 p.
- Florida Department of Transportation, 1982, Florida official transportation map: 1 sheet.
- Naval Aviation Depot, Pensacola, 1992, Telephone Directory, 32 p.
- 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, PGI/III/Administrator
Technical Review Section *JJC*

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

DATE: September 30, 1992

SUBJECT: Review of Contamination Assessment Report for Site 3450
West, Naval Aviation Depot. Pensacola Naval Air
Station.

I have reviewed the Contamination Assessment Report (CAR) dated August, 1992 (received August 24, 1992), submitted for this site. In order to meet the requirements of Chapter 17-770, Florida Administrative Code (F.A.C.), the following comments need to be addressed:

- 1) Based on the persistence of 1,1-Dichloroethane throughout the site, monitoring wells 1 through 5 should be resampled and analyzed for EPA Method 601. If the presence of 1,1 Dichloroethane is confirmed, then the Navy and its consultant should investigate the possibility of a source of chlorinated solvents other than the hydraulic fluid line and the UST location.
- 2) If a different source cannot be established, then a vertical extent monitoring well should be installed approximately 15 feet south of MW-2 with a screened interval between 35 and 40 feet below land surface. This monitoring well should be sampled and analyzed for EPA method 601.

Please provide the results of the supplemental assessment to Eric S. Nuzie, Federal Facilities Coordinator 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. If you should have any questions concerning this review, please contact me at (904) 488-0190.

Eric S. Nuzie
September 30, 1992
Page Two

Please note, all supplemental contamination assessment related documents 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
Analytical Data



WADSWORTH/ALERT Laboratories
Division of Enseco Incorporated

5910 Breckenridge Parkway, Suite H
Tampa, FL 33610

813-621-0784
FAX 813-623-6021

ANALYTICAL REPORT

SUBCONTRACT NUMBER: SE1-08-134

TASK ORDER NUMBER: 28

NADEP PENSACOLA

Presented to:

ROGER DURHAM

ABB ENVIRONMENTAL SERVICES, INC.

ENSECO-WADSWORTH/ALERT LABORATORIES

5910 BRECKENRIDGE PARKWAY, SUITE H

TAMPA, FL 33610

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Joanne Anderson
Joanne Anderson
Project Manager

Randall C. Grubbs
Randall C. Grubbs
Laboratory Director - Florida

January 27, 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 Roger Durham. The samples were accepted into Wadsworth's Florida facility on 19 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

ORGANICS

Volatile Organics

** EPA Method 601

MISCELLANEOUS

Tot. Rec. Petroleum Hydrocarbons
Extraction

** SW846 Method 9073
** SW846 Method 9071

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

(D) Indicates draft version of this method was used
EPA Methods 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 # 3A1902-5
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: PEN-3450W-MW1

PROJ #3450W

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601 - GC

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	1
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Bromomethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	1
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	1
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	12		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = 1 ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY: % ACCEPTABLE LIMITS
 Bromochloromethane (HECD) 93 (78-122)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 3A1902-4
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: PEN-3450W-MW2

PROJ #3450W

VOLATILE ORGANICS
METHOD 601 - GC

CERTIFICATION #: E84059
HRS84297

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	1
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	2
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	4
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	16		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
ND* (None Detected, lower detectable limit = 1 ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY: % ACCEPTABLE LIMITS
Bromochloromethane (HECD) 101 (78-122)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 3A1902-3
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: PEN-3450W-MW3

PROJ #3450W

VOLATILE ORGANICS
METHOD 601 - GC

CERTIFICATION #: E84059
HRS84297

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	3
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Bromomethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	3
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	ND
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	76		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
ND* (None Detected, lower detectable limit = 1 ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY: % ACCEPTABLE LIMITS
Bromochloromethane (HECD) 100 (78-122)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 3A1902-2
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: PEN-3450W-MW4

PROJ #3450W

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601 - GC

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	3
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	3
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	1
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	49		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY: %
 Bromochloromethane (HECD) 107

ACCEPTABLE LIMITS
 (78-122)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 3A1902-1
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: PEN-3450W-MW5

PROJ #3450W

VOLATILE ORGANICS
METHOD 601 - GC

CERTIFICATION #: E84059
HRS84297

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	2
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	3	1,1,2,2-Tetrachloroethane	ND
Bromomethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	1
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	ND
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	12		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY: % ACCEPTABLE LIMITS
Bromochloromethane (HECD) 97 (78-122)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 3A1902-6
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: PEN-3450W-MW6D

PROJ #3450W

VOLATILE ORGANICS
METHOD 601 - GC

CERTIFICATION #: E84059
HRS84297

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	11
Bromomethane	ND	1,2-Dichloroethene (Total)	1
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	5
Dibromochloromethane	ND	1,1,1-Trichloroethane	ND
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	4
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	16		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
ND* (None Detected, lower detectable limit = 1 ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY: %
Bromochloromethane (HECD) 93

ACCEPTABLE LIMITS
(78-122)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 3A1902-7
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: PEN-3450W-DUP

PROJ #3450W

VOLATILE ORGANICS
METHOD 601 - GC

CERTIFICATION #: E84059
HRS84297

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	4
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	3
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	1
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	65		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = 1 ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY: % ACCEPTABLE LIMITS
 Bromochloromethane (HECD) 94 (78-122)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 3A1902-8
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: PEN-3450W-EB

PROJ #3450W

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601 - GC

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	ND
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	ND
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	ND
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

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



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 3A1902-10
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: TRIP BLANK

PROJ #3450W

VOLATILE ORGANICS
METHOD 601 - GC

CERTIFICATION #: E84059
HRS84297

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	ND
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Bromomethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	ND
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	ND
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
ND* (None Detected, lower detectable limit = 1 ug/L) as rec'd
-- (Not Analyzed)

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



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 # 3A1902-BK
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/22/93

SAMPLE ID: LABORATORY BLANK

PROJ #3450W

VOLATILE ORGANICS
METHOD 601 - GC

CERTIFICATION #: E84059
HRS84297

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	ND
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Bromomethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	ND
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	ND
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
ND* (None Detected, lower detectable limit = 1 ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY: % ACCEPTABLE LIMITS
Bromochloromethane (HECD) 88 (78-122)



ENSECO-WADSWORTH/ALERT
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 3A1902-BK
MATRIX: WATER

DATE RECEIVED: 1/19/93
DATE EXTRACTED: NA
DATE ANALYZED: 1/23/93

SAMPLE ID: LABORATORY BLANK

PROJ #3450W

VOLATILE ORGANICS
METHOD 601 - GC

CERTIFICATION #: E84059
HRS84297

Bromodichloromethane	ND	1,2-Dichloroethane	ND
Bromoform	ND	1,1-Dichloroethene	ND
Bromomethane	ND	1,2-Dichloroethene (Total)	ND
Carbon tetrachloride	ND	1,2-Dichloropropane	ND
Chlorobenzene	ND	cis-1,3-Dichloropropene	ND
Chloroethane	ND	trans-1,3-Dichloropropene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	1,1,1-Trichloroethane	ND
1,2-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,3-Dichlorobenzene	ND	Trichloroethene	ND
1,4-Dichlorobenzene	ND	Trichlorofluoromethane	ND
Dichlorodifluoromethane	ND	Vinyl chloride	ND
1,1-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY: % ACCEPTABLE LIMITS
Bromochloromethane (HECD) 93 (78-122)



ENSECO-WADSWORTH/ALERT
Laboratories

LAB ID : LCS
MATRIX : WATER
METHOD : 601/2
RUN ID : 1A/1B3311

DATE EXTRACTED: N/A
DATE ANALYZED : 01/22/93

DUPLICATE LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	LCSD %REC	RPD	QC LIMITS RPD %REC
Benzene	1A/1B3311	104	99	5	15 70-117
Toluene		99	93	6	16 70-117
Chlorobenzene		91	87	4	24 58-133
1,1-Dichloroethene		109	96	13	28 43-131
Trichloroethene		100	93	7	13 75-123
Dichlorobromomethane		105	95	10	22 61-133



ENSECO-WADSWORTH/ALERT
Laboratories

LAB ID : LCS
MATRIX : WATER
METHOD : 601/2
RUN ID : 1A/1B3344

DATE EXTRACTED: N/A
DATE ANALYZED : 01/23/93

DUPLICATE LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS	LCS D	RPD	QC LIMITS	
		%REC	%REC		RPD	%REC
Benzene	1A/1B3344	100	100	0	15	70-117
Toluene		98	97	1	16	70-117
Chlorobenzene		91	90	1	24	58-133
1,1-Dichloroethene		92	90	2	28	43-131
Trichloroethene		115	114	1	13	75-123
Dichlorobromomethane		92	96	4	22	61-133



ENSECO-WADSWORTH/ALERT
Laboratories

LAB ID : LCS
MATRIX : WATER
METHOD : 601/2
RUN ID : 1A/1B3367

DATE EXTRACTED: N/A
DATE ANALYZED : 01/25/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Benzene	1A/1B3367	101	15 70-117
Toluene		99	16 70-117
Chlorobenzene		97	24 58-133
1,1-Dichloroethene		102	28 43-131
Trichloroethene		114	13 75-123
Dichlorobromomethane		119	22 61-133



ENSECO-WADSWORTH/ALERT
Laboratories

LAB ID : 3A1902-5
MATRIX : WATER
METHOD : 601/2
RUN ID : 1A/1B3380/1

DATE RECEIVED : 01/19/93
DATE PREPARED : N/A
DATE ANALYZED : 01/25/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS	MSD	RPD	QC LIMITS	
		%REC	%REC		RPD	%REC
Benzene	1A/1B3380/1	104	103	1	15	70-117
Toluene		103	100	3	16	70-117
Chlorobenzene		99	98	1	24	58-133
1,1-Dichloroethene		115	88	27	28	43-131
Trichloroethene		110	98	12	13	75-123
Dichlorobromomethane		120	113	6	22	61-133

* = Diluted Out

**WADSWORTH/ALERT LABORATORIES
SAMPLE SHIPPER EVALUATION AND RECEIPT FORM**

Project 262W
3450W
3557S

Client: ABB Environmental Project Name/Number: NADEP Pensacola

Samples Received By: Zack R. [Signature] Date Received: 1/19/93
(Signature)

Sample Evaluation Form By: Zack R. [Signature] LAB No: 3A1902 - 1 to 16
(Signature)

Type of shipping container samples received in? WAL Cooler
Client Cooler WAL Shipper Box Other

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

	YES	NO
1. Were custody seals on shipping container(s) intact?	/	—
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 No., 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 time?	/	—
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? (NOTE TEMPERATURE BELOW)	/	—
11. Were samples accepted into the laboratory? (If no see comments)	/	—

Cooler # 48-1201 Temp 5 °C Cooler # 48-44 Temp 4 °C
Cooler # 45-B152 Temp 4 °C Cooler # — Temp 4 °C

Comments: Re Client request 3450W - SB7 belong with Project 3450W Not 3557S for TPH Analyzes, Not listed in C-o-c.



**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 _____

10093

Client: ABB		Project Name / Location: NADEP PEN			No. OF CONTAINERS	Parameter										Remarks
Sampler(s) JAY KOCH PAM WAGNER		Project #: 3450W				VOC - WATER	PAH -	METALS -	TRPH -	EDB -						
Item #	Date	Time	MATRIX	Sample Location												
1	1/15/93	1445	H2O	PEN-3450W-MW5	3	3										
2	1/15/93	1445		PEN-3450W-MW4	3	3										
3	1/15/93	1500		PEN-3450W-EB	3	3										
4	1/15/93	1520		PEN-3450W-MW2	3	3										
5	1/15/93	1550		PEN-3450W-MW2	3	3										
6	1/15/93	1600		PEN-3450W-MW1	3	3										
7	1/15/93			PEN-3450W-DUP	3	3										
8	1/15/93		V	TRIP BLANK	3	3										
9	1/17/93	1200	ALO	PEN-3450W-MW1	3	3										
10																
11																

Total Containers **27**

27

Number of Coolers in Shipment **14**

14

Bailers **0**

0

Report To:

ROGER DURHAM

Transfer Number

Item Number(s)

Relinquished By / Company

Accepted By / Company

Date

Time

Additional Comments:

- EDB samples do not have HCC preservative.

- LOI ANALYSIS ONLY.

- QUICK TURNAROUND FOR 3450W SAMPLES.

By **Monday (1/25/93)**

1

1-8

Jay Koch
Alert Laboratories

Jay Koch

1/19/93

10:15

2

3

4

5

6

Original Accompanies Shipment